Soil Survey Investigations Report No. 19

Soil Survey Laboratory Data and Descriptions for Some Soils of...

... ILLINOIS

SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
ILLINOIS AGRICULTURAL EXPERIMENT STATION

Soil survey investigation reports already published are listed below:

SSIR No. 1	Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples
	Soil Survey Laboratory Data and Descriptions for Some Soils of:
SSIR No. 2	North Dakota
SSIR No. 3	Iowa
SSIR No. 4	Kansas
SSIR No. 5	Nebraska
SSIR No. 6	Arkansas, Louisiana, and Missouri
SSIR No. 7	Montana
SSIR No. 8	Wyoming
SSIR No. 9	Minnesota
SSIR No. 10	Colorado
SSIR No. 11	Oklahoma
SSIR No. 12	Puerto Rico and the Virgin Islands
SSIR No. 13	Mississippi
SSIR No. 14	Kentucky
SSIR No. 15	Tennessee
SSIR No. 16	North Carolina, South Carolina, and Georgia
SSIR No. 17	Wisconsin
SSIR No. 18	Indiana

Soil Survey Investigations Report No. 19

Soil Survey Laboratory Data and Descriptions for Some Soils of...

... ILLINOIS

April 1968

SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
ILLINOIS AGRICULTURAL EXPERIMENT STATION

1. SAMPLE COLLECTION AND PREPARATION
   A. Field sampling
      1. Site selection
      2. Soil sampling
         a. Stony soils
   B. Laboratory preparation
      1. Standard (airdry)
         a. Square-hole 2-mm sieve
         b. Round-hole 2-mm sieve
      2. Field moist
      3. Carbonate-containing material
      4. Carbonate-indurated material
2. CONVENTIONS
   A. Size-fraction base for reporting
      1. <2-mm
      2. <size specified
   B. Data-sheet symbols
      tr: trace, not measurable by quantitative procedure used or less than reportable amount
      tr(s): trace, detectable only by qualitative procedure more sensitive than quantitative procedure used
      : analysis run but none detected
      -(s): none detected by sensitive qualitative test
      blank: analysis not run
      nd: analysis not run
      <: less than reported amount or none present
3. PARTICLE-SIZE ANALYSES
   A. <2-mm fraction (pipet method)
      1. Airdry samples
         a. Carbonate and noncarbonate clay
      2. Moist samples
         a. Carbonate and noncarbonate clay
   B. >2-mm fraction
      1. Weight estimates
      2. Volume estimates
4. FABRIC-RELATED ANALYSES
   A. Bulk density
      1. Saran-coated clods
         a. Field state
         b. Airdry
         c. 30-cm absorption
         d. 1/3-bar desorption I
         e. 1/3-bar desorption II
         f. 1/3-bar desorption III
         g. 1/10-bar desorption
         h. Ovendry
      2. Paraffin-coated clods
         a. Ovendry
      3. Cores
         a. Field moist
      4. Nonpolar-liquid-saturated clods
   B. Water retention
      1. Pressure-plate extraction (1/3 or 1/10 bar)
         a. Sieved samples
         b. Soil pieces
         c. Natural clods
         d. Cores
      2. Pressure-membrane extraction (15 bars)
      3. Sand table absorption
      4. Field state
      5. Airdry
   C. Water-retention difference
      1. 1/3 bar to 15 bars
      2. 1/10 bar to 15 bars
   D. Coefficient of linear extensibility
      1. Dry to moist
   E. Micromorphology
      1. Thin sections
         a. Preparation
         b. Interpretation
         c. Moved-clay percentage
5. ION-EXCHANGE PROPERTIES
   A. Cation-exchange capacity
      1. NH_4OAc, pH 7.0
         a. Direct distillation
         b. Displacement, distillation
5A. Cation-exchange capacity (cont.)
      2. NaOAc, pH 8.2
         a. Centrifuge method
      3. Sum of cations
         a. Acidity by $BaCl_2$-TEA, pH 8.2; bases by NH_4OAc, pH 7.0
      4. KOAc, pH 7.0
      5. $BaCl_2$, pH 8.2
         a. Barium by flame photometry
   B. Extractable bases
      1. NH_4OAc extraction
         a. Uncorrected
         b. Corrected (exchangeable)
      2. KCl-TEA extraction, pH 8.2
   C. Base saturation
      1. NH_4OAc, pH 7.0
      2. NaOAc, pH 8.2
      3. Sum of cations
   D. Sodium saturation (exchangeable Na pct.)
      1. NaOAc, pH 8.2
      2. NH_4OAc, pH 7.0
   E. Sodium adsorption ratio
6. CHEMICAL ANALYSES
   A. Organic carbon
      1. Acid-dichromate digestion
         a. $FeSO_4$ titration
         b. CO_2 evolution, gravimetric
      2. Dry combustion
         a. CO_2 evolution I
         b. CO_2 evolution II
      3. Peroxide digestion
         a. Weight loss
   B. Nitrogen
      1. Kjeldahl digestion
         a. Ammonia distillation
      2. Semimicro Kjeldahl
         a. Ammonia distillation
   C. Iron
      1. Dithionite extraction
         a. Dichromate titration
         b. EDTA titration
      2. Dithionite-citrate extraction
         a. Orthophenanthroline colorimetry
      3. Dithionite-citrate-bicarbonate extraction
         a. Potassium-thiocyanate colorimetry
      4. Pyrophosphate-dithionite extraction
   D. Manganese
      1. Dithionite extraction
         a. Permanganate colorimetry
   E. Calcium carbonate
      1. HCl treatment
         a. Gas volumetric
         b. Manometric
         c. Weight loss
         d. Weight gain
         e. Titrimetric
      2. Sensitive qualitative method
         a. Visual, gas bubbles
   F. Gysum
      1. Water extract
         a. Precipitation in acetone
   G. Aluminum
      1. KCl extraction I, 30 min
         a. Aluminon I
         b. Aluminon II
         c. Aluminon III
         d. Fluoride titration
      2. KCl extraction II, overnight
         a. Aluminon I
      3. NH_4OAc extraction
         a. Aluminon III
      4. NaOAc extraction
         a. Aluminon III
   H. Extractable acidity
      1. $BaCl_2$-triethanolamine I
         a. Back-titration with HCl
      2. $BaCl_2$-triethanolamine II
         a. Back-titration with HCl
      3. KCl-triethanolamine
         a. Back-titration with NaOH
   I. Carbonate
      1. Saturation extract
         a. Acid titration
6. CHEMICAL ANALYSES (cont.)
   J. Bicarbonate
      1. Saturation extract
         a. Acid titration
   K. Chloride
      1. Saturation extract
         a. Mohr titration
         b. Potentiometric titration
   L. Sulfate
      1. Saturation extract
         a. Gravimetric, $BaSO_4$
      2. NH_4OAc extraction
         a. Gravimetric, $BaSO_4$
   M. Nitrate
      1. Saturation extract
         a. PDS acid colorimetry
   N. Calcium
      1. Saturation extract
         a. EDTA titration
      2. NH_4OAc extraction
         a. EDTA-alcohol separation
         b. Oxalate-permanganate I
         c. Oxalate-permanganate II Fe, Al, and Mn removed
         d. Oxalate-cerate
      3. NH_4Cl-EtOH extraction
         a. EDTA titration
      4. KCl-TEA extraction
         a. Oxalate-permanganate
   O. Magnesium
      1. Saturation extract
         a. EDTA titration
      2. NH_4OAc extraction
         a. EDTA-alcohol separation
         b. Phosphate titration
         c. Gravimetric, $Mg_2P_2O_7$
      3. NH_4Cl-EtOH extraction
         a. EDTA titration
   P. Sodium
      1. Saturation extract
         a. Flame photometry
      2. NH_4OAc extraction
         a. Flame photometry
   Q. Potassium
      1. Saturation extract
         a. Flame photometry
      2. NH_4OAc extraction
         a. Flame photometry
   R. Sulfur
      1. $NaHCO_3$ extraction, pH 8.5
         a. Methylene blue
   S. Total phosphorus
      1. Perchloric-acid digestion
         a. Molybdovanadophosphoric-acid colorimetry
7. MINERALOGY
   A. Instrumental analysis
      1. Preparation
         a. Carbonate removal
         b. Organic-matter removal
         c. Iron removal
         d. Particle-size fractionation
      2. X-ray diffraction
      3. Differential thermal analysis
   B. Optical analysis
      1. Grain studies
   C. Total analysis
      1. Chemical
      2. X-ray emission spectrography
   D. Surface area
      1. Glycerol retention
8. MISCELLANEOUS
   A. Saturated paste, mixed
      1. Saturation extract
         a. Conductivity
      2. Conductivity, saturated paste
   B. Saturated paste, capillary rise
      1. Saturation extract
         a. Conductivity
   C. pH
      1. Soil suspensions
         a. Water dilution
         b. Saturated paste
         c. KCl
   D. Ratios
      1. To total clay
      2. To noncarbonate clay
      3. Ca to Mg (extractable)

PREFACE

This publication is one in a new U.S. Department of Agriculture series established to preserve and make available technical information resulting from soil survey investigations. These investigations have been going on for about two decades. Data from them have been distributed in unpublished form to those immediately concerned. Some of the data and descriptions have appeared in technical journals, in regional bulletins, in USDA technical bulletins, and in the text of published soil surveys. But most were not available to all who might use them.

We intend to publish in this series all data from the soil survey laboratories that form reasonably complete characterizations of soils. Already-assembled data and descriptions will be published just as rapidly as they can be prepared for printing. Fragmentary data collected as reference points for specific soil surveys will not be included.

While these data were being assembled, there were many changes in laboratory methods. Some were improved and some new ones were devised. Consequently, laboratory data for different soils cannot always be directly compared without allowance for the method.

The method used is indicated by symbol in the column headings of the data table. These symbols are identified in the code sheet on the opposite page. Each method is described in the first number of this series, "Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples," SSIR No. 1.

Ways of describing soils have also changed. Soil descriptions have become explicit on more and more features. The systems for designating horizons and for classifying soils have been changed.

The soil descriptions published here were prepared as working documents to meet a specific need of a soil survey at the time the soil samples were collected. The soil scientists who wrote them had no idea they would be published. Editing has been limited for the most part to that necessary for conformance to the "Soil Survey Manual." Field textural estimates have been retained, even though some are at variance with the laboratory data, because the field estimates themselves are important data.

There were several reasons for sampling these soils. Some were sampled to study soil genesis, some to facilitate classification, and some to obtain data to permit more useful interpretations. Those sampled for genesis or classification studies do not always fit neatly into our present concepts of soil series. Partly because of these studies, our concepts of some soil series have been modified. As a consequence, the soil series name assigned a soil at the time of sampling is not always the name that would be assigned today. Soil series names in this publication follow 1965 series definitions.

Soil Survey
Soil Conservation Service

County	Soil Series	Soil Survey No.	Page
Adams	Clarksdale	S55ILL-1-5	61
	Clinton	S51ILL-1-7	75
	Rozetta	S55ILL-1-3	177
Alexander	Alford	S62ILL-2-4	3
	Alvin	S54ILL-2-4	11
	Hosmer	S62ILL-2-1	139
	Muren	S62ILL-2-2	161
	Muren	S62ILL-2-3	163
Boone	Ellison	S60ILL-4-1	113
Carroll	Colo	S63ILL-8-1	81
	Fayette	12 [a]	117
	Fayette	14 [a]	119
	Seaton	13 [a]	191
Champaign	Camden	S53ILL-10-4	43
	Drummer	S57ILL-10-1	93
	Drummer	S57ILL-10-2	95
	Drummer	S57ILL-10-3	97
Christian	Clarksdale	S60ILL-11-1	63
	Clarksdale	S60ILL-11-2	65
	Clarksdale	S60ILL-11-3	67
Clark	Ambraw	S63ILL-12-1	27
DeWitt	Camden	S53ILL-20-3	45
Fulton	Camden	S53ILL-29-1	47
Gallatin	Alford	S56ILL-30-1	5
	Allison	S63ILL-30-1	9
	Alvin	S54ILL-30-9	13
	Hosmer	S56ILL-30-2	141
Iroquois	Alvin	S54ILL-38-8	15
	Drummer	S57ILL-38-1	99
	Drummer	S57ILL-38-2	101
Jackson	Beaucoup	S63ILL-39-2	35
	Newart	S63ILL-39-1	171
Johnson	Hosmer	S62ILL-44-2	143
	Sciotoville	S53ILL-44-6	193
	Wartrace	S62ILL-44-1	205
Kankakee	*Reddick	S57ILL-46-1	173
LaSalle	Drummer	S57ILL-50-1	103
	Drummer	S57ILL-50-2	105
	Fayette	S61ILL-50-1	121
	Rozetta	S61ILL-50-2	179
	Stronghurst	S61ILL-50-5	195
	Traer	S61ILL-50-3	201
	Traer	S61ILL-50-4	203
Lawrence	Alford	S50ILL-51-1	7
	Alvin	S54ILL-51-5	17
	Alvin	S54ILL-51-6	19
	Camden	S53ILL-51-7	49
	Camden	S53ILL-51-8	51
	Darwin	S50ILL-51-7	89
	Darwin	S63ILL-51-1	91
	Hagener	S50ILL-51-5	133
	Hosmer	S50ILL-51-3	145
Lawrence	Weir	S50ILL-51-4	207
	Whitson	S50ILL-51-2	211
Lee	Lamont	S54ILL-52-1	159
Livingston	Drummer	S57ILL-53-1	107
	*Reddick	S57ILL-53-2	175
Macoupin	Clarksdale	S60Ill-59-2	69
	Clinton	21 [a]	77
	Herrick	S60Ill-59-1	135
	Hosmer	S59Ill-59-1	147
McHenry	Camden	S53Ill-56-9	55
	Camden	S53Ill-56-10	57
	Ellison	S60Ill-56-1	115
Marshall	Sable	S57ILL-62-1	183
Mason	Alvin	S54ILL-63-3	21
Massac	Wheeling	S53ILL-64-5	209
Menard	Clary	S48ILL-65-4	73
	Rushville	S48ILL-65-1	181
	Sable	S48ILL-65-3	185
	Tama	S48ILL-65-2	199
Mercer	Camden	S53ILL-66-2	53
Montgomery	Ava	S59ILL-68-1	31
	Cowden	S60ILL-68-1	83
	Cowden	S60ILL-68-3	85
	Cowden	S60ILL-68-4	87
	Herrick	S60ILL-68-2	137
	Hosmer	S59ILL-68-2	149
Ogle	Fayette	11 [a]	123
Pike	Bolivia	S55ILL-75-4	39
	Clarksdale	S55ILL-75-8	71
	Fayette	S55ILL-75-1	125
	Fayette	S55ILL-75-10	127
	Muscatine	S55ILL-75-2	165
	Muscatine	S55ILL-75-6	167
	Muscatine	S55ILL-75-9	169
Pope	Grantsburg	S49ILL-76-1	131
Putnam	Alvin	S54ILL-78-2	23
Pulaski	Hosmer	S49ILL-77-1	151
Union	Hosmer	S49ILL-91-1	153
Warren	Clinton	15 [a]	79
	Sable	S57ILL-94-1	187
Wayne	Bonnie	S63ILL-96-1	41
Will	Alvin	S54ILL-99-7	25
	Ashkum	S57ILL-99-2	29
	Clarence	S48ILL-99-5	59
	Drummer	S57ILL-99-1	109
	Elliott	S48ILL-99-1	111
	Frankfort	S51ILL-99-1	129
	Saybrook	S48ILL-99-4	189
	Swygert	S48ILL-99-3	197
Williamson	Ava	S51ILL-100-3	33
	Bluford	S51ILL-100-4	37
	Hosmer	S51ILL-100-1	155
	Hosmer	S51ILL-100-2	157

* Soil series names preceded by an asterisk are names of tentative series.

[a] Determinations by University of Illinois.

ILLINOIS

Soil Series	County	Soil Survey No.	Page
Alford	Alexander	S62Ill-2-4	3
	Gallatin	S56Ill-30-1	5
	Lawrence	S50Ill-51-1	7
Allison	Gallatin	S63Ill-30-1	9
Alvin	Alexander	S54Ill-2-4	11
	Gallatin	S54Ill-30-9	13
	Iroquois	S54Ill-38-8	15
	Lawrence	S54Ill-51-5	17
	Lawrence	S54Ill-51-6	19
	Mason	S54Ill-63-3	21
	Putnam	S54Ill-78-2	23
	Will	S54Ill-99-7	25
Ambraw	Clark	S63Ill-12-1	27
Ashkum	Will	S57Ill-99-2	29
Ava	Montgomery	S59Ill-68-1	31
	Williamson	S51Ill-100-3	33
Beaucoup	Jackson	S63Ill-39-2	35
Bluford	Williamson	S51Ill-100-4	37
Bolivia	Pike	S55Ill-75-4	39
Bonnie	Wayne	S63Ill-96-1	41
Camden	Champaign	S53Ill-10-4	43
	DeWitt	S53Ill-20-3	45
	Fulton	S53Ill-29-1	47
	Lawrence	S53Ill-51-7	49
	Lawrence	S53Ill-51-8	51
	Mercer	S53Ill-66-2	53
	McHenry	S53Ill-56-9	55
	McHenry	S53Ill-56-10	57
Clarence	Will	S48Ill-99-5	59
Clarksdale	Adams	S55Ill-1-5	61
	Christian	S60Ill-11-1	63
	Christian	S60Ill-11-2	65
	Christian	S60Ill-11-3	67
	Macoupin	S60Ill-59-2	69
	Pike	S55Ill-75-8	71
Clary	Menard	S48Ill-65-4	73
Clinton	Adams	S55Ill-1-7	75
	Macoupin	21[a]	77
	Warren	15[a]	79
Colo	Carroll	S63Ill-8-1	81
Cowden	Montgomery	S60Ill-68-1	83
	Montgomery	S60Ill-68-3	85
	Montgomery	S60Ill-68-4	87
Darwin	Lawrence	S50Ill-51-7	89
	Lawrence	S63Ill-51-1	91
Drummer	Champaign	S57Ill-10-1	93
	Champaign	S57Ill-10-2	95
	Champaign	S57Ill-10-3	97
	Iroquois	S57Ill-38-1	99
	Iroquois	S57Ill-38-2	101
	LaSalle	S57Ill-50-1	103
	LaSalle	S57Ill-50-2	105
Drummer	Livingston	S57Ill-53-1	107
	Will	S57Ill-99-1	109
Elliott	Will	S48Ill-99-1	111
Ellison	Boone	S60Ill-4-1	113
	McHenry	S60Ill-56-1	115
Fayette	Carroll	12[a]	117
	Carroll	14[a]	119
	LaSalle	S61Ill-50-1	121
	Ogle	11[a]	123
	Pike	S55Ill-75-1	125
	Pike	S55Ill-75-10	127
Frankfort	Will	S51Ill-99-1	129
Grantsburg	Pope	S49Ill-76-1	131
Hagener	Lawrence	S50Ill-51-5	133
Herrick	Macoupin	S60Ill-59-1	135
	Montgomery	S60Ill-68-2	137
Hosmer	Alexander	S62Ill-2-1	139
	Gallatin	S56Ill-30-2	141
	Johnson	S62Ill-44-2	143
	Lawrence	S50Ill-51-3	145
	Macoupin	S59Ill-59-1	147
	Montgomery	S59Ill-68-2	149
	Pulaski	S49Ill-77-1	151
	Union	S49Ill-91-1	153
	Williamson	S51Ill-100-1	155
	Williamson	S51Ill-100-2	157
Lamont	Lee	S54Ill-52-1	159
Muren	Alexander	S62Ill-2-2	161
	Alexander	S62Ill-2-3	163
Muscatine	Pike	S55Ill-75-2	165
	Pike	S55Ill-75-6	167
	Pike	S55Ill-75-9	169
Newart	Jackson	S63Ill-39-1	171
*Reddick	Kankakee	S57Ill-46-1	173
	Livingston	S57Ill-53-2	175
Rozetta	Adams	S55Ill-1-3	177
	LaSalle	S61Ill-50-2	179
Rushville	Menard	S48Ill-65-1	181
Sable	Marshall	S57Ill-62-1	183
	Menard	S48Ill-65-3	185
	Warren	S57Ill-94-1	187
Saybrook	Will	S48Ill-99-4	189
Seaton	Carroll	13[a]	191
Sciotoville	Johnson	S53Ill-44-6	193
Stronghurst	LaSalle	S61Ill-50-5	195
Swygert	Will	S48Ill-99-3	197
Tama	Menard	S48Ill-65-2	199
Traer	LaSalle	S61Ill-50-3	201
	LaSalle	S61Ill-50-4	203
Wartrace	Johnson	S62Ill-44-1	205
Weir	Lawrence	S50Ill-51-4	207
Wheeling	Massac	S53Ill-64-5	209
Whitson	Lawrence	S50Ill-51-2	211

* Soil series names preceded by an asterisk are names of tentative series.

[a]Determinations by University of Illinois.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alford silt loam SOIL Nos. S62Ill-2-4 LOCATION Alexander County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 16926-16934 March 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	4E1c Moved Clay		2A2 Coarse fragments: > 2	2 – 19	19 – 76
		Pct. of < 2 mm												Pct.		Pct.	Pct. of < 76mm	
0-5	Ap	2.4	84.7	12.9	0.1a	0.1a	0.1b	0.2b	1.9c	49.2	35.5	51.2	0.5			Tr.		
5-10	B1	2.2	80.1	17.7	0.1b	0.1b	0.2b	0.3b	1.5c	43.6	36.5	45.3	0.7	0.4		Tr.		
10-18	B21	2.1	72.1	25.8	0.1b	0.2b	0.2b	0.2b	1.4b	38.4	33.7	39.9	0.7	1.4		Tr.		
18-30	B22	2.1	70.0	27.9	-	0.1b	0.1b	0.3b	1.6b	36.5	33.5	38.3	0.5	2.2		-		
30-43	B23	1.9	72.9	25.2	-	0.1b	0.1b	0.3b	1.4b	37.6	35.3	39.2	0.5	2.4		-		
43-55	B31	1.9	75.1	23.0	-	0.1b	0.1b	0.4b	1.3b	40.4	34.7	42.1	0.6	2.8		-		
55-68	B32	1.9	76.6	21.5	-	0.1b	0.1b	0.2b	1.5b	42.8	33.8	44.4	0.4	2.8		-		
68-82	B33	2.2	76.4	21.4	-	0.1b	0.1b	0.2b	1.8b	44.4	32.0	46.3	0.4	2.0		-		
82-92+	C	1.9	77.7	20.4	-	0.1b	0.1b	0.2b	1.5c	44.1	33.6	45.7	0.4	3.1		-		

Depth (In.)	6A1a Organic carbon (d)	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C2a Ext. Iron as Fe	Bulk density: 4A1a Field-State	4A1c 30-Cm.	4A1b Air-Dry	4D1 COLE	Water Content: 4B4 Field-State	4B3 30-Cm	4B1b 1/3-Bar	4B2 15-Bar	4C1 1/3-minus 15-Bar	pH		8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	Pct.	in./in.			
0-5	1.00	0.106	9			0.8	1.46	1.45	1.48	0.007	7.8	11.2	21.5	5.6	0.23			6.5
5-10	0.41	0.054	8			1.0	1.47	1.42	1.47	0.014	9.6	23.7	21.1	7.3	0.20			6.0
10-18	0.25	0.043	6			1.4	1.51	1.45	1.56	0.024	15.7	24.7	22.1	10.8	0.16			6.0
18-30	0.18					1.6	1.52	1.48	1.62	0.032	22.8	26.9	25.0	11.8	0.20			5.4
30-43	0.14					1.6	1.50	1.47	1.58	0.024	25.0	27.8	25.8	11.3	0.21			4.8
43-55	0.10					1.4	1.50	1.46	1.56	0.020	25.9	28.6	25.2	10.2	0.22			4.7
55-68	0.06					1.4	1.48	1.43	1.52	0.020	29.0	28.7	25.3	9.5	0.23			4.7
68-82	0.06					1.5	1.46	1.41	1.52	0.024	27.9	30.2	25.3	10.2	0.21			4.8
82-92+	0.05					1.4	1.48	1.43	1.55	0.028	26.9	29.4	26.1	9.8	0.23			4.7

Depth (In.)	Extractable bases 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap: 5A3a Sum Cations	5A1a NH_4OAc	6G1b KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g										Pct.	Pct.
0-5	7.4	0.8	Tr.	0.2	8.4	1.6	10.0	8.1			84	104
5-10	6.3	1.2	Tr.	0.2	7.7	3.5	11.2	9.1		5.2	69	85
10-18	8.5	3.5	0.1	0.3	12.4	4.5	11.9	13.8		2.4	73	90
18-30	8.2	4.9	0.1	0.4	13.6	6.0	19.6	15.4	0.1	1.7	69	88
30-43	6.0	4.2	0.1	0.3	10.6	8.6	19.2	14.8	1.2	1.4	55	72
43-55	5.1	3.6	0.1	0.3	9.1	8.6	17.7	13.9	1.8	1.4	51	65
55-68	5.0	3.5	0.1	0.3	8.9	8.3	17.2	13.7	1.6	1.4	52	65
68-82	5.7	3.9	0.2	0.3	10.1	9.1	19.2	14.6	1.4	1.5	53	69
82-92+	6.0	3.6	0.2	0.3	10.1	8.1	18.2	14.1	1.1	1.7	55	72

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-5	0.63	0.062	0.43
5-10	0.51	0.056	0.41
10-18	0.53	0.054	0.42
18-30	0.55	0.057	0.42
30-43	0.59	0.063	0.45
43-55	0.60	0.061	0.44
55-68	0.64	0.065	0.44
68-82	0.68	0.070	0.48
82-92+	0.69	0.069	0.48

a. > 50% organic matter fragments.
b. > 50% Fe-Mn nodules.
c. 25-50% Fe-Mn nodules.
d. 5.4 Kg/M² to 60 inches. (Method 6A)

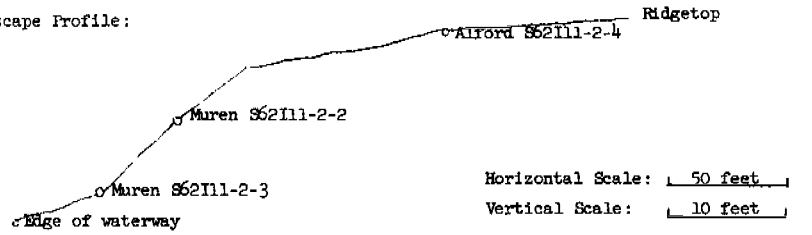
Soil Type: Alford silt loam
Soil Nos.: S62Ill-2-4
Location: Alexander County, Illinois, T14S, R2W, Sec. 29, NE 160, NW 40, SE 10, 137 steps east of large mulberry tree on ridge top, 66 steps south of gully in draw.
Parent Material: Deep loess.
Physiography: Upland ridge top.
Drainage Class: Well.
Slope: 3 percent.
Vegetative Cover: Grass (pasture).
Sampled by: R. B. Grossman and G. S. Holmgren, May 24, 1962.
Described by: G. O. Walker, J. B. Fehrenbacher, C. C. Miles and W. D. Parks.

Horizon and Lincoln Lab. No.	
Ap 16926	0 to 5 inches. About 50 percent dark grayish brown (10YR 4/2) and about 50 percent brown (10YR 4/3) silt loam; moderate thin platy structure; friable; many roots; pH 7.0; abrupt smooth boundary.
B1 16927	5 to 10 inches. Dark brown to brown (7.5YR 4/4) silt loam; weak to moderate medium subangular blocky structure; friable to firm; peds coated with thin pale brown (10YR 6/3) silt; many roots and worm channels; pH 6.5; clear smooth boundary.
B21 16928	10 to 18 inches. Dark brown to brown (7.5YR 4/4) silty clay loam; strong medium subangular blocky structure; firm; peds coated with thin continuous brown (7.5YR 4/4) clay films, and when dry thin light gray (10YR 7/1) silt which fades when moist; many roots; pH 6.5; gradual smooth boundary.
B22 16929	18 to 30 inches. Dark brown to brown (7.5YR 4/4) silty clay loam; strong medium subangular blocky structure; firm; peds coated with thick continuous brown (7.5YR 4/4) clay films and when dry a thin light gray (10YR 7/1) silt coating which fades when moist; many roots and few very dark gray (10YR 3/1) Fe and Mn concretions; pH 6.0; gradual smooth boundary.
B23 16930	30 to 43 inches. Dark brown to brown (7.5YR 4/4) silty clay loam; strong medium subangular blocky structure; firm; peds coated with medium continuous brown (7.5YR 4/4) clay films and when dry a thin light gray (10YR 7/1) silt coating which fades when moist; few Fe and Mn concretions; pH 5.5; clear smooth boundary.
B31 16931	43 to 55 inches. Dark brown to brown (7.5YR 4/4) light silty clay loam; moderate medium subangular blocky structure; firm; peds coated with thin continuous brown (7.5YR 4/4) clay films, and when dry thin continuous pale brown (10YR 6/3) silt which fades when moist; pH 5.0; clear smooth boundary.
B32 16932	55 to 68 inches. Very pale brown (10YR 7/4) heavy silt loam; weak medium and coarse subangular and angular blocky structure; friable; peds coated with thin brown (7.5YR 4/4) clay films, and when dry thin pale brown (10YR 6/3) silt coating which fades when moist; pH 5.0; gradual smooth boundary.
B33 16933	68 to 82 inches. Brown (10YR 4/3) to dark brown (10YR 3/3) silt loam with few coarse faint pale brown (10YR 6/3) mottles; weak coarse subangular and angular blocky structure; friable; peds coated with thin brown (7.5YR 4/4) clay films; pH 5.0; gradual smooth boundary.
C 16934	82 to 92 inches plus. Brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silt loam with few coarse faint pale brown (10YR 6/3) mottles; coarse blocky structure to massive; friable; pH 5.0.
	138 inches. Silt loam; pH 6.0.

Remarks: Colors are for moist conditions unless otherwise stated. This is a very thick solum with clay flows throughout the B horizon and into the C horizon. The B horizon when dry has a distinctive light gray silt coating which fades away when the peds are moistened. This profile is highest in elevation of three profiles sampled in a transect. Downslope are Muren (S62Ill-2-2) on sideslope and Muren (S62Ill-2-3) in the footslope position.

Mineralogy (Method 7A).
B21 horizon: Clays contain small to moderate amounts of montmorillonite, mica and kaolinite, a small amount of vermiculite and a trace of an interstratified chlorite mineral. The montmorillonite is poorly ordered; the other minerals are rather well ordered.
B32 horizon: The clays contain a small to moderate amount of montmorillonite and small amounts of chlorite, vermiculite, mica, kaolinite and an interstratified chlorite mineral. The minerals are rather well crystallized.

Landscape Profile:



SOIL SURVEY LABORATORY — Lincoln, Nebr. — 1/23/58

SOIL TYPE Alford silt loam — **LOCATION** Gallatin County, Illinois

SOIL NOS. S56Ill-30-1 — **LAB. NOS.** 5506-5514

DEPTH INCHES	HORIZON	1B1a PARTICLE-SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-4	Ap	0.1a	0.1a	0.1a	0.2a	0.7a	86.6	12.2	41.6	45.8	-	sil
4-11	A2	-	0.1a	0.1a	0.2a	0.4a	85.4	13.8	39.3	46.6	-	sil
11-14	B1	-	-	-	-	0.4a	81.2	18.4	34.3	47.3	-	sil
14-19	B21	-	-	-	-	0.4a	74.5	25.1	32.1	42.8	-	sil
19-32	B22	-	-	-	0.1a	0.5a	69.2	30.2	31.7	38.1	-	sicl
32-47	B31	-	-	-	0.1a	0.7a	73.0	26.2	35.2	38.6	-	sil
47-62	B32	-	-	-	0.1a	0.4a	77.2	22.3	42.1	35.6	-	sil
62-75	C1	-	-	-	-	0.3a	86.0	13.7	47.6	38.7	-	sil
103-119	C2	0.3	0.6	0.4a	3.8a	3.1a	77.2	14.6	44.3	39.1	-	sil

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	ELECTRICAL CONDUCTIVITY EC x 10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	b Bulk Density g/cc	WATER CONTENT b Field State %	WATER CONTENT 4B2 15-Bar %
7.2			1.74	.163	11					1.12	19.2	6.3
5.8			0.74	.073	10					1.23	15.7	5.5
5.2			0.31	.036	9							6.9
5.2			0.35	.041	8					1.40	10.3	9.4
5.1			0.22	.033						1.43	18.2	12.4
5.0			0.10							1.45	22.1	11.3
5.6			0.09							1.47	23.5	10.6
6.8			0.08							1.49	24.5	6.8
7.7			0.08					-				5.8

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	8D3 Ca/Mg
←	milliequivalents per 100g. soil				→			me/100g		
10.8	8.4	2.8	1.6	-	0.7	100	88	11.9	13.5	3.0
7.1	3.4	1.2	3.6	-	0.4	70	58	5.0	8.6	2.8
7.9	3.3	1.6	4.5	0.1	0.3	67	54	5.3	9.8	2.1
11.4	4.7	2.8	5.3	-	0.4	69	60	7.9	13.2	1.7
16.1	5.5	5.4	7.9	-	0.5	71	59	11.5	19.4	1.0
14.6	4.2	5.1	7.4	0.1	0.4	67	57	9.8	17.2	0.8
15.0	6.2	6.0	3.7	0.2	0.3	85	77	12.7	16.4	1.0
10.0	5.2	3.9	2.4	0.1	0.2	94	80	9.4	11.8	1.3
8.8	5.4	3.9	1.6	-	0.1	100	85	9.4	11.0	1.4

a. Few smooth dark brown concr. (Mn-Fe?)

b. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci.Soc. Am. Proc. 14:361-366 1950. (at "Field-state" moisture)

X-ray analyses on the B horizon showed the clay to be dominently montmorillonite with lesser amounts of illite and some kaolinite.

Soil type: Alford silt loam
Soil Nos. : S56Ill-30-1
Location: Gallatin County, Illinois; 497 feet north of 1/2-section line, east side of road, NE160, SE40, SW10 of Section 22, T7S, R9E.
Vegetation: Bluegrass.
Drainage: Well drained.
Relief: 2 to 3 percent.
Erosion: Slight.
Sampled by: R. T. Odell, J. K. Ableiter, A. Beavers, G. O. Walker, and O. C. Rogers, October 31, 1956.

Horizon and Lincoln Lab. Number	
Ap 5506	0 to 4 inches. Dark grayish brown (10YR 4/2 moist) silt loam; weak fine granular structure; friable when moist; abrupt smooth boundary.
A2 5507	4 to 11 inches. Brown (10YR 4/3 to 5/3 moist) silt loam; very weak thin platy structure; friable when moist; numerous fine roots and small worm casts, the latter filled with Ap material; abrupt wavy boundary.
B1 5508	11 to 14 inches. Yellowish brown (10YR 5/6 moist) to strong brown (7.5YR 5/6 moist) heavy silt loam; weak to moderate fine and medium subangular blocky structure; slightly firm when moist; abrupt wavy boundary.
B21 5509	14 to 19 inches. Dark brown (7.5YR 4/4 moist) heavy silt loam to light silty clay loam; moderate medium subangular blocky structure; firm when moist; a few thin clay skins or coatings of dark brown (7.5YR 4/2 moist); clear smooth boundary.
B22 5510	19 to 32 inches. Dark brown (7.5YR 4/4 moist) light silty clay loam; numerous distinct dark brown (7.5YR 4/2 moist) clay coatings or skins on peds; a few fine coatings and streaks of light yellowish brown (10YR 6/4 moist) and very dark brown (10YR 2/2 moist); moderate to strong medium to coarse subangular blocky structure; firm when moist; clear smooth boundary.
B31 5511	32 to 47 inches. Brown (7.5YR 5/4 moist) heavy silt loam; a few prominent reddish brown (5YR 4/4 moist) clay skins; a few very dark brown (10YR 2/2 moist) streaks and coatings; light yellowish brown (10YR 6/4 moist) coatings on numerous peds and as root channel and crack filling; weak coarse subangular blocky structure; firm when moist; gradual wavy boundary.
B32 5512	47 to 62 inches. Yellowish brown (10YR 5/6 moist) to brown (7.5YR 5/4 moist) silt loam; very few dark brown (7.5YR 4/4 moist) and reddish brown (5YR 4/4 moist) clay skins; thin coatings of light brownish gray to pale brown (10YR 6/2 to 6/3 moist) on peds and as crack filling; massive to very weak very coarse subangular blocky structure; friable when moist; gradual wavy boundary.
C1 5513	62 to 75 inches. Brown (7.5YR 4/4 moist) silt loam; very thin coating of light yellowish brown (10YR 6/4 moist) on a few peds; massive; friable when moist; diffuse wavy boundary.
	75 to 103 inches. Horizon was not sampled.
C2 5514	103 to 119 inches. Brown (10YR 5/3 moist) silt loam; massive; friable when moist; underlain by weathered Illinoian silty clay loam till to a depth of 146 inches.

Remarks: This profile is somewhat stronger developed than the modal for Alford. The grayish streaks are more numerous; the crack fillings are wider in the B2 and B3 horizons than in some areas of Alford soils.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alford silt loam SOIL Nos. 850Ill-51-1 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 501297 - 501302

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	A1	2.0	85.9	12.1	-	0.1	0.2	0.4	1.3	45.8	40.1	47.2	0.7			-		
6-12	A2	1.8	82.1	16.1	-	0.1	0.2	0.3	1.2	39.6	42.5	41.0	0.6			-		
12-17	B1	1.3	73.6	25.1	0.2	0.2	0.1	0.2	0.6	37.5	36.1	36.2	0.7			-		
17-25	B2	0.8	67.3	31.9	-	-	-	0.1	0.7	32.8	34.5	33.5	0.1			-		
25-36	B3	1.2	71.0	27.8	-	0.1	0.1	0.2	0.8	33.9	37.1	34.9	0.4			-		
36-42	C1	2.6	74.4	23.0	-	0.1	0.2	0.4	1.9	45.0	29.4	47.1	0.7			-		

Depth (In.)	6A1a Organic carbon & Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O [a]
0-6	0.73															5.4
6-12	0.36															5.4
12-17	0.24															5.2
17-25	0.22															5.2
25-36	0.12															5.0
36-42	0.09															5.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 & Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-6	3.0	0.6	0.1	0.4		5.8	9.9								41	
6-12	4.2	0.9	0.1	0.2		5.2	10.6								51	
12-17	7.4	2.3	0.1	0.3		6.8	16.9						3.2		60	
17-25	10.0	3.9	0.2	0.4		8.4	22.9						2.6		63	
25-36	8.3	4.0	0.2	0.3		8.5	21.3						2.1		60	
36-42	5.9	3.4	0.1	0.3		7.3	17.0						3.5		57	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Determinations by University of Illinois.

Soil Type: Alford silt loam
Soil No.: S50Ill-51-1
Location: Lawrence County, Illinois. T3N., R11W., Sec. 18, SE 1/4, NW 40.
Vegetation and land use: Pasture
Slope and land form: 3 percent on ridgetop.
Sampled by and date: J. B. Fehrenbacher and A. A. Klingebiel. June 7, 1960.

Horizon and Beltsville Lab. No.	
A1 501297	0 to 6 inches. Dark brown to brown (10YR 4/3 - 5/3) friable silt loam, soft fine crumb.
A2 501298	6 to 12 inches. Yellowish brown to dark yellowish brown (10YR 5/4 - 4/4) friable silt loam, firm crumb to weak granular.
B1 501299	12 to 17 inches. Dark yellowish brown (10YR 4/4) firm silty clay loam, fine subangular blocky (horizontal and vertical cleavage equal) structure. Very faint light yellowish brown (10YR 6/4) coatings.
B2 501300	17 to 25 inches. Dark yellowish brown and dark brown (10YR 4/4 - 7.5YR 4/4) firm to very slightly sticky silty clay loam (slightly heavier than B1). Predominantly medium subangular blocky with 1/3 of aggregates nut-like. A few very dark gray (10YR 3/1) coatings in spots.
B3 501301	25 to 36 inches. Dark yellowish brown and yellowish brown (10YR 4/4 - 10YR 5/4) firm silty clay loam, thick platy structure with some weak blocky aggregates 1/2 inch to 1 1/2 inch. A few dark grayish brown (10YR 4/2) coatings in spots.
C1 501302	36 to 42 inches plus. Yellowish brown and dark yellowish brown (10YR 5/4 - 10YR 4/4) friable heavy silt loam, nearly massive. A few pale brown (10YR 6/3) coatings in streaks.

Notes: Colors determined on moist samples in the field.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Allison silty clay loam SOIL Nos. S63Ill-30-1 LOCATION Gallatin County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19283-19289 May 16, 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) a 3A1 — Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	0.5	59.3	40.2	-	0.1	-	0.1	0.3	15.6	43.7	17.0	0.2			-		
8-17	A3	5.2	62.6	32.2	-	0.1	0.1	0.3	4.7	26.0	36.6	30.9	0.5			-		
17-27	B21	5.4	64.3	30.3	-	0.1	0.1	0.3	4.9	27.0	37.3	32.1	0.5			-		
27-35	B22	2.4	62.8	34.8	-	0.1	0.1	0.3	1.9	21.7	41.1	23.8	0.5			-		
35-50	B23	0.9	61.8	37.3	-	-	0.1	0.2	0.6	17.3	44.5	18.0	0.3			-		
50-60	B24	0.9	60.9	38.2	-	-	0.1	0.2	0.6	15.4	45.5	16.1	0.3			-		
60-70+	BC	1.0	60.0	39.0	-	0.1	0.1	0.2	0.6	14.0	46.0	14.7	0.4			-		

Depth (In.)	6A1a Organic carbon a, b Pct.	6B1a Nitrogen Pct.	C/N		6E2a Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4A1a Field State g/cc	Bulk density: 4A1d 1/3-Bar g/cc	Bulk density: 4A1b Air-Dry g/cc	4D1 COLE	Water content: 4B4 Field State Pct.	Water content: 4B1c 1/3-Bar Pct.	Water content: 4B2 15-Bar Pct.	Water content: 4C1 1/3-to 15-Bar in./in.		pH a 8C1a (1:1)		
0-8	1.63	0.152	11		-(a)	2.1	1.68	1.54	1.71	0.036	11.9	22.9	15.0	0.12		7.1		
8-17	1.34	0.130	10			1.8	1.56	1.44	1.59	0.032	13.0	24.9	13.9	0.16		7.0		
17-27	1.16	0.115	10			1.7	1.54	1.44	1.58	0.032	13.7	25.2	12.5	0.18		6.9		
27-35	1.15	0.126	9			2.0	1.58	1.44	1.60	0.036	13.1	25.4	14.8	0.15		6.7		
35-50	0.98					2.1	1.58	1.44	1.64	0.044	16.4	25.2	15.8	0.14		6.6		
50-60	0.70					2.2	1.60	1.48	1.64	0.036	16.2	24.5	16.9	0.11		6.7		
60-70+	0.69					2.2	1.54	1.44	1.64	0.044	20.1	25.7	17.4	0.12		6.7		

Depth (In.)	Extractable bases a 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. Acidity a	Cat. Exch. Cap. a: 5A3a Sum Cations	5A1a NH_4OAc	KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-8	18.8	7.0	0.2	0.5	26.5	3.8	30.3	25.7		2.7	87	103
8-17	18.1	5.8	0.2	0.4	24.5	3.9	28.4	24.0		3.1	86	102
17-27	16.3	5.2	0.2	0.3	22.0	4.1	26.1	22.5		3.1	84	98
27-35	18.1	6.0	0.2	0.4	24.7	4.6	29.3	25.8		3.0	84	96
35-50	17.5	6.8	0.2	0.4	24.9	4.8	29.7	29.7		2.6	84	84
50-60	18.0	7.2	0.2	0.4	25.8	4.7	30.5	29.3		2.5	85	88
60-70+	17.8	7.4	0.2	0.4	25.8	4.7	30.5	28.0		2.4	84	92

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	Water at 15-Bar
0-8	0.64	0.05	0.37
8-17	0.74	0.06	0.43
17-27	0.74	0.06	0.41
27-35	0.74	0.06	0.42
35-50	0.80	0.06	0.42
50-60	0.76	0.06	0.44
60-70+	0.72	0.06	0.45

a. Determined by Soil Survey Laboratory - Riverside, California.
b. 25 kg/m^2 to 60 inches. (Method 6A)

USDA-SCS-LINCOLN, NEBR. 1967

Soil type: Allison Silty Clay Loam
Soil Nos.: S63 Ill-30-1
Location: Gallatin County, Illinois, T8S, R10E, Sec. 25, NE 160, SE 40, NW 10, SW 2½. About 300 feet south of field road, directly south of old house site, and about 480 feet west of field road along break to lower area. About ¼ mile southeast from present bank of Wabash River and one mile west of Ohio River junction.
Vegetation and use: Cropland
Slope and land form: Level to nearly level; Wabash River valley floor.
Drainage and permeability: Well drained; moderately permeable.
Parent material: Alluvium
Described and sampled by: G. O. Walker, H. L. Wascher, D. L. Wallace, R. E. Bourland, F. N. Carroll, E. Lutz, October 25, 1963.

Horizon and Lab. Nos.

Ap
LSL 19283
UIL 19403
0-8 inches, very dark grayish brown (10YR 3/2) silty clay loam; cloddy breaking to weak fine and medium granular structure; firm; pH 7.0; abrupt smooth boundary.

A3
LSL 19284
UIL 19404
8-17 inches, very dark grayish brown (10YR 3/2) silty clay loam; weak, medium and fine subangular blocky structure; firm; continuous very dark gray (10YR 3/1.5) coatings; abundant roots; pH 7.0; diffuse smooth boundary.

B21
LSL 19285
UIL 19405
17-27 inches, very dark grayish brown (10YR 3/2.5) silty clay loam; weak medium and coarse subangular blocky structure tending toward prismatic; firm; very dark grayish brown (10YR 3/2) coatings and worm casts; pH 7.0; diffuse smooth boundary.

B22
LSL 19286
UIL 19406
27-35 inches, same as horizon above; separated for sampling purposes.

B23
LSL 19287
UIL 19407
35-50 inches, dark brown (10YR 3.5/3) silty clay loam; weak coarse and medium subangular blocky structure tending toward prismatic; firm; dark grayish brown (10YR 3.5/2) coatings; pH 7.0; diffuse smooth boundary.

B24
LSL 19288
UIL 19408
50-60 inches, brown (10YR 4/3) silty clay loam; weak coarse prismatic structure breaking to weak medium subangular blocks; firm; some dark brown (10YR 3.5/2.5) coatings; pH 7.0; diffuse smooth boundary.

BC
LSL 19289
UIL 19409
60-70 inches, brown (10YR 4/3) silty clay loam; very weak coarse prismatic structure breaking to very weak subangular blocky structure; firm; few dark brown (10YR 3.5/2.5) coatings; pH 7.0.

Remarks: A compact "plow pan" is present at a depth of 5 to 8 inches. A deep boring to a depth of 11 feet showed silty clay loam from 70 to 90 inches; silt loam from 90 to 120 inches; and fine sand at a depth of 120 inches. Colors given are for moist soil. Reaction determined by Truog soil test kit.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. 854III-2-4 LOCATION Alexander County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54938 - 54946

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3Bi: 2A2 >= 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	A1		39.7	6.8	0.2	1.3	0.8	20.7	30.5		14.5	74.1				-		
6-13	A2		38.5	10.2	-	0.8	0.5	18.6	31.4		16.5	70.6				-		
13-19	B1		26.3	22.5	0.1	0.4	0.3	16.8	33.6		10.4	65.1				-		
19-24	B21		23.2	26.0	-	0.2	0.2	12.8	37.6		8.6	64.2				-		
24-30	B22		34.2	24.2	-	0.1	0.2	7.3	34.0		13.0	62.1				-		
30-35	B23		39.6	19.3	-	-	0.1	9.2	31.8		13.0	67.2				-		
35-41	B24		19.8	16.9	-	-	0.1	30.0	33.2		7.3	74.7				-		
41-48	C1		5.1	4.5	-	0.1	1.0	65.2	24.1		2.8	77.7				-		
48-55	C2		2.1	8.7	-	-	0.7	78.9	9.6		1.8	69.0				-		
55-64	C3		1.5	3.0	-	0.5	1.4	82.6	11.0		1.1	75.6				-		
55-64	C3		2.0	7.3	-	-	0.6	79.6	10.5		1.3	72.8				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e 1/3 bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c 1/3 bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-6	0.22																7.0
6-13	0.18																7.0
13-19	0.14																6.4
19-24	0.15																5.0
24-30	0.09																4.5
30-35	0.06																4.8
35-41	0.07																4.4
41-48	0.04																4.5
48-55	0.04																4.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																
0-6	3.3	0.1	tr.	0.1		5.3	8.8									40	
6-13	1.2	0.4	0.1	0.2		9.5	11.4									17	
13-19	5.4	2.5	tr.	0.3		10.8	19.0									43	
19-24	6.2	3.3	tr.	0.3		11.2	21.0									47	
24-30	3.8	2.7	tr.	0.3		13.5	20.3									33	
30-35	2.7	0.8	0.1	0.3		12.7	16.6									23	
35-41	2.6	1.9	tr.	0.3		7.2	12.0									40	
41-48	1.6	1.0	tr.	0.1		2.7	5.4									50	
48-55	2.5	1.1	tr.	0.2		3.0	6.8									55	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Alvin fine sandy loam.
Soil No.: S54Ill-2-4
Location: Alexander County, Illinois. T.15 S., R.2 W., Sec. 35, SE 1/4, SW 40, SW 10, 26 rods north of center of road and 11 rods east from half line in cultivated field.
Vegetation and land use: Cornstalks.
Slope and land form: 6 percent.
Sampled by and date: H. L. Wascher, J. D. Alexander, E. J. Pedersen, L. J. Bartelli. October 29, 1954.

Horizon and Beltsville Lab. No.	
A1 54938	0 to 6 inches. Dark brown (10YR 4/3), fine sandy loam, fine crumb to structureless.
A2 54939	6 to 13 inches. Brown (10YR 4.5/3), fine to very fine sandy loam, breaks into 1/4 inch irregular angular crumbs.
B1 54940	13 to 19 inches. Dark yellowish brown (9YR 4.5/4), fine sandy clay loam, breaks into 1/4 inch irregular angular fragments.
B21 54941	19 to 24 inches. Brown to reddish brown (6YR 4/4), clay loam, breaks into 3/4-1 inch irregular angular blocky aggregates, thinly coated with reddish brown (5YR 4/4).
B22 54942	24 to 30 inches. Brown to dark brown (7.5YR 4/4), clay loam, breaks into 3/4-1 inch irregular angular blocky aggregates, thinly coated with dark yellowish brown (10YR 3/4) silica flour.
B23 54943	30 to 35 inches. Brown to dark brown (7.5YR 4/4), clay loam, breaks into 1-1 1/4 inch irregular angular vertical elongated aggregates up to 3 inches in length, thinly coated with yellowish brown (10YR 5/4) silica flour.
B24 54944	35 to 41 inches. Dark yellowish brown (10YR 4/4), fine sandy clay loam, breaks into 1-2 inches irregular angular aggregates and fragments. Corn roots penetrate into this horizon.
C1 54945	41 to 48 inches. Dark yellowish brown (10YR 4/4), loamy fine sand, single grain.
C2 54946	48 to 55 inches. Dark brown (7.5YR 3/4), fine sandy loam, very lightly cemented with iron, very slightly compact, hard when dry.
C3	55 to 64 inches. Pale brown (10YR 6/3), loose fine sand. This horizon has 3 layers of gray sand interspersed with 2 iron bands, sampled separately.
C3	55 to 64 inches. Dark brown (7.5YR 3/4), fine sandy loam, iron bands.

Notes: All colors from moist samples.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. 854111-30-9 LOCATION Gallatin County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54984 - 54993

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap		49.3	6.5	0.1	0.2	0.7	19.8	23.4		18.7	71.1				-		
9-17	A2		42.7	8.9	-	-	0.6	24.6	23.2		19.4	67.9				-		
17-22	B1		29.8	14.8	-	-	0.8	30.8	23.8		14.0	66.3				-		
22-29	B21		16.1	17.9	-	-	1.2	38.4	26.4		7.5	67.7				-		
29-38	B22		8.2	16.0	-	0.1	1.7	40.4	33.6		3.6	72.6				-		
38-43	B23		8.9	11.4	-	0.1	1.4	37.3	40.9		2.9	79.7				-		
43-48	B3		17.5	8.9	-	0.1	0.9	22.4	50.2		3.8	84.1				-		
48-62	C1		18.5	7.2	-	-	0.6	27.1	46.6		3.5	86.0				-		
62-78	C2		6.8	3.7	-	0.1	1.9	42.4	45.1		1.6	86.9				-		
78-100	C3		12.6	1.4	-	-	0.8	35.2	50.0		2.1	92.1				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-9	0.56															6.4
9-17	0.21															5.0
17-22	0.17															5.8
22-29	0.17															6.0
29-38	0.16															6.6
38-43	0.17															6.6
43-48	0.12															6.8
48-62	0.12															6.6
62-78	0.07															6.6
78-100	0.10															8.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g														
0-9	4.1	0.5	tr.	0.1		2.3	7.0							67	
9-17	2.1	1.7	tr.	0.1		3.6	7.5							52	
17-22	5.4	1.7	tr.	0.2		0.9	8.2							89	
22-29	6.9	1.1	tr.	0.2		3.2	11.4							72	
29-38	5.9	0.7	tr.	0.2		3.0	9.8							69	
38-43	4.1	0.4	0.1	0.1		2.7	7.4							64	
43-48	2.9	1.6	tr.	0.1		2.7	7.3							63	
48-62	2.1	1.4	tr.	0.1		2.9	6.5							55	
62-78	1.5	0.3	tr.	tr.		1.9	3.7							49	
78-100	a														

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Not determined, sample is calcareous.

Soil Type: Alvin fine sandy loam.
Soil No.: S54Ill-30-9
Location: Gallatin County, Illinois. T.9 S., R.9 E., Sec. 5, SE 1/4, SW 40, SW 10, 33 rods north from section line (or road corner) and 5 rods east from center of gravel road.
Slope and land form: 1 1/2 percent.
Sampled by and date: H. L. Wascher, J. B. Fehrenbacher, J. K. Ableiter. November 16, 1954.

Horizon and Beltsville Lab. Nos.	
Ap 54984	0 to 9 inches. Brown to dark brown (10YR 4/3) fine to very fine sandy loam, weakly coherent, breaks into irregular fragments, few lumps of A2 material, few corn roots.
A2 54985	9 to 17 inches. Brown (7.5YR 4.5/4) with a few very dark brown (10YR 2/2) iron-manganese specks, fine to very fine sandy loam, breaks into irregular fragments, some iron-manganese stains follow root channels, few corn roots, few worm channels some of which are filled with Ap material.
B1 54986	17 to 22 inches. Brown to dark brown (7.5YR 4/4) with small amount of yellowish brown (10YR 5/4) mottles, slightly coherent, very weak 1 - 1 1/4 inch subangular blocky, fine sandy loam to loam, very light coatings of yellow silica flour - some corn roots, few small wormholes, numerous very small vesicles or worm channels.
B21 54987	22 to 29 inches. Brown to dark brown (7.5YR 4/4) with a little yellowish brown (10YR 5/4) mottling, also some black (10YR 2/1) iron-manganese specks and stains; borderline clay loam to fine sandy clay loam; weak to very weak 3/4 - 1 1/4 inch subangular blocky, moderately compact, some corn roots and worm channels.
B22 54988	29 to 38 inches. Reddish brown (5YR 4/4) with some yellowish brown (10YR 5.5/4) channel fillings, borderline clay loam to fine sandy clay loam, moderately compact, breaks into irregular sharp edged fragments to 1 inch subangular blocky, very few fine corn roots, and a few fine worm channels.
B23 54989	38 to 43 inches. Reddish brown (5YR 4/4) (85 percent) and yellowish brown (10YR 5.5/4) (15 percent), fine sandy clay loam, very slightly compact, breaks into irregular sharp edged fragments, very few corn roots and very few fine worm channels.
B3 54990	43 to 48 inches. Brown to dark brown (7.5YR 4/4) (85 percent), yellowish brown (10YR 5.5/4) (15 percent), fine sandy loam, breaks into very weak soft irregular fragments, no corn roots, some few fine worm channels.
C1 54991	48 to 62 inches. Brown to dark brown (7.5YR 4/4) (60 percent), yellowish brown (10YR 5.5/4) (40 percent), fine sandy loam, very slightly coherent, massive, appears to be banded in lower part, very few wormholes.
C2 54992	62 to 78 inches. Yellowish brown (10YR 5.5/4) loamy fine sand, single grain, loose. Sampled from 68-75 inches. No sample taken from 62-68 inches.
C3 54993	78 to 100 inches. Light yellowish brown (10YR 6/4), fine sand, single grain, loose, calcareous.

Notes: Calcareous silt and fine sand at 100 inches.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. S54Ill-38-8 LOCATION Iroquois County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54973 - 54983

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	A1		30.7	7.2	0.3	2.0	6.8	25.9	27.1		15.4	58.8				-		
4-14	A2		34.7	6.4	0.2	1.3	5.0	23.6	28.8		17.9	61.0				-		
14-19	A3		35.0	8.5	0.2	1.1	4.6	23.1	27.5		17.8	60.1				-		
19-24	B1		28.2	10.5	0.2	1.0	4.7	25.9	29.5		13.9	61.1				-		
24-32	B21		18.1	13.8	0.1	1.1	6.0	32.0	28.9		7.9	59.7				-		
32-40	B22		10.7	17.1	0.1	1.5	8.2	35.1	27.3		3.3	56.2				-		
40-47	B23		7.5	12.7	2.9	7.3	19.5	37.1	13.0		3.5	31.9				8		
47-53	B3		5.6	14.3	8.2	21.5	26.3	21.3	2.8		3.5	10.7				19		
53-59	C1		4.4	9.5	6.9	20.1	32.7	25.9	1.4		3.0	7.8				22		
59-75	C2		0.9	4.6	1.5	11.2	39.2	41.5	1.1		0.6	13.4				tr.		
75-80+	C3		0.9	2.3	1.4	13.2	51.6	28.8	1.8		0.5	11.4				tr.		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	2.35															6.2
4-14	0.32															5.6
14-19	0.12															5.5
19-24	0.10															5.6
24-32	0.10															5.2
32-40	0.12															5.2
40-47	0.07															5.4
47-53	0.09															5.4
53-59	0.06															5.4
59-75	0.06															5.8
75-80+	0.06															6.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-4	7.7	2.8	tr.	0.1		5.3	15.9									67	
4-14	1.4	0.5	tr.	tr.		4.0	5.9									32	
14-19	1.9	0.8	tr.	tr.		6.8	9.5									28	
19-24	2.7	1.4	tr.	0.1		5.9	10.1									42	
24-32	4.1	2.0	0.1	0.1		4.8	11.1									57	
32-40	6.0	2.9	0.1	0.2		5.5	14.7									62	
40-47	4.4	2.2	0.1	0.2		3.8	10.7									64	
47-53	3.9	1.9	0.1	0.1		3.5	9.5									63	
53-59	2.5	1.2	tr.	tr.		10.8	14.5									26	
59-75	1.4	0.5	tr.	0.3		2.3	4.5									49	
75-80+	0.9	0.4	tr.	0.2		1.7	3.2									47	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Alvin fine sandy loam.
Soil No.: S54Ill-38-8
Location: Iroquois County, Illinois. T.27 N., R. 11 W., Sec. 22, NW 1/4, SE 40, SE 10, 20 rods east-northeast of bridge, or about 9 rods south of center of road and 8 rods west of pasture fence.
Vegetation and land use: Bluegrass pasture.
Slope and land form: 0 percent.
Sampled by and date: H. L. Wascher, J. B. Fehrenbacher, B. W. Ray. November 11, 1954.

Horizon and Beltsville Lab. Nos.	
A1 54973	0 to 4 inches. Dark grayish brown (10YR 3.5/2), fine sandy loam, breaks into weak soft crumbs full of fibrous roots (bluegrass) slightly lighter colored in lower part, fading into A2 below.
A2 54974	4 to 14 inches. Brown (10YR 4/3), fine sandy loam, tending to show very weak thin platy structure in place, moderate number of fine fibrous roots, often small worm channels.
A3 54975	14 to 19 inches. Dark brown (10YR 4/3), fine sandy loam, breaks into very weak 1/4 inch platy to subangular blocky, very weakly cemented, slightly compact, a few fibrous roots, a few small worm channels.
B1 54976	19 to 24 inches. Brown to dark brown (7.5YR 4/4) (75 percent) yellowish brown (10YR 5/4) (25 percent), a few very dark brown (10YR 2/2) iron stains and concretions, fine sandy loam to fine sandy clay loam, breaks into irregular weakly developed 1/4 - 1/2 inch subangular blocky aggregates, a few of the aggregates very thinly coated with lighter colored silica flour, a few fibrous roots, a few small worm channels.
B21 54977	24 to 32 inches. Brown to dark brown (7.5YR 4/4) (75 percent) yellowish brown (10YR 5/4) (25 percent), a few very dark brown (10YR 2/2) iron stains and concretions, fine sandy clay loam borderline to clay loam, breaks into weakly developed 3/4 inch irregular subangular blocky aggregates, a few of the aggregate faces are thinly sprinkled with silica flour very pale brown (10YR 7/3), a few fibrous roots, a few small worm channels continue through this layer.
B22 54978	32 to 40 inches. Brown to dark brown (7.5YR 4/4) with dark reddish brown (5YR 3/4) coatings, some very dark brown (10YR 2/2) iron stains, clay loam, breaks into 3/4 - 1 1/2 inch subangular to angular blocky, a few fine roots, few small worm channels extend into this horizon.
B23 54979	40 to 47 inches. Brown to dark brown (7.5YR 4/4) and strong brown (7.5YR 5/6) mixed, sandy loam borderline to sandy clay loam containing some coarse sand and a few small pebbles, breaks into weak irregular fragments, almost single grain, one or two ant nests in this layer.
B3 54980	47 to 53 inches. Reddish brown (5YR 3.5/4) with a few dark brown (7.5YR 3/2) iron stains, fine gravelly clay loam borderline to fine gravelly loam, nearly single grain, some evidence of stratification remaining.
C1 54981	53 to 59 inches. Brown to dark brown (7.5YR 4/4) with some very dark brown (10YR 2/2) iron stains, coarse sandy loam to fine gravelly loam, nearly single grain.
C2 54982	59 to 75 inches. Brown to dark brown (7.5YR 4/4), sandy loam banded with light yellowish brown (10YR 6/4) loose loamy sand to sand, a few pebbles throughout whole horizon.
C3 54983	75 to 80 inches plus. Light yellowish brown (10YR 6/4), loose sand to loamy sand, with some fine gravel.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. S54Ill-51-5 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54949 - 54955

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap		39.2	6.1	-	0.3	1.4	25.3	27.7		16.5	69.1				-		
9-18	A2		37.5	8.3	-	0.1	1.2	25.6	27.3		16.2	67.5				-		
18-22	B1		36.8	13.8	-	0.1	1.1	23.8	24.4		15.0	63.4				-		
22-30	B21		23.8	19.2	-	0.1	1.4	25.2	30.3		8.9	63.3				-		
30-37	B22		21.1	16.9	-	0.2	1.7	24.5	35.6		5.9	68.5				-		
37-44	B3		27.8	12.6	-	0.1	1.4	22.7	35.4		5.3	73.9				-		
44-54	C1		19.7	10.4	-	0.1	1.0	27.4	41.4		3.0	78.8				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-9	0.44															6.8
9-18	0.08															5.2
18-22	0.11															5.2
22-30	0.08															5.0
30-37	0.08															5.4
37-44	0.06															5.3
44-54	0.05															5.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-9	3.3	1.0	tr.	0.1		1.5	5.9									74	
9-18	1.6	0.8	tr.	0.1		1.9	4.4									57	
18-22	3.6	1.4	tr.	0.2		2.7	7.9									66	
22-30	5.3	2.1	tr.	0.2		3.8	11.4									67	
30-37	4.9	1.9	tr.	0.2		3.4	10.4									67	
37-44	3.9	1.6	tr.	0.1		2.8	8.4									67	
44-54	3.1	1.6	tr.	0.1		2.1	6.9									70	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Alvin fine sandy loam
Soil No.: S54Ill-51-5
Location: Lawrence County, Illinois. T.2N., R.12W., Sec. 26, SE 1/4, NW 40, NE 10, 760 feet east of center of section (center of T junction) on south side of road
Slope: 2 percent
Collected by and date: J. B. Fehrenbacher and party, October 25, 1954

Horizon and Beltsville Lab. Nos.	
Ap 54949	0 to 9 inches. Dark yellowish brown (10YR 4/3.5) fine sandy loam, single grain.
A2 54950	9 to 18 inches. Yellowish brown (10YR 5/4) fine sandy loam, single grain.
B1 54951	18 to 22 inches. Brown to dark brown (7.5YR 4/4) fine sandy clay loam, weak medium subangular blocky, few very faint light gray (10YR 7/2) coatings.
B21 54952	22 to 30 inches. Yellowish red (5YR 4.5/6) clay loam (fine sand), weak to moderate, medium to coarse, subangular blocky, few very faint light gray (10YR 7/2) coatings (more than above).
B22 54953	30 to 37 inches. Reddish brown (5YR 4/4) fine sandy clay loam, very weak coarse subangular blocky, some weak pale brown (10YR 6/3) coatings increasing in amount.
B3 54954	37 to 44 inches. Dark brown (7.5YR 4/5) loam, nearly structureless moderate pale brown (10YR 6/3) coatings increasing in amount.
C1 54955	44 to 68 inches. Dark yellowish brown (10YR 4/3.5) mottled with (10%) pale brown (10YR 6/3) fine sandy loam, single grain.
C2 Not sampled	68+ inches. Calcareous mixed silt sand sands.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. 854Ill-51-6 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54956 - 54962

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 2mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	A1		17.8	4.6	-	0.3	5.6	61.9	9.8		9.5	51.8				-		
6-17	A2		23.8	8.1	-	0.2	3.5	54.4	10.0		13.9	50.8				-		
17-25	B21		16.0	21.4	-	-	2.0	51.0	9.6		9.2	48.3				-		
25-33	B22		6.4	15.6	-	-	1.4	63.8	12.8		3.6	59.9				-		
33-40	B31		3.6	11.6	-	-	2.9	69.9	12.0		2.3	56.1				-		
40-48	B32		3.7	13.0	-	0.1	4.1	67.4	11.7		2.4	51.7				-		
48-68	C1		1.9	5.0	-	-	4.0	76.1	13.0		1.2	58.5				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-6	0.38															6.2
6-17	0.05															6.2
17-25	0.12															5.6
25-33	0.05															5.2
33-40	0.05															5.4
40-48	0.05															5.2
48-60	0.03															5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-6	1.5	0.4	tr.	0.1		3.0	5.0								40	
6-17	1.5	0.6	tr.	tr.		2.3	4.4								48	
17-25	5.7	2.6	0.1	0.3		5.1	13.8								63	
25-33	3.2	0.9	tr.	0.2		4.8	9.1								47	
33-40	2.5	1.7	tr.	0.2		4.4	8.8								50	
40-48	2.3	0.9	tr.	0.2		4.6	8.0								42	
48-68	0.9	0.8	tr.	0.1		3.2	5.0								36	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Alvin fine sandy loam
Soil Nos.: S54Ill-51-6
Location: Lawrence County, Illinois. T.2N., R.12W., Sec. 12, SE 1/4, SW 40, SW 10, 323 feet north of south section line (center of T road junction on east side of Rt. 1).
Slope: 4 to 5 percent.
Collected by and date: J. B. Fehrenbacher and party, October 26, 1954.

Horizon and Beltsville Lab. Nos.	
A1 54956	0 to 6 inches. Dark yellowish brown (10YR 3/4) light fine sandy loam, single grain.
A2 54957	6 to 17 inches. Strong brown (7.5YR 4/5) fine sandy loam, single grain.
B21 54958	17 to 25 inches. Yellowish red (5YR 4.5/8) fine sandy clay, moderate medium subangular blocky.
B22 54959	25 to 33 inches. Strong brown (7.5YR 4.5/6) fine sandy clay loam, weak medium subangular blocky.
B31 54960	33 to 40 inches. Yellowish brown (10YR 5/4) (75%) with lenses of yellowish red (5YR 4/5) (25%), loam, very weak medium subangular blocky.
B32 54961	40 to 48 inches. Yellowish brown (10YR 5/4) (50%) with lenses of strong brown (7.5YR 4/5) (50%) fine sandy clay loam, very weak medium subangular blocky.
C1 54962	48 to 68 inches. Yellowish brown (10YR 5/4) fine sand with lenses of dark reddish brown (5YR 3/4) fine sandy loam, single grain.
C2 Not sampled	68 to 90+ inches. Yellowish brown (10YR 5/4) fine sand, single grain.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. S54Il1-63-3 LOCATION Mason County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54928- 54937

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-1	A1		29.5	6.3	0.9	2.4	15.8	41.3	3.8		15.7	32.3				-		
1-9	A21		22.5	5.2	0.1	0.9	17.1	50.4	3.8		12.5	30.9				-		
9-18	A22		24.0	4.7	0.1	1.0	17.6	49.1	3.5		13.7	31.2				-		
18-26	B1		25.6	6.5	0.2	1.4	17.1	46.0	3.2		15.6	29.2				-		
26-33	B21		29.0	13.9	-	0.7	14.6	38.9	2.9		17.7	28.0				-		
33-40	B22		26.9	20.0	-	0.7	14.0	35.7	2.7		17.5	24.3				-		
40-48	B3		12.6	15.3	-	0.8	19.3	48.9	3.1		7.7	25.5				-		
48-54	C1		2.1	6.5	-	0.8	20.3	66.5	3.8		2.0	28.1				-		
54-60	C2		4.0	4.2	-	0.7	19.3	67.2	4.6		2.0	32.4				-		
60-65	C3		8.5	9.7	-	0.9	18.0	57.1	5.8		3.4	32.8				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-1	3.49															5.0
1-9	1.10															4.6
9-18	0.63															4.6
18-26	0.19															5.0
26-33	0.16															5.0
33-40	0.16															4.9
40-48	-															5.0
48-54	0.02															5.3
54-60	-															5.6
60-65	0.02															5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC: 6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g													
0-1	3.9	1.6	0.1	0.4		9.3	15.3						39	
1-9	0.2	0.4	tr.	0.3		17.0	17.9						5	
9-18	0.6	0.4	tr.	0.2		17.0	18.2						6	
18-26	0.8	0.4	0.1	0.2		15.4	16.9						9	
26-33	2.7	0.6	tr.	0.2		7.2	10.7						33	
33-40	4.7	1.9	0.1	0.2		9.1	16.0						43	
40-48	4.7	1.5	0.1	0.2		7.0	13.5						48	
48-54	2.2	0.4	tr.	0.1		5.3	8.0						34	
54-60	1.5	0.4	tr.	tr.		5.7	7.6						25	
60-65	2.9	1.0	tr.	0.1		5.5	9.5						42	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Alvin fine sandy loam
Soil No.: S54Ill-63-3
Location: Mason County, Illinois. T. 20 N., R. 7 W., Sec. 30, SE 1/4, SW 40, NW 10, 15 yds. south of center of T-road from west, on east side of road in 10 ft. wide road bank with 15 ft. deep road cut, under some small hickory-oak trees.
Vegetation: Small oak and hickory trees and weeds.
Slope: 12 percent.
Collected by and date: H. L. Wascher, J. D. Alexander, and E. J. Pedersen, October 29, 1954.

Horizon and Beltsville Lab. Nos.	
A1 54928	0 to 1 inches. Black (10YR 2/1) fine sandy loam, weak crumb (might possibly be an O1, if so there is no A1).
A21 54929	1 to 9 inches. Brown (10YR 5/3) fine sandy loam, structureless, breaks into medium irregular fragments.
A22 54930	9 to 18 inches. Dark yellowish brown (10YR 3.5/4) fine sandy loam to loamy fine sand, breaks into irregular angular fragments.
B1 54931	18 to 26 inches. Brown to dark brown (7.5YR 4/4) fine sandy loam to loamy fine sand, very compact, moderately cemented (dry), breaks into vertical sharp edged fragments.
B21 54932	26 to 33 inches. Brown to dark brown (7.5YR 4/4) sandy clay loam to clay loam, breaks into irregular 1/2-3/4" subangular blocky aggregates, weakly developed aggregates with very thin grayish coatings, coatings not continuous, on 50 percent of surfaces of aggregates, very compact.
B22 54933	33 to 40 inches. Brown to dark brown (7.5YR 4/4) clay loam, breaks into 1/2-3/4" irregular subangular blocky aggregates, thin light gray coatings on 25 percent of ped faces, also coated with (5%) dark reddish brown (5YR 3/3) and small amount of black (N 2/).
B3 54934	40 to 48 inches. Brown to dark brown (7.5YR 4/4) sandy clay loam, breaks into irregular sharply angular fragments, coatings of dark reddish brown (5YR 3/3) (1%) on fragment faces also some coatings of black (N 2/) (5%), major root penetration ends in this horizon.
C1 54935	48 to 54 inches. Brown to dark brown (7.5YR 4/4) loamy sand to sand with thin streaks of dark reddish brown (5YR 3/4) iron cemented sandy loam.
C2 54936	54 to 60 inches. Yellowish brown (10YR 5/4), loose loamy fine sand to fine sand, single grain.
C3 54937	60 to 65 inches. Dark reddish brown (5YR 3/4) sandy clay loam to sandy loam, this is an iron band layer.

Notes: All colors from moist samples.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin sandy loam SOIL Nos. S54Ill-78-2 LOCATION Putnam County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54918-54927

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	Coarse fragments 3B1: 2 – 19 Pct. of < 76mm	Coarse fragments 3B1: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0–3	A1		19.9	4.7	0.5	18.6	29.0	22.6	4.7		10.5	23.7				-		
3–9	A21		21.5	4.8	0.5	18.0	28.1	22.3	4.8		12.1	24.2				-		
9–14	A22		23.2	4.9	0.5	17.4	27.8	21.6	4.6		12.8	24.3				-		
14–18	B1		26.0	8.0	0.4	16.0	25.6	19.7	4.3		15.1	23.9				-		
18–25	B21		30.8	11.4	0.4	14.6	22.3	16.7	3.8		17.5	24.5				-		
25–30	B22		33.9	19.2	0.3	10.5	18.5	14.4	3.2		20.4	22.6				-		
30–35	B23		24.2	20.6	0.1	9.7	21.9	19.5	4.0		14.1	22.6				-		
35–44	B24		9.7	15.3	0.2	11.4	28.4	29.0	6.0		5.9	22.7				-		
44–54	C1		2.9	7.1	0.3	14.0	36.6	33.9	5.2		1.9	19.9				-		
54–62	C2		2.0	7.8	0.2	16.7	37.1	29.8	6.4		1.3	19.9				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH:	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0–3	1.44																6.0
3–9	0.35																5.0
9–14	0.22																5.8
14–18	0.19																6.0
18–25	0.19																5.8
25–30	0.06																5.2
30–35	0.05																4.8
35–44	0.05																4.6
44–54	-																5.2
54–62	-																5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																
0–3	3.0	0.8	tr.	0.3		9.3	13.4									30	
3–9	0.6	0.3	tr.	0.1		3.2	4.2									24	
9–14	1.1	0.3	tr.	0.1		2.0	3.5									43	
14–18	1.9	0.3	tr.	0.1		2.5	4.8									48	
18–25	3.2	0.6	tr.	0.2		3.2	7.2									56	
25–30	4.8	2.0	tr.	0.2		8.2	15.2									46	
30–35	4.7	2.8	0.1	0.3		5.3	13.2									60	
35–44	2.8	2.2	0.1	0.2		4.5	9.8									54	
44–54	1.5	1.4	tr.	0.1		2.0	5.0									60	
54–62	1.3	1.4	0.1	0.1		2.3	5.2									56	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
			7A2 X-ray				7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Alvin sandy loam
Soil Nos.: S54Ill-78-2
Location: Putnam County, Illinois. T. 32N., R. 2 W., Sec. 26, SW 1/4, NW 40, NW 10, from center of road along top of ridge SE 16 rods.
Vegetation: Thin bluegrass, a few weeds, briars, and oak and hickory trees.
Slope: 20 percent. Sampled by and date: H. L. Wascher, J. D. Alexander, E. J. Pedersen, Oct. 28, 1954.

Horizon and Beltsville Lab. Nos.	
A1 54918	0 to 3 inches. Very dark brown (10YR 2/2), sandy loam, fine crumb to weak fine granular.
A21 54919	3 to 9 inches. Dark brown (10YR 3.5/3) sandy loam to loamy sand, single grain, moderately loose.
A22 54920	9 to 14 inches. Dark brown (7.5YR 3/4), light sandy loam to loamy sand, single grain very friable.
B1 54921	14 to 18 inches. Brown to dark brown (7.5YR 4/3.5), light sandy loam to loamy sand, breaks into irregular angular fragments, very slightly compact and very slightly cemented.
B21 54922	18 to 25 inches. Brown to dark brown (7.5YR 4/3) (90%) mottled with dark gray (N 4/) (10%), clay loam, breaks into irregular angular fragments.
B22 54923	25 to 30 inches. Brown to dark brown (7.5YR 4/3) (98%) stained with black (5YR 2/1) (2%), clay loam, breaks into irregular angular aggregates 1/2-3/4" in size. Structure is very weakly developed. The black stainings are part of the aggregate faces.
B23 54924	30 to 35 inches. Dark brown (7.5YR 3.5/4), clay loam, breaks into 3/4" subangular blocky weakly developed aggregates, ped face has 5 percent very dark brown (7.5 YR 2/2) stainings of organic matter or manganese, horizontal lying roots end in this horizon.
B24 54925	35 to 44 inches. Dark brown (7.5YR 3.5/4), sandy clay loam, breaks into irregular angular fragments, very few vertical roots. Some black (N 2/) soft manganese concretions present.
C1 54926	44 to 54 inches. Yellowish brown (10YR 5/4) loose sand banded with dark reddish brown (6YR 3.5/4) sandy clay loam iron bands.
C2 54927	54 to 62 inches. Dark yellowish brown (10YR 4/4) sand to loamy sand banded with dark reddish brown (6YR 3.5/4) sandy clay loam iron bands.

Notes: All colors from moist samples.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Alvin fine sandy loam SOIL Nos. 854Il1-99-7 LOCATION Will County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54963 - 54972

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-6	Ap		27.7	5.3	-	2.0	12.2	38.5	14.3		14.2	47.3				-		
6-11	A21		29.2	5.4	-	1.6	11.7	37.6	14.5		15.3	47.3				-		
11-16	A22		28.0	7.2	-	1.5	11.4	37.6	14.3		15.4	45.8				-		
16-20	B1		22.9	11.6	-	1.4	11.2	38.4	14.5		12.1	45.6				-		
20-27	B21		15.8	16.5	-	1.3	11.1	40.2	15.1		7.7	45.0				-		
27-35	B22		9.5	15.4	-	1.4	12.3	45.1	16.3		4.3	45.3				-		
35-44	B23		9.8	13.1	-	1.8	12.7	44.8	17.8		3.7	47.9				-		
44-50	B3		10.7	11.5	-	3.6	14.4	44.1	15.7		4.1	46.6				-		
50-55	C1		8.6	6.0	0.1	6.2	21.2	45.3	12.6		3.2	39.4				-		
55-65	C2		11.6	9.6	-	3.6	17.2	41.8	16.2		4.2	45.5				-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density:	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in			
0-6	0.61																	6.8
6-11	0.18																	5.8
11-16	0.08																	5.4
16-20	0.10																	5.3
20-27	0.09																	5.0
27-35	0.05																	5.0
35-44	0.03																	4.8
44-50	0.03																	4.8
50-55	0.07																	5.0
55-56	0.06																	4.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.
0-6	2.9	1.8	tr.	0.1		2.7	7.5									64	
6-11	1.2	0.9	tr.	tr.		3.2	5.3									40	
11-16	1.7	0.7	tr.	tr.		2.9	5.3									45	
16-20	3.2	1.2	0.1	tr.		4.2	8.7									52	
20-27	3.9	2.6	0.2	0.2		5.9	12.8									54	
27-35	4.0	3.7	0.1	0.1		5.1	13.0									61	
35-44	3.2	3.2	tr.	0.2		4.0	10.6									62	
44-50	2.7	2.9	tr.	0.2		4.4	10.2									57	
50-55	1.3	1.4	0.1	0.1		2.9	5.8									50	
55-65	2.7	2.5	tr.	0.2		3.4	8.8									61	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Alvin fine sandy loam.
Soil No.: 854Ill-99-7
Location: Will County, Illinois. T.32 N., R.10 E., Sec. 7, NE 1/4, NW 40, NW 10, 16 rods east of half line (bridge 20 rods west of half line) and 23 rods south of center of road.
Vegetation and land use: Kentucky bluegrass and a few weeds.
Slope and land form: 16 percent.
Sampled by and date: H. L. Wascher, B. W. Ray, and J. B. Fehrenbacher. November 9, 1954.

Horizon and Beltsville Lab. Nos.	
Ap 54963	0 to 6 inches. Very dark grayish brown (10YR 3/2), fine sandy loam, breaks into sharp edged fragments containing moderate amount of fibrous bluegrass roots and a few worm channels filled with lighter colored material.
A21 54964	6 to 11 inches. Brown (10YR 4.5/3), fine sandy loam, breaks into irregular sharp edged fragments with no definite cleavage faces, moderate number of fibrous bluegrass roots, some worm channels filled with darker colored material.
A22 54965	11 to 16 inches. Brown (10YR 5/3), fine sandy loam to loamy fine sand which breaks into irregular sharp edged fragments with no definite cleavage faces, moderate to few fibrous bluegrass roots, few worm channels, some open, some filled with darker colored material.
B1 54966	16 to 20 inches. Brown (7.5YR 4.5/4), fine sandy clay loam, breaks into 1/4-3/8 inch weakly developed irregular blocky aggregates with a few faint lighter colored coatings brown (10YR 5/3), few fibrous roots, occasional unfilled worm channels.
B21 54967	20 to 27 inches. Brown to dark brown (7.5YR 4/4), clay loam, breaks into 1/2 - 3/4 inch irregular blocky aggregates, weakly developed. A few fine fibrous roots, an occasional small unfilled worm channel.
B22 54968	27 to 35 inches. Brown to dark brown (7.5YR 4/4), clay loam, breaks into 1-1 1/2 inch irregular blocky aggregates. An occasional grayish streaking in lower part. A few fine fibrous roots, an occasional small open worm channel.
B23 54969	35 to 44 inches. Brown to dark brown (7.5YR 4/4) mottled faintly with light yellowish brown (10YR 6/4), some black (10YR 2/1) iron-manganese concentrations, fine sandy clay loam which breaks into irregular sharp edged fragments with no definite cleavage faces, slightly compact, lightly cemented.
B3 54970	44 to 50 inches. Brown (7.5YR 4.5/5) mottled with light yellowish brown (10YR 6/4), some very dark brown (10YR 2/2) iron-manganese concentrations, fine sandy clay loam to fine sandy loam, breaks into large irregular fragments with no definite cleavage faces, a few medium and coarse sand grains.
C1 54971	50 to 55 inches. Yellowish brown (10YR 5/4) with bands of brown to dark brown (7.5YR 4/4), loamy sand with thin bands of sandy loam to sandy clay loam.
C2 54972	55 to 65 inches. Yellowish brown (10YR 5/4) with bands of light yellowish brown (10YR 6/4), some very dark brown (10YR 2/2) fine iron-manganese concentrations, loamy sand with thin bands of sandy loam to sandy clay loam.

Notes: All colors moderately moist. Coarse sand and fine gravel was encountered at 80 inches.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ambraw silty clay loam SOIL Nos. S63Ill-12-1 LOCATION Clark County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19297-19303 May 16, 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) a 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	Ap	19.8	49.7	30.5	1.0	5.5	7.6	4.8	0.9	10.7	39.0	12.9	18.9			tr		
6-12	A1	21.0	46.2	32.8	1.1	6.0	8.0	5.0	0.9	9.9	36.3	12.1	20.1			tr		
12-16	B1g	24.2	43.8	32.0	1.7	5.9	9.5	6.0	1.1	9.3	34.5	11.9	23.1			tr		
16-25	B21g	20.9	45.9	33.2	1.4	5.1	7.9	5.2	1.3	9.6	36.3	12.2	19.6			tr		
25-35	B22g	20.9	45.4	33.7	1.6	5.2	7.9	5.1	1.1	9.9	35.5	12.2	19.8			tr		
35-45	B3g	56.2	19.2	24.6	3.0	16.2	22.1	13.1	1.8	4.9	14.3	9.8	54.4			tr		
45-62	Cg	57.3	19.5	23.2	3.2	15.4	22.2	14.4	2.1	5.7	13.8	11.3	55.2			tr		

Depth (In.)	6A1a Organic carbon a, b Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4A1a Field-State g/cc	4A1d 1/3-Bar g/cc	4A1b Air-Dry g/cc	4D1 COLE	Water content: 4B4 Field-State Pct.	4B1c 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-to 15-Bar in./in.		pH a: 8C1a (1:1)	
0-6	1.51	0.135	11			1.5	1.72	1.62	1.76	0.028	13.5	21.2	11.6	0.16			6.4
6-12	1.42	0.126	11			1.5	1.67	1.57	1.70	0.028	14.2	22.6	12.7	0.16			6.4
12-16	0.94	0.088	11			1.4	1.60	1.51	1.62	0.024	12.6	20.8	12.9	0.12			5.3
16-25	0.70	0.075	9			1.7	1.68	1.56	1.69	0.028	13.4	21.5	13.6	0.12			5.4
25-35	0.59					2.0	1.64	1.55	1.69	0.028	15.6	21.7	14.3	0.11			5.6
35-45	0.29					1.7	1.74	1.68	1.75	0.014	9.9	15.0	9.1	0.10			5.7
45-62	0.24					1.6	1.70	1.66	1.72	0.010	12.7	15.2	9.2	0.10			5.9

Depth (In.)	Extractable bases a 5B1a — 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. Acidity a	Cat. Exch. Cap. a: 5A3a Sum Cations	5A1a NH_4OAc	KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-6	15.1	4.4	0.1	0.4	20.0	5.6	25.6	21.5		3.4	78	93
6-12	14.9	4.3	0.2	0.4	19.8	5.7	25.5	21.4		3.5	78	92
12-16	11.8	4.1	0.2	0.3	16.4	7.6	24.0	20.2		2.9	68	81
16-25	12.2	4.5	0.2	0.4	17.3	6.7	24.0	20.3		2.7	72	85
25-35	12.6	5.0	0.2	0.4	18.2	6.5	24.7	21.4		2.5	74	85
35-45	7.7	3.3	0.2	0.2	11.4	4.7	16.1	13.5		2.3	71	84
45-62	7.2	3.0	0.2	0.3	10.7	4.6	15.3	12.1		2.4	70	88

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-6	0.70	0.05	0.38
6-12	0.65	0.04	0.39
12-16	0.63	0.04	0.40
16-25	0.61	0.05	0.41
25-35	0.64	0.06	0.42
35-45	0.55	0.07	0.37
45-62	0.52	0.07	0.40

a. Determined by Soil Survey Laboratory - Riverside, California.
b. 16 kg/m^2 to 60 inches. (Method 6A)

Soil type: Ambraw Silty Clay Loam
Soil Nos.: S63 Ill-12-1
Location: Clark County, Illinois, 285 feet east of road center at the SW corner of the NW¼ of Section 15, T9N, R11W and 90 feet north of small ditch on half-mile line.
Vegetation and use: Cropland (corn stalks).
Slope and land form: Nearly level Wabash River valley floor.
Drainage and permeability: Poorly drained with slow surface run-off; moderately permeable.
Parent material: Alluvium
Described and sampled by: L. E. Tyler, G. O. Walker, G. Holhubner, I. Jorgensen, October 17, 1963.

Horizon and Lab. Nos.

Ap
LSL 19297
UIL 19431
0-6 inches, very dark grayish brown (10YR 3/2) medium silty clay loam; weak, medium granular structure; friable; sand grains evident in matrix; many roots; slightly acid; abrupt, smooth boundary. (Clay estimate: 31 to 33 percent.)

A1
LSL 19298
UIL 19432
6-12 inches, very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) medium silty clay loam; weak, coarse subangular blocky structure; firm; sand grains evident in matrix; many roots; slightly acid; abrupt, smooth boundary. (Clay estimate: 30 to 32 percent.)

B1g
LSL 19299
UIL 19433
12-16 inches, dark gray (10YR 4/1) medium silty clay loam with common, fine, distinct dark brown (10YR 4/3 and 3/3) mottles; dry color is gray (10YR 6/1 and 6/2) and kneaded color is dark grayish brown (2.5Y 4/2); weak to moderate, fine and medium subangular blocky structure; firm; sand grains evident in matrix and sparse gray (when dry) silt coats on peds; many roots; medium acid; clear smooth boundary. (Clay estimate: 31 to 34 percent.)

B21g
LSL 19300
UIL 19434
16-25 inches, dark gray (10YR 4/1) medium silty clay loam with common, fine, distinct dark brown (7.5YR 3/2 and 4/4) mottles in ped interiors only; moderate, fine and medium prismatic structure breaking to weak to moderate, medium subangular blocks; firm; discontinuous very dark gray (10YR 3/1) dull films on peds; sand grains evident in matrix; common roots and Fe-Mn concretions; medium acid; gradual smooth boundary. (Clay estimate: 35 percent.)

B22g
LSL 19301
UIL 19435
25-35 inches, dark grey (2.5Y 4/1) medium silty clay loam with common, fine to medium, distinct brown (10YR 5/3), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/8) mottles principally in ped interiors; moderate, fine and medium, prismatic structure breaking to weak, medium subangular blocks; firm; discontinuous, very dark gray (10YR 3/1) dull films on peds; sand grains evident in matrix; few roots; slightly acid; gradual, smooth boundary. (Clay estimate 32 to 34 percent.)

B3g
LSL 19302
UIL 19436
35-45 inches, dark gray (2.5Y 4/1) light clay loam with many, medium, distinct dark brown (7.5YR 3/2) and strong brown (7.5YR 4/6) mottles; weak vertical cleavage grading to massive; friable to firm; few Fe-Mn concretions, occasional gravel; slightly acid; gradual, wavy boundary. (Clay estimate: 30 percent.)

Cg
LSL 19303
UIL 19437
45-62 inches, dark gray (2.5Y 4/1) with many, medium, distinct dark yellowish brown (10YR 3/4) to dark brown (7.5YR 4/4) and few, fine, distinct strong brown (7.5YR 4/6 to 4/8) mottles; pockets and layers of sandy clay loam, clay loam and silty clay loam; massive; friable; occasional gravel; common Fe-Mn concretions; crayfish activity evident in this horizon; slightly acid.

Remarks: Colors described for moist soil. Some recent overwash appears to be incorporated in Ap and A1 horizons.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Ashkum silty clay loam **LOCATION** Will County, Illinois

SOIL NOS. S57Ill-99-2 **LAB. NOS.** 6918-6925

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-6	A11p	0.4a	0.6a	0.7a	3.2a	2.8a	52.7	39.6	20.2	37.5	Tr.	sicl
6-8½	A12p	0.6a	0.7a	0.8a	3.2a	2.6a	51.0	41.1	18.6	37.1	Tr.	sic
8½-11	A13	0.4a	0.7a	1.0a	4.0a	2.9a	48.9	42.1	19.6	34.8	Tr.	sic
11-16	B1	0.8a	1.0a	1.0a	3.7a	2.7a	49.7	41.1	18.9	35.9	Tr.	sic
16-21	B21	0.4a	0.8a	0.9a	3.1a	2.1a	52.9	39.8	18.3	38.7	Tr.	sicl
21-26	B22	0.4a	0.7a	0.8a	2.5a	2.1a	53.8	39.7	19.4	38.1	Tr.	sicl
26-32	B3	1.4a	2.1a	1.9a	5.7a	3.4a	48.5	37.0	19.5	35.9	Tr.	sicl
32-50+	C	0.8b	1.6b	1.7b	6.0b	5.1b	48.7	36.1	18.9	38.7	Tr.	sicl

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field-State %	d 15-Bar %
6.4			4.74	0.381	12			-		1.17	23.5	20.3
6.5			4.09	0.355	12			-				21.2
6.8			1.87	0.191	10			-				20.3
7.1			0.96	0.089	11			-		1.44	13.0	17.0
7.3			0.64	0.059	11			-				15.8
7.3			0.49	0.045	11			-		1.48	12.0	17.8
7.5			0.62					1				14.8
7.9			0.68					13		1.64	13.5	15.5

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations me/100g	MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →									
38.2	28.7	10.1	8.8	-	0.5	82	39.3	48.1	
37.5	29.9	10.3	8.3	-	0.5	83	40.7	49.0	
31.6	25.0	9.8	5.0	-	0.4	88	35.2	40.2	
26.4	20.6	8.4	3.7	-	0.4	89	29.4	33.1	
23.6	17.8	7.8	2.5	-	0.4	91	26.0	28.5	
23.5	18.4	8.6	2.1	0.1	0.4	93	27.5	29.6	
18.0		6.4	1.2	0.1	0.3				
11.3		6.4	0.4	-	0.3				

a. Few smooth dark brown to black concr. (Fe-Mn?)
b. Few smooth dark brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Ashkum silty clay loam
Soil No: : S57Ill-99-2
University of Illinois Laboratory Nos.: 18044 through 18051.
Location: Will County, Illinois; 610 feet west of north quarter corner or 280 feet west of concrete culvert and 48 feet south of center of paved road, NW160, NE40, NE10 of Section 22, T34N, R11E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Redclover.
Climate: Humid temperate.
Slope: 1 percent to east.
Erosion: None.
Elevation: 710 feet approximately.
Parent material: None to very thin Peorian loess cover on silty clay loam Wisconsin till of Cary age.
Sampled by: L. J. Bartelli and R. H. Jordan, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 18, 1957.

Horizon and Lincoln Lab. Number	
A11p 6918	0 to 6 inches. Black (10YR 2/1 moist) silty clay loam; weak coarse subangular blocky structure breaking to moderate medium to coarse granular; slightly firm when moist; boundary abrupt and smooth; pH is 6.5; roots common.
A12p 6919	6 to 8½ inches. Black (10YR 2/1 moist) silty clay loam; moderate medium angular blocky structure; very firm when moist; dense; boundary abrupt and smooth; pH is 6.5; roots common; this is a plow sole or plow pan.
A13 6920	8½ to 11 inches. Black (10YR 2/1 moist) silty clay loam; moderate medium subangular blocky; firm when moist; boundary clear and irregular; pH is 6.5; few small pebbles; roots common.
B1 6921	11 to 16 inches. Very dark gray (2.5Y 3/1 moist) heavy silty clay loam; tongues of black (10YR 2/1 moist) silty clay loam from above; moderate medium subangular blocky structure; firm when moist; boundary gradual and smooth; pH is 6.5; roots common; few small iron-manganese concretions; thin discontinuous clay skins; small pebbles strongly coated with very dark gray (2.5Y 3/1 moist) clay skins.
B21 6922	16 to 21 inches. Very dark grayish brown (2.5Y 3/2 moist) heavy silty clay loam with common fine distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak medium prismatic structure breaking to strong medium angular blocky; firm when moist; boundary clear and smooth; pH is 7.0; roots common; common iron-manganese concretions; few shale fragments; roots follow structure planes; thin continuous very dark gray (2.5Y 3/1 moist) clay skins.
B22 6923	21 to 26 inches. Dark grayish brown (2.5Y 4/2) to very dark grayish brown (2.5Y 3.5/2 moist) heavy silty clay loam with common fine distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak medium prismatic structure breaking to strong medium to coarse angular blocky; firm when moist; boundary clear and smooth; pH is 7.0; roots common on ped faces; few small pebbles; common small iron-manganese concretions; few shale fragments; thin discontinuous very dark gray (2.5Y 3/1 moist) clay skins.
B3 6924	26 to 32 inches. Dark grayish brown (2.5Y 4/2 moist) silty clay loam; many medium distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak medium prismatic structure breaking to moderate medium to coarse angular blocky; firm when moist; boundary abrupt and wavy; pH is 8.0; few roots along ped faces; common small pebbles; common small iron-manganese concretions; few shale fragments; weak discontinuous very dark grayish brown (2.5Y 3/2 moist) clay skins.
C 6925	32 to 50 inches plus. Gray (5Y 5/1 moist) silty clay loam glacial till with many coarse distinct yellowish brown to dark brown (10YR 5/8 to 4/3 moist) mottles; massive to weak coarse angular blocky structure; very firm when moist; calcareous; very few roots in upper part, none in lower; many small limestone pebbles; some shale fragments.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas start at a depth of 9 inches and continue to sampling depth (50 inches). Soil temperature was 50 degrees F. in the A11p horizon and 56 degrees F. in C horizon.

SCS 421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ava silt loam SOIL Nos. S59IL1-68-1 LOCATION Montgomery County, Illinois

SOIL SURVEY LABORATORY • Lincoln, Nebraska LAB. Nos. 12273-12282 January 1965

Depth (In.)	Horizon	1P1a Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: (0.05-0.02)	Silt: Int. III (0.02-0.002)	3A1 Silt: Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 2A2: > 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	A1	4.1	81.3	14.6	0.3a	1.0a	0.9b	1.2c	0.7c	30.7	50.6	31.9	3.4			-	-	
7-12	A2	3.4	79.9	16.7	0.1a	0.9a	0.8b	1.0c	0.6c	28.4	51.5	29.4	2.8			-	-	
12-18	B21	3.6	75.3	21.1	0.1a	0.9a	0.9b	1.0b	0.7b	25.1	50.2	26.2	2.9			-	-	
18-22	B22	3.1	73.3	23.6	0.2a	0.8a	0.6a	0.8a	0.7a	24.8	48.5	25.9	2.4			-	-	
22-25	B23& A'2	2.7	70.9	26.4	0.3a	0.8a	0.4a	0.6a	0.6a	23.8	47.1	24.7	2.1			-	-	
25-27	A'2 & B21	2.1	63.2	34.7	0.2a	0.7a	0.3a	0.4a	0.5a	20.3	42.9	21.0	1.6			-	-	
27-37	B'22	1.6	59.4	39.0	-	0.2a	0.2a	0.5a	0.7a	20.2	39.2	21.2	0.9			-	-	
37-45	B'31m	2.9	70.9	26.2	-	0.4c	0.7c	1.1c	0.7c	26.9	44.0	28.1	2.2			-	-	
45-54	B'32m	7.6	68.9	23.5	0.1a	1.2c	2.0c	3.1c	1.2c	28.3	40.6	30.8	6.4			-	-	
54-66+	IIB'33m	30.8	52.4	16.8	0.8c	5.8c	8.8	12.2	3.2	23.7	28.7	31.7	27.6			-	-	

Depth (In.)	6A1a Organic carbon d Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density 4A1a Field State g/cc	4A1c 30-Cm. g/cc	4A1h Oven-Dry g/cc	4D1 Extensibility in. per horizon	Water Content 4B4 Field State Pct.	4B3 30-Cm Pct.	4B1b 1/3-Bar Pieces Pct.	4B2 15-Bar Sieved Pct.	4C1 1/3- to 15-Bar in. per horizon		pH 8C1a (1:1) H_2O
0-7	1.28	0.118	11			0.8	1.36	1.35	1.38	0.05	10.3	27.1		6.4			5.7
7-12	0.42	0.053	8			1.0	1.41	1.39	1.42	0.04	11.8	24.0		6.7			5.2
12-18	0.28	0.041	7			1.2	1.46	1.42	1.48	0.08	11.6	24.5	21.5	8.5	1.1		4.7
18-22	0.25	0.032	8			1.3	1.47	1.42	1.47	0.06	9.3	24.8	23.2	9.9	0.8		4.6
22-25	0.23	0.029				1.5	1.58	1.48e	1.58	0.06	6.0	22.8e		11.6	0.5		4.5
25-27	0.21					1.3								15.4			4.3
27-37	0.21					1.1	1.64	1.42e	1.65	0.49	5.8	26.4e	27.8	17.7	1.4		4.3
37-45	0.14					1.3	1.62	1.49	1.61	0.22	3.3	25.2	24.7	12.8	1.4		4.6
45-54	0.15					1.1	1.63	1.53	1.61	0.15	3.3	20.9	23.5	11.7	1.6		4.6
54-66+	0.09					0.8	1.77	1.68	1.72	0.08	2.1	18.3		8.3			4.8

Depth (In.)	Extractable bases 6N2b Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap. 5A3a Sum Cations	5A1a NH_4OAc	6G2a KCl Ext. Al	8D3 Ca/Mg	Base saturation 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-7	4.5	1.6	Tr.	0.4	6.5	7.5	14.0	10.3	-	2.8	46	63
7-12	3.0	1.5	Tr.	0.3	4.8	6.3	11.1	8.5	1	2.0	43	56
12-18	2.0	2.0	0.1	0.2	4.3	10.0	14.3	10.1	4	1.0	30	42
18-22	1.8	3.0	0.1	0.2	5.1	12.0	17.1	13.0	5	0.6	30	39
22-25	2.1	4.2	0.1	0.3	6.7	13.3	20.0	15.3	6	0.5	34	44
25-27	3.2	6.6	0.2	0.4	10.4	16.6	27.0	21.3	8	0.5	38	49
27-37	4.0	8.1	0.3	0.4	12.8	17.9	30.7	24.2	9	0.5	42	53
37-45	3.2	6.2	0.4	0.2	10.0	12.3	22.3	18.1	5	0.5	45	55
45-54	3.4	5.8	0.4	0.2	9.8	10.8	20.6	16.2	4	0.6	48	60
54-66+	2.8	4.5	0.3	0.1	7.7	6.8	14.5	11.4	2	0.6	53	68

Depth (In.)	Ratios to Clay 8D1 NH_4OAc CEC	Ext. Iron	15-Bar Water
0-7	0.70	0.05	0.44
7-12	0.51	0.06	0.40
12-18	0.48	0.06	0.40
18-22	0.55	0.06	0.42
22-25	0.58	0.06	0.44
25-27	0.61	0.04	0.44
27-37	0.62	0.03	0.45
37-45	0.69	0.05	0.49
45-54	0.69	0.05	0.50
54-66+	0.68	0.05	0.49

a. > 50% Fe-Mn nodules.
b. 25-50% Fe-Mn nodules.
c. 5-25% Fe-Mn nodules.
d. 7.1 Kg/M^2 to 60 inches.
e. Desorbed at 1/3-Bar instead of adsorbed to 30-Cm.

Soil type: Ava silt loam
Soil Nos. : S59Ill-68-1
Location: Montgomery County, Illinois; T7N, R2W, Sec. 23, NW160, NE40, SE corner, 300 feet north and 100 feet west.
Vegetation: Woodland, predominantly oak less than 6 inches d.b.h.
Slope, land form, and parent material: Gently convex 3 percent slope to northeast; located near edge of gently sloping ridge top and at elevation below local ridge crest in the dissected, loess-mantled Illinoian drift plain. Local relief between ridges and adjacent streams about 20 to 30 feet. Loess about 4-1/2 feet thick overlying medium textured Illinoian drift or drift-derived material.
Described and sampled by: F. J. Carlisle, R. B. Grossman, J. B. Fehrenbacher, C. E. Downey, and G. O. Walker, October 26, 1959.

Horizon and Lincoln Lab.No.

O_1 About 3 inches thick and consisting of this year's leaf fall.

O_2 Black to very dark brown; friable; granular organic matter; up to about 1/4-inch thick.

A1 12273 0 to 7 inches. 10YR 4/2 silt loam; massive with faint expression of compound blocky and fine granular structure; very friable; many fine and medium tubular pores, some with very irregular diameter; roots abundant; uppermost 1 inch is 10YR 3/2 with moderate medium to fine granular structure; pH 6.0; clear wavy boundary.

A2 12274 7 to 12 inches. 10YR 4/3 silt loam; very weak thin platy structure evident in place; disturbed material breaks readily to medium subangular blocky fragments; aggregation very weak; friable; many fine and few medium tubular pores; roots abundant; about 20 percent of horizon consists of 10YR 4/2 to 3/2 in krotovinas 3- to 20-mm. across; pH 5.6; gradual boundary.

B21 12275 12 to 18 inches. 10YR 4/4 to 5/4 heavy silt loam; very weak medium subangular blocky structure; friable; sparse fine patches of blanched silt about 2-mm. across; common fine and few medium tubular pores with very irregular diameter; roots common but less abundant than above; pH 5.0; clear boundary.

B22 12276 18 to 22 inches. 10YR 4/4 heavy silt loam; weak to moderate medium subangular blocky structure; friable; thin discontinuous coatings of blanched silt on peds are 10YR 5/3 moist; occasional patches of dark brown clay films about 1- to 2-mm. across in some interior peds; common fine and occasional medium tubular pores; roots fairly common, less numerous than in horizon above; pH 4.8; clear boundary.

B23 and A'2 12277 22 to 25 inches. 10YR 5/4 light silty clay loam; moderate medium and fine subangular blocky structure; friable; peds have nearly continuous blanched silt coating up to about 1-mm. thick, 10YR 6/3 to 7/3 fully moist, 10YR 8/2 dry; blanched silt forms continuous network throughout horizon, patches of brown clay films 1- to 3-mm. across occur in most ped interiors and line some common fine tubular pores; most of the few medium pores are lined with blanched silt grains; few very fine faint dark brown mottles in ped interiors; pH 4.8; abrupt irregular boundary.

A'2 and B'21 12278 25 to 27 inches. 10YR 5/4 silty clay loam; few fine faint 10YR 4/4 mottles; strong medium and fine blocky; firm; 10YR 5/2 to 6/2 moist and 10YR 8/1 to 8/2 dry blanched silt forms continuous network throughout horizon as nearly continuous coatings up to about 1-mm. thick on peds; clay films on ped surfaces not coated with blanched silt are 7.5YR 4/2; distinct clay films in ped interiors are 7.5YR 4/2 to 3/4; pH 4.8; abrupt irregular boundary.

B'22 12279 27 to 37 inches. 10YR 4/4 medium silty clay loam, more plastic and distinctly stickier than horizon above; compound moderate medium prismatic and moderate medium to fine blocky structure; firm; interiors of most medium and some fine blocks are distinctly mottled with 2.5Y 5/2 to 6/2; ped surfaces have distinct continuous clay films of variable color ranging from 10YR 4/2 to 7.5YR 3/4 in faint fine to medium pattern; some fine peds clayey throughout with colors similar to ped surfaces; patches of 10YR 6/2 blanched silt <1-mm. thick and 1- to 2-cm. across are common on prism faces; common fine tubular pores in ped interiors with few to common pores opening on horizontal ped surfaces and few pores opening through clay films on vertical ped surfaces; few roots, distinctly fewer than above; pH 4.8; gradual wavy boundary.

B'31m 12280 37 to 45 inches. Mottled (fine to medium distinct pattern) 10YR 5/2 and 5/4 to 5/6 light silty clay loam, distinctly less plastic and sticky than B'22; moderate medium prismatic grading to coarse prismatic structure in lower part; very firm and brittle at moisture content well below field capacity; distinct 10YR 4/3 to 3/4 clay films continuous on vertical prism faces and patchy on horizontal faces; common fine and few medium tubular pores in prism interiors, mostly sealed off by clay films on vertical surfaces but not on horizontal; 10YR 5/2 colors occur mainly as zones around tubular pores; few fine faint 10YR 4/4 mottles in ped interiors; roots sparse, almost entirely on prism faces; pH 4.8; gradual boundary.

B'32m 12281 45 to 54 inches. 10YR 5/4 light silty clay loam with distinct 10YR 6/2 mottles in fine to medium pattern comprising about 40 percent of broken surfaces; weak coarse prismatic structure with distinct nearly continuous 10YR 3/4 clay films on most vertical faces; very firm and brittle at moisture content well below field capacity; vertical planes 1/2- to 1-inch thick spaced at 3- to 6-inch intervals bound some of the prisms, are relatively clay-rich, and have strong clay films on fine blocky peds; 10YR 6/2 color in ped interiors is mostly adjacent to common fine to medium tubular pores which have dark brown surfaces; occasional patches blanched silt, 10YR 5/2 moist, white dry, 1- to 2-mm. thick and 2- to 3-cm. across occur on prism faces; a few roots which occur only in planes between prisms; pH 5.0; clear boundary.

IIB'33m 12282 54 to 66 inches. Mottled 10YR 4.5/2 and 4/4 in distinct medium pattern; fine loam; massive except that thin vertical gray planes, somewhat more clayey than the predominant matrix, occur at intervals of 4 to 12 inches; some contain brown clay films; extremely firm at moisture content well below field capacity; distinct nearly continuous dark brown clay films line common fine to medium tubular pores and occasional planar surfaces; roots sparse and occur only in thin vertical gray planes.

Remarks: Fibrous roots most abundant in uppermost 3 inches of horizon 1; bulk density samples taken from lower half of horizon; horizons 5 and 6 form distinct grayish layer in the profile. Colors are for fully moist soil unless indicated otherwise; pH by Hellige-Truog field pH kit. This site may have been plowed a long time ago. The following might be preferable to those in the description: A1, 0-1 inches; A2, 1-7 inches; and A3 (or B1?), 7-12 inches. The 7 to 12 layer is similar in position to B1 horizons in profiles S59Ill-59-1 and -68-2, Hosmer silt loam. Description of pores follows Johnson, W. M., et al. 1960 Soil Science 89:319. Blanched silt refers to silt grains that lack black or colored coatings. When moist the larger grains appear transparent or translucent; when dry, translucent or opaque. Grains appear to lack any coating with appearance determined by nature of the mineral. Since most of the grains seem to be quartz or feldspar, color is gray or white. If blanched silt layer is very thin, it transmits light from the underlying material when fully moist and appears some shade of brown; when dry the blanched silt appears light gray or white.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ava silt loam SOIL Nos. S51Il1-100-3 LOCATION Williamson County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 511083 - 511088

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	A1	2.5	82.8	14.7	0.2	0.3	0.4	0.9	0.7	32.9	49.9	34.1	1.8			-		
4-11	A2	2.1	80.3	17.6	-	0.2	0.4	0.8	0.7	32.1	48.2	33.2	1.4			-		
11-14	A3 a																	
14-20	B11	2.1	73.6	24.3	-	0.4	0.4	0.7	0.6	26.6	47.0	27.5	1.5			-		
23-28	B12	1.7	65.0	33.3	-	0.3	0.3	0.5	0.6	23.7	41.3	24.5	1.1			-		
30-36	B21	1.4	63.8	34.8	-	0.1	0.2	0.5	0.6	21.8	42.0	22.6	0.8			-		
36-41	B22	1.5	71.8	26.7	-	0.1	0.2	0.6	0.6	25.2	46.6	26.2	0.9			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-4	1.20															4.6
4-11	0.17															4.4
11-14																
14-20	0.02															4.6
23-28	0.04															4.4
30-36	0.04															4.4
36-41	0.03															4.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g													
0-4	1.3	0.7	0.1	0.3		10.8	13.2						18	
4-11														
11-14														
14-20	0.6	2.4	0.1	0.2		13.0	16.3						20	
23-28														
30-36	3.4	6.7	0.3	0.4		17.5	28.3						38	
36-41														

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a No analyses on this horizon.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Ava silt loam
Soil No.: S51Ill-100-3
Location: Williamson County, Illinois. T8S, R3E, Sec. 35, NE 1/4, NE40, NE10- Thirty-two yards west of first small draw which crosses road (about 1/10 mile) west of NE corner of NE10. Aerial photo BHK-1H-86, 6-2-51.
Vegetation and land use: Trees
Slope and land form: 2 percent to east.
Sampled by and date: H. Wascher and J. B. Fehrenbacher. October 18, 1951.

Horizon and Beltsville Lab. No.	
A1 511083	0 to 4 inches. Dark grayish brown (10YR 4/2) silt loam, soft crumb structure.
A2 511084	4 to 11 inches. Yellowish brown (10YR 5/5) silt loam, soft crumb to very weak platy structure.
A3 Not Sampled	Strong brown (7.5YR 5/6) silt loam, fragmental to granular structure.
B11 511085	14 to 20 inches. Strong brown (7.5YR 5/6) light silty clay loam, weak fragmental to sub-angular blocky structure.
B12 511086	23 to 28 inches. Brown to yellowish brown and light yellowish brown (10YR 5/3 to 5/4 and 6/4) with iron specks of yellowish brown (10YR 5/6). Thick 10YR 7/2 coatings. Blocky tendency to prismatic structure, silty clay loam.
B21 511087	30 to 36 inches. Yellowish brown (10YR 5/4) mottled with light brownish gray (10YR 6/2), iron concretions of yellowish brown (10YR 5/6), heavy silty clay loam to silty clay with waxy dark brown (7.5YR 4/4) coatings. Blocky in definite prismatic form structure.
B22 511088	36 to 41 inches. Dark brown (7.5YR 4/4) mottled with pale brown (10YR 6/3) silty clay loam, very coarse blocky to massive structure.
B3 Not Sampled	Pale brown (10YR 6/3) mottled with dark brown (7.5YR 4/4) heavy silt loam, massive.

Notes: About 48 inches of loess on Illinoian till. Sampled on south side of road in cut along standing timber on narrow ridge top. Broken moist colors.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Beaucoup silty clay loam SOIL Nos. S63Ill-39-2 LOCATION Jackson County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19304-19310 May 16, 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) a 3A1: Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: > 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-7	Ap	18.7	50.1	31.2	0.1	0.1	0.2	3.1	15.2	24.4	25.7	42.3	3.5			-		
7-14	A1	19.5	46.4	34.1	-	0.1	0.1	2.2	17.1	24.7	21.7	43.8	2.4			-		
14-22	B1	24.7	43.1	32.2	-	0.2	0.1	2.3	22.1	23.7	19.4	47.8	2.6			-		
22-31	B21g	22.4	50.3	27.3	-	0.2	0.2	2.0	20.0	27.2	23.1	49.0	2.4			-		
31-38	B22g	8.2	57.3	34.5	-	0.2	0.1	1.0	6.9	28.5	28.8	36.2	1.3			-		
38-46	B3g	6.3	42.9	50.8	-	tr	0.1	0.5	5.7	12.0	30.9	18.1	0.6			-		
46-50+	Cg	2.8	31.9	65.3	0.6	0.5	0.2	0.4	1.1	6.8	25.1	8.1	1.7			-		

Depth (In.)	6A1a Organic carbon a, b Pct.	6B1a Nitrogen Pct.	C/N		6E1b Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4A1a Field-State g/cc	4A1d 1/3-Bar g/cc	4A1b Air-Dry g/cc	4D1 COLE	Water content: 4B1 Field-State Pct.	4B1c 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-to 15-Bar in./in.		pH a: 8C1a (1:1)	
0-7	1.86	0.154	12			0.7	1.53	1.37	1.53	0.036	9.3	22.8	13.4	0.13		5.8	
7-14	1.01	0.090	11			0.8	1.65	1.44	1.70	0.056	14.5	25.8	15.7	0.14		5.8	
14-22	0.53	0.056	9			0.8	1.65	1.45	1.72	0.059	14.2	26.4	15.6	0.16		6.2	
22-31	0.32	0.038	8			0.8	1.62	1.44	1.64	0.044	12.3	24.7	13.4	0.16		6.6	
31-38	0.31					1.0	1.60	1.42	1.68	0.056	15.8	26.7	16.9	0.14		6.8	
38-46	0.30					1.2	1.48	1.27	1.78	0.12	25.4	35.6	21.7	0.18		6.8	
46-50	0.31				4	1.3	1.46	1.21	1.76	0.13	27.5	38.9	26.0	0.16		7.3	

Depth (In.)	Extractable bases a 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. Acidity a	Cat. Exch. Cap. a: 5A3a Sum Cations	5A1a NH_4OAc	KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-7	19.1	5.7	0.2	0.8	25.8	6.2	32.0	28.0		3.4	81	92
7-14	19.8	7.1	0.3	0.7	27.9	5.2	33.1	30.0		2.8	84	93
14-22	19.0	8.0	0.4	0.7	28.1	3.7	31.8	29.6		2.4	88	95
22-31	17.1	8.1	0.5	0.7	26.4	2.2	28.6	26.6		2.1	92	99
31-38	20.3	10.4	0.7	0.7	32.1	2.1	34.2	32.1		2.0	94	100
38-46	25.2	13.8	0.9	1.0	40.9	2.1	43.0	41.4		1.8	95	99
46-50	34.0c	9.9d	0.8	1.1	45.8			46.4		3.4		99

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-7	0.90	0.02	0.43
7-14	0.88	0.02	0.46
14-22	0.92	0.02	0.48
22-31	0.97	0.03	0.49
31-38	0.93	0.03	0.49
38-46	0.81	0.02	0.43
46-50	0.71	0.02	0.40

a. Determined by Soil Survey Laboratory - Riverside, California.
b. 12 kg/m^2 to 50 inches. (Method 6A)
c. NH_4Cl-EtOH extract. (Method 6N3a).
d. NH_4Cl-EtOH extract. (Method 6O3a).

Mineralogy (Methods 7A1, 7A2).

Cg horizon

Well crystallized montmorillonite dominates the clay. Small amounts of mica (or illite) and kaolinite are present. Collapse of montmorillonite with potassium suggests a high negative charge. The fine silt contains moderate amounts of mica, quartz and feldspar with small amounts of kaolinite and possibly pyrophyllite. Mineralogy is montmorillonitic.

Soil type: Beaucoup Silty Clay Loam
Soil Nos.: S63 Ill-39-2
Location: Jackson County, Illinois, T8S, R4W, Sec. 31, SW 160, SW 40, NE 10, NW 2½. About 440 feet NNE at right angle from road and 100 feet west of edge of woods. About 3½ miles south and 3¼ miles west to edge of Mississippi River.
Slope and land form: Level to nearly level; Mississippi River bottomland.
Drainage and permeability: Poorly drained with slow surface run-off; moderately permeable.
Parent material: Alluvium
Described and sampled by: G. O. Walker, H. L. Wascher, W. D. Parks, C. C. Miles, B. J. Weiss, October 22, 1963.

Horizon and Lab. Nos.	
Ap LSL 19304 UIL 19424	0-7 inches, black (10YR 2/1) silty clay loam; cloddy breaking to weak fine granular structure; friable to firm; very dark gray (10YR 3/1) worm casts; yellowish red (5YR 4/8 and 5/8) iron concretions; common roots; pH 6.5; abrupt smooth boundary.
A1 LSL 19305 UIL 19425	7-14 inches, very dark gray (10YR 3/1) silty clay loam with few fine distinct yellowish brown (10YR 5/8) mottles; cloddy breaking to moderate fine and medium angular blocky structure; firm; thick continuous black (10YR 2/1) coatings; common roots; common fine yellowish brown (10YR 5/8) and black (N 2/) iron concretions; pH 6.5; gradual smooth boundary.
B1 LSL 19306 UIL 19426	14-22 inches, dark gray (10YR 3.5/1 to 4/1) silty clay loam with few fine distinct yellowish brown (10YR 5/6 and 5/8) mottles; moderate coarse prismatic structure breaking to moderate medium angular blocky structure; firm; thick continuous very dark gray (10YR 3/1) coatings; common roots; common fine yellowish red (5YR 4/8 and 5/8) iron concretions; black (N 2/) stains; pH 6.7; clear smooth boundary.
B21g LSL 19307 UIL 19427	22-31 inches, grayish brown (2.5Y 5/2) silty clay loam with some very fine sand and a few fine prominent yellowish brown (10YR 5/6 and 5/8) and strong brown (7.5YR 5/6 and 5/8) mottles; weak coarse prismatic structure breaking to moderate coarse angular blocky structure; firm; dark gray (10YR 4/1) coatings; common roots; common worm casts; few fine yellowish red (5YR 4/8 and 5/8), red (2.5YR 4/8), and black (N 2/) iron concretions; pH 7.0; clear smooth boundary.
B22g LSL 19308 UIL 19428	31-38 inches, dark grayish brown (2.5Y 4/2) silt loam to light silty clay loam with few fine prominent yellowish brown (10YR 5/6 and 5/8) and olive brown (2.5Y 4/4) mottles; weak coarse prismatic structure breaking to weak coarse angular blocky structure; friable; dark gray (10YR 4/1 to 4.5/1) channel coatings; few roots; few iron concretions; pH 7.2; clear smooth boundary.
B3g LSL 19309 UIL 19429	38-46 inches, grayish brown (2.5Y 5/2) silty clay loam with many fine and medium distinct yellowish brown (10YR 5/6) and olive brown (2.5Y 4/4) mottles; weak coarse prismatic structure breaking to weak coarse angular blocky structure (somewhat weaker than above horizon); firm; dark gray (N 4/) and very dark gray (10YR 3/1) channel coatings; few roots; common fine very dark brown (10YR 2/2) iron concretions; pH 7.5; abrupt smooth boundary.
Cg LSL 19310 UIL 19430	46-50 inches, olive gray (5Y 5/2) silty clay with many fine and medium distinct yellowish brown (10YR 5/6) mottles; stratified with very shiny pressure faces evident; very firm; many fine very dark brown (10YR 2/2) iron concretions; abundant fine white (10YR 8/1) calcium concretions; pH 7.8.

Remarks: Colors given are for moist soil. Reaction determined by Truog soil test kit.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bluford silt loam SOIL Nos. 851Ill-100-4 LOCATION Williamson County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 511089 - 511094

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm															
0-3	A1		79.3	13.3	0.8	1.8	1.2	2.2	1.4		47.3	34.7			tr.		
3-10	A21		79.3	12.9	1.0	1.7	1.4	2.2	1.5		46.4	35.6			tr.		
10-19	A22		74.8	18.3	1.0	1.6	1.2	1.8	1.3		46.4	30.8			tr.		
19-25	B21		57.6	39.1	0.3	0.6	0.5	1.0	0.9		37.5	21.6			-		
25-35	B22		54.8	41.8	0.1	0.5	0.6	1.2	1.0		36.3	20.3			-		
35-42	B3		61.3	34.9	0.2	0.6	0.6	1.3	1.1		39.6	23.6			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD In/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-3	1.85															4.5
3-10	0.65															4.4
10-19	0.22															4.5
19-25	0.22															4.4
25-35	0.18															4.3
35-42	0.12															4.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-3	1.7	0.6	0.1	0.2		12.8	15.4										17	
3-10																		
10-19	1.2	1.0	0.2	0.2		9.7	12.3										21	
19-25																		
25-35	5.0	5.8	0.2	0.5		19.7	31.2										37	
35-42																		

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Bluford silt loam.
Soil No.: S51Ill-100-4
Location: Williamson County, Illinois. T. 8S., R. 3E., Sec. 35, NE 1/4, NE 40, SE 10 Near NE Cor. of SE 10, 180 feet N. of bend in road. Aerial photo BHK-1H-86, 6-2-51.
Slope and land form: 1 - 2 percent.

Horizon and Beltsville Lab. No.	
A1 511089	0 to 3 inches. Dark grayish brown (10YR 4/2) silt loam, soft crumb structure.
A21 511090	3 to 10 inches. Yellowish brown (10YR 5/4) silt loam, soft crumb to weak platy structure.
A22 511091	10 to 19 inches. Light yellowish brown (10YR 6/4) silt loam, weak platy to fragmental structure.
B21 511092	19 to 25 inches. Light yellowish brown (10YR 6/4) with iron stains of yellowish brown (10YR 5/6) silty clay loam, moderately heavy pale brown (10YR 6/3) coatings. Prismatic breaks into medium blocks.
B22 511093	25 to 35 inches. Grayish brown to light olive brown (2.5Y 5/2 to 5/3) with iron stains of yellowish brown (10YR 5/6) silty clay to clay. Very faint pale brown (10YR 6/3) coatings. Prismatic breaks into coarse blocky structure.
B3 511094	35 to 42 inches. Grayish brown to light brownish gray (10YR 5/2 to 6/2) with heavy iron stains of dark yellowish brown (10YR 4/4), silty clay, medium to coarse blocky structure.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bolivia silt loam SOIL Nos. 855Ill-75-4 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551804 - 551812

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-6	Ap		69.3	23.8	1.6	1.6	1.0	1.3	1.4		33.9	37.5				-		
6-12	A11		70.6	26.4	0.2	0.3	0.4	0.5	1.6		35.5	36.9				-		
12-19	A12		68.6	28.7	-	0.3	0.3	0.5	1.6		34.7	35.6				-		
19-22	B1		67.1	30.8	-	0.2	0.3	0.5	1.1		34.4	34.0				-		
22-26	B21		62.2	35.6	-	0.2	0.3	0.5	1.2		33.0	30.5				-		
26-31	B22		64.0	33.7	-	0.3	0.3	0.5	1.2		36.0	29.4				-		
31-45	B23		68.5	29.7	0.1	0.3	0.3	0.3	0.8		38.5	31.0				-		
45-53	B3		71.9	27.1	-	0.1	0.1	0.2	0.6		40.8	31.7				-		
53-70	C1		74.5	24.1	-	0.1	0.2	0.2	0.9		42.1	33.4				-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content:	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar		4C1 WRD	pH:	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.		in/in			
0-6	2.83																5.2
6-12	2.08																5.3
12-19	1.45																5.3
19-22	1.00																5.3
22-26	0.72																5.2
26-31	0.54																5.2
31-45	0.28																5.5
45-53	0.19																5.7
53-70	0.11																5.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																
0-6	10.5	2.3	0.1	0.4		13.8	27.1									49	
6-12	11.1	2.6	0.1	0.3		11.5	25.6									55	
12-19	10.5	4.1	0.1	0.2		11.2	26.1									51	
19-22	11.1	5.0	0.1	0.2		11.0	27.4									60	
22-26	11.8	6.3	0.1	0.2		10.0	28.4									65	
26-31	12.1	6.6	0.1	0.3		9.2	28.3									67	
31-45	12.1	6.8	0.1	0.2		6.9	26.1									73	
45-53	11.6	6.2	0.1	0.4		5.2	23.5									78	
53-70	10.1	5.7	0.1	0.4		4.5	20.8									78	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Bolivia silt loam
Soil No.: S55Il1-75-4
Location: Pike County, Illinois. T4S - R5W - Sec. 21 - SE160 - NE40 - NE 10 - 90 feet So. of 1/2 sec. line fence, 18 feet So. of R.R. right-of-way fence, No. of tracks, 39 rods W. of center of road.
Vegetation and land use: Blue grass
Slope and land form: 4 percent N to S and 1 1/2 percent E to W.
Erosion: None
Drainage: Highly imperfect to moderately well.
Permeability: Moderately slow to slow.
Parent Material: 120 inches of Peorian loess over old buried soil from Loveland loess.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. October 19, 1955.

Horizon and Beltsville Lab. No.	
Ap 551804	0 to 6 inches. Very dark brown (10YR 2/2), silt loam, moderate, fine to medium crumb structure, friable.
A11 551805	6 to 12 inches. Same as the Ap layer.
A12 551806	12 to 19 inches. Very dark brown (10YR 2/2), silt loam, moderate, fine, subangular blocky structure, friable.
B1 551807	19 to 22 inches. Very dark gray (10YR 3/1), light silty clay loam, strong, fine to medium, subangular blocky structure, firm.
B21 551808	22 to 26 inches. Very dark grayish brown (10YR 3/2), silty clay loam, coated with very dark brown (10YR 2/2) strong, fine to medium subangular blocky structure, firm.
B22 551809	26 to 31 inches. Dark grayish brown to brown (10YR 4/2.5), silty clay loam, mottled with common, fine, distinct brown (10YR 5/3), strong, fine to medium, subangular blocky structure, firm.
B23 551810	31 to 45 inches. Grayish brown (2.5Y 5/2), silty clay loam, mottled with common, fine, distinct, yellowish brown (10YR 5/6) and dark brown (7.5YR 4/4), coated with dark gray (10YR 4/1), columnar in place which breaks to a moderate, coarse subangular blocky structure, firm.
B3 551811	45 to 53 inches. Grayish brown to dark grayish brown (2.5Y 4.5/2), light silty clay loam, mottled with many, medium, prominent brown to dark brown (10YR 4.5/3) mottles, weak, very coarse, subangular blocky structure, friable. Some (10YR 2/2) iron stains.
C1 551812	53 to 70 inches. Grayish brown (2.5Y 5/2), silt loam, mottled with many, medium, prominent dark brown (10YR 4/3) and (7.5YR 4/4) mottles - few, fine prominent (5YR 2/2) stains.

Notes: Roots well distributed through B21 horizon. Colors refer to moist soil.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bonnie silt loam SOIL Nos. S63Ill-96-1 LOCATION Wayne County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19311-19317 May 16, 1966
General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) a 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: > 2 Pct.	2 – 19 Pct. of < 2 mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	7.5	72.7	19.8	1.4	1.9	0.7	1.5	2.0	20.6	52.1	23.5	5.5			-		
8-11	C1	6.2	72.9	20.9	1.7	2.6	0.7	0.7	0.5	21.8	51.1	22.7	5.7			-		
11-25	C2	5.7	69.6	24.7	1.8	2.1	0.5	0.7	0.6	21.4	48.2	22.4	5.1			-		
25-37	C3g	6.5	68.2	25.3	1.7	1.9	0.6	1.0	1.3	16.5	51.7	18.4	5.2			-		
37-44	C4g	6.1	64.9	29.0	1.3	1.8	0.6	1.0	1.4	14.9	50.0	16.9	4.7			-		
44-57	C5g	7.0	62.8	30.2	1.1	1.6	0.7	1.7	1.9	17.2	45.6	20.1	5.1			-		
57-70	C6g	8.3	62.9	28.8	1.0	1.8	0.8	2.1	2.6	16.9	46.0	20.9	5.7			-		

Depth (In.)	6Ala Organic carbon a, b Pct.	6Bla Nitrogen Pct.	C/N		6E2a Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4Ala Field-State g/cc	4Ald 1/3-Bar g/cc	4Alb Air-Dry g/cc	4Dl COLE	Water content: 4B4 Field-State Pct.	4Blc 1/3-Bar Pct.	4B2 15-Bar Pct.	4Cl 1/3-to 15-Bar in./in.		pH a: 8Cla (1:1)		
0-8	0.83	0.086	10			1.6	1.46	1.42	1.46	0.010	10.1	21.5	8.2	0.19			6.8	
8-11	0.38	0.050	8			1.6	1.54	1.51	1.56	0.010	10.7	23.4	8.7	0.22			4.6	
11-25	0.29	0.046	6			1.5	1.46	1.44	1.48	0.010	13.4	23.2	10.3	0.18			4.7	
25-37	0.29	0.044	6			1.4	1.44	1.40	1.48	0.017	18.5	23.3	10.8	0.18			5.0	
37-44	0.21					1.5	1.52	1.47	1.57	0.020	19.6	23.2	12.3	0.16			5.1	
44-57	0.15					1.4	1.55	1.49	1.60	0.024	19.5	23.3	13.8	0.14			5.6	
57-70	0.15				tr(s)	1.6	1.56	1.50	1.65	0.032	20.2	22.6	13.0	0.14			7.1	

Depth (In.)	Extractable bases a 5Bla: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. Acidity a	Cat. Exch. Cap. a: 5A3a Sum Cations	5Ala NH_4OAc	6Gld KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations	5Cl NH_4OAc
	meq/100 g										Pct.	Pct.
0-8	8.4	4.8	0.3	0.2	13.7	3.4	17.1	14.7		1.8	80	93
8-11	3.0	1.9	0.2	0.2	5.3	9.9	15.2	12.4	2.9	1.6	35	43
11-25	2.9	3.6	0.4	0.2	7.1	11.1	18.2	14.2	3.8	0.8	39	50
25-37	3.9	3.4	0.8	0.2	8.3	9.5	17.8	15.1	2.7	1.1	47	55
37-44	5.2	4.5	1.4	0.2	11.3	9.0	20.3	17.5	2.5	1.2	56	64
44-57	7.5	6.4	2.2	0.3	16.4	5.0	21.4	19.2		1.2	77	85
57-70	8.1	6.5	2.6	0.3	17.5	3.0	20.5	18.5		1.2	85	94

Depth (In.)	Ratios to Clay 8Dl: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-8	0.74	0.08	0.41
8-11	0.59	0.08	0.42
11-25	0.57	0.06	0.42
25-37	0.60	0.06	0.43
37-44	0.60	0.05	0.42
44-57	0.64	0.05	0.46
57-70	0.64	0.06	0.45

a. Determined at Soil Survey Laboratory - Riverside, California.
b. 7 kg/m^2 to 60 inches. (Method 6A)

Soil type: Bonnie Silt Loam
Soil Nos.: S63 Ill-96-1
Location: Wayne County, Illinois, T1S, R5E, Sec. 4, NE 160, SW 40, NW 10, SW 2½, 290 feet E of center of NS gravel road and 770 feet north of section center.
Vegetation and use: Wheat stubble; cropland.
Slope and land form: Level to nearly level; Skillet Fork River valley floor.
Drainage and permeability: Poorly drained with slow surface run-off; slowly permeable.
Parent material: Alluvium
Described and sampled by: G. O. Walker, J. B. Fehrenbacher, D. L. Wallace, R. E. Bourland, L. M. Reinebach, F. N. Carroll, November 14, 1963.

Horizon and Lab. Nos.

Ap
LSL 19311
UIL 19458
0-8 inches, dark grayish brown (10YR 4/2) silt loam with specks of light brownish gray (10YR 6/2); weak, fine, crumb structure; friable; many fine iron concretions; common roots; pH 7.6; abrupt smooth boundary.

C1
LSL 19312
UIL 19459
8-11 inches, light gray (10YR 7/1 to 7/2) silt loam with many, coarse, distinct yellowish brown (10YR 5/4) and few, medium, distinct yellowish brown (10YR 5/8) mottles; weak, medium, platy structure; friable after rupture but has a compact plow pan; many fine iron concretions; fine roots; pH 5.0; abrupt smooth boundary.

C2
LSL 19313
UIL 19460
11-25 inches, light gray (10YR 7/1 to 7/2) silt loam with many, coarse, distinct brown (10YR 5/3), common medium, distinct yellow (10YR 7/6) and yellowish brown (10YR 5/6) and common, medium, distinct brown (7.5YR 4/4) mottles; massive; friable; many, fine iron concretions; few root fillings of gray (10YR 6/1) material high in clay; pH 5.0; clear smooth boundary.

C3g
LSL 19314
UIL 19461
25-37 inches, gray (10YR 6/1) to light gray (10YR 7/1) silt loam with few, fine, prominent yellowish brown (10YR 5/4) and common, medium, distinct brown (7.5YR 4/4) and many, coarse, distinct brown (10YR 5/3), yellow (10YR 7/6) and yellowish brown (10YR 5/6) mottles; massive; friable; occasional thin light gray (10YR 7/2) silt coatings in major cracks; fine root channels filled with gray (10YR 6/10 material high in clay; vesicular; many pores ranging up to 2 mm. in diameter, and many fine iron concretions; pH 5.2; gradual wavy boundary.

C4g
LSL 19315
UIL 19462
37-44 inches, gray (10YR 6/1) medium to heavy silt loam with some light gray (10YR 7/1); many, coarse, distinct brown (10YR 4/3) to dark yellowish brown (10YR 4/4) and few medium, prominent reddish brown (5YR 5/4), and few, fine, distinct yellowish brown (10YR 5/6 and 5/8) mottles; massive; slightly firm; occasional thin light gray (10YR 7/2) silt coatings in major cracks; many fine iron concretions, root channels filled with gray (10YR 6/1) material high in clay; vesicular, but less pronounced than the C3g layer; pH 5.2; diffuse smooth boundary.

C5g
LSL 19316
UIL 19463
44-57 inches, gray (5Y 6/1) heavy silt loam with many, coarse, distinct brown (10YR 4/3) to dark yellowish brown (10YR 4/4) and common, fine, distinct, yellowish brown (10YR 5/6), and few, fine, distinct, strong brown (7.5YR 5/6) mottles; massive; slightly firm; occasional thin light gray (10YR 7/2) silt coating in major cracks; many fine iron concretions becoming larger with depth; some small pores; some channel fillings of gray (5Y 5/1) material high in clay; few, fine roots; pH 5.6.

C6g
LSL 19317
UIL 19464
57-70 inches, gray (5Y 6/1) heavy silt loam with many, coarse, distinct brown (10YR 4/3) to dark yellowish brown (10YR 4/4) and common, coarse, distinct, yellowish red (5YR 4/6) mottles; massive; slightly firm; many, medium iron concretions and some soft ones; pH 6.2.

C7g
70-90 inches, gray (10YR 6/1) heavy silt loam with many, medium, distinct dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) mottles; massive; slightly firm; concretions as in above layer; pH 8.0.

C8g
90-100 inches, gray (10YR 6/1) light silty clay loam with many, coarse, distinct dark yellowish brown (10YR 4/4) mottles; massive; slightly firm; concretions as in layer above; pH 8.0.

Remarks: The C7g and C8g horizons were sampled with a tube auger.

Except for some moved clay as channel fillings, there appeared to be no B-development in this profile. Even though some clods appeared fragile when dry, there was no definite evidence of the development of a fragipan. All colors are for moist conditions. Reaction determined by Truog soil test kit.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. 853I11-10-4 LOCATION Champaign County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531715 - 531722

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 2mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm															
0-4	A1	10.1	71.9	18.0	0.9	2.5	3.2	2.6	0.9	22.3	49.6	24.2	9.2		-		
4-10	A2	10.2	72.6	17.2	1.0	2.7	3.2	2.6	0.7	24.1	48.5	25.8	9.5		-		
10-13	A3 a																
13-17	B1	10.0	64.9	25.1	0.8	2.6	3.1	2.8	0.7	21.3	43.6	22.9	9.3		-		
17-24	B21	12.7	53.7	33.6	1.0	2.7	4.1	3.8	1.1	20.8	32.9	23.2	11.6		-		
24-32	B22	31.6	42.7	25.7	1.8	7.1	10.7	10.2	1.8	15.9	26.8	20.9	29.8		tr.		
32-36	B3 a																
50-58	C1 b	83.8	5.0	11.2	7.4	13.4	30.4	30.3	2.3	2.2	2.8	14.9	81.5		26		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N	Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.	4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-4	1.84													6.1
4-10	0.64													5.9
10-13														
13-17	0.24													5.6
17-24	0.22													5.3
24-32	0.11													5.2
32-36														
50-58	0.06													5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g													
0-4	10.1	3.2	0.1	0.6		6.8	20.8						67	
4-10	6.1	3.0	tr.	0.4		5.3	14.8						64	
10-13														
13-17	7.0	4.4	tr.	0.4		5.6	17.4						68	
17-24	11.2	6.6	0.1	0.5		7.4	25.8						71	
24-32	10.3	6.2	0.1	0.5		6.7	23.8						72	
32-36														
50-58	2.9	3.2	tr.	0.2		3.2	9.5						66	

Depth (In.)	Clay Fraction Analysis 7A1b-d — X-ray 7A2: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	7A3: Kl.	Gibbsite

a No analyses on these horizons.

b Soil described from 36-75 inches.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam
Soil No.: S53Ill-10-4
Location: Champaign County, Illinois. T.22 N., R.8 E., Sec. 21, SW 1/4, SW 40, SE 10, on north side of dead end dirt road 530 feet west of quarter-line fence, directly across road from electric power-line pole, in 10 foot road bank with no road cut.
Vegetation and land use: Bluegrass, weeds, sumac, small thorn trees.
Slope and land form: 1/2 percent to northeast.
Sampled by and date: A. H. Beavers, R. T. Odell, H. L. Wascher. September 11, 1953.

Horizon and Beltsville Lab. No.	
A1 531715	0 to 4 inches. Dark brown (7.5YR 3/2) 1/16 - 1/8 inch crumb to granular silt loam.
A2 531716	4 to 10 inches. Brown (7.5YR 5.5/4), thin platy silt loam.
A3 531717	10 to 13 inches. Yellowish brown (10YR 5/4), weak 1/4 inch subangular blocky silt loam.
B1 531718	13 to 17 inches. Yellowish brown (9YR 5/6), 1/4 inch subangular blocky light silty clay loam.
B21 531719	17 to 24 inches. Yellowish brown (9YR 5/6), 1/4 - 3/8 inch subangular blocky to nutlike silty clay loam with few sand grains in lower part.
B22 531720	24 to 32 inches. Yellowish brown (9YR 5/5), 1/4 - 1/2 inch subangular blocky silty clay loam with sand grains.
B3 531721	32 to 36 inches. Yellowish brown (9YR 4.5/4), irregular fragmental clay loam or silty clay loam with some sand grains and few small pebbles.
C1 531722	36 to 75 inches. Dark brown (7.5YR 4/4), sandy to fine gravelly clay loam.
C2 Not Sampled	75 to 105 inches. Dark reddish brown (6YR 3/3), fine gravelly clay loam.
Cu(D) Not Sampled	105 inches plus. Calcareous gravel.

Notes: Located in Sangamon river basin. Material below 32 inches probably deposited primarily by waters of Bloomington stage of Wisconsin glaciation. Material above 32 inches mostly loess of Peorian age. Elevation 710 - 720 feet.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. 853I11-20-3 LOCATION DeWitt County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531708 - 531714

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	A1	20.0	67.3	12.7	0.2	1.7	5.6	10.3	2.2	28.4	38.9	35.0	17.8			-		
5-11	A2	17.7	67.3	15.0	0.2	1.5	5.0	9.2	1.8	27.4	39.9	33.2	15.9			-		
11-14	A3 a																	
14-18	B1	11.7	61.9	26.4	-	0.7	3.1	6.4	1.5	25.9	36.0	30.1	10.2			-		
18-27	B21	11.7	58.4	29.9	-	0.6	3.2	6.4	1.5	26.5	31.9	30.7	10.2			-		
27-35	B22	28.0	46.8	25.2	-	1.2	7.6	16.6	2.6	20.2	26.6	30.3	25.4			-		
35-44	C1	62.2	21.0	16.8	0.1	3.2	18.5	36.3	4.1	9.3	11.7	28.7	58.1			-		
44-54	C2 a																	

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density g/cc	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5	1.20																	5.1
5-11	0.61																	5.6
11-14																		
14-18	0.26																	5.7
18-27	0.17																	5.7
27-35	0.14																	5.4
35-44	0.05																	5.0
44-54																		

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5	5.6	1.4	tr.	0.5		4.8	12.3									61	
5-11	4.6	1.1	tr.	0.4		4.2	10.3									59	
11-14																	
14-18	8.2	4.3	0.1	0.5		5.1	18.2									72	
18-27	10.1	5.6	0.1	0.5		5.7	22.2									74	
27-35	8.4	5.2	0.1	0.4		5.6	19.7									72	
35-44	5.2	4.3	tr.	0.3		4.2	14.0									70	
44-54																	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a No analyses on these horizons.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam
Soil No.: S53Il1-20-3
Location: DeWitt County, Illinois. T.19 N., R.2 E., Sec. 17, SE 1/4, NE 40, NW 10 in wooded pasture south of gravel pit, 120 feet west of fence on 40-rod line, and 12 feet south of fence on half line.
Vegetation and land use: Bluegrass sod with scattering of small elm, locust, and other trees.
Slope and land form: 3 percent to south.
Sampled by and date: A. H. Beavers, R. T. Odell, H. L. Wascher. September 10, 1953.

Horizon and Beltsville Lab. No.	
A1 531708	0 to 5 inches. Dark brown (7.5YR 3/2), fine crumb tending toward platy in lower part, silt loam.
A2 531709	5 to 11 inches. Dark brown (7.5YR 4/3), thin platy in upper part to small subangular in lower part, silt loam.
A3 Not sampled	11 to 14 inches. Brown (7.5YR 5/4), 1/4 inch irregular fragmental, silt loam.
B1 531710	14 to 18 inches. Brown (7.5YR 5/5), 1/4 - 3/8 inch subangular to nutlike, thin faint partially coated light gray (10YR 7/2), light silty clay loam.
B21 531711	18 to 27 inches. Dark brown (7.5YR 4/4), 1/4 - 5/8 inch subangular blocky and nutlike, silty clay loam.
B22 531712	27 to 35 inches. Dark yellowish brown (9YR 4/4), 3/8 - 3/4 inch subangular blocky clay loam.
C1 531713	35 to 44 inches. Dark yellowish brown (7.5YR 4/4), 1-2 inch irregular fragmental sandy clay loam.
C2 531714	44 to 54 inches. Dark brown (7.5YR 4/4) sandy loam to light sandy clay loam. This layer has a very wavy lower contact with tongues up to 2 feet or more extending into calcareous gravel below.
Cu Not Sampled	Calcareous gravel.

Notes: Located in Salt creek basin. Material above 27 inches may be mostly loess of Peorian age. Material below 27 inches probably deposited primarily by waters of Bloomington stage of Wisconsin glaciation.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. S53Il1-29-1 LOCATION Fulton County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531693 - 531699

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	A1 a																	
5-11½	A2	10.2	67.5	22.3	0.2	1.5	3.9	3.7	0.9	31.2	36.3	33.4	9.3			-		
11½-15½	B1 a																	
15½-22	B21	4.2	60.9	34.9	-	0.6	1.6	1.5	0.5	23.8	37.1	24.7	3.7			-		
22-31	B22	4.8	60.9	34.3	-	0.6	1.8	1.8	0.6	25.5	35.4	26.6	4.2			-		
31-37	B3 a																	
37-41	C1	39.9	37.9	22.2	0.1	4.7	17.4	16.8	0.9	15.1	22.8	21.2	39.0			-		
41-57	Cu1(D1)	77.9	12.3	9.8	0.1	8.8	29.3	36.9	2.8	5.9	6.4	21.0	75.1			-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density:	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in		
0-5																	
5-11½	0.73																6.0
11½-15½																	
15½-22	0.36																6.0
22-31	0.21																5.3
31-37																	
37-41	0.14																5.1
41-57	0.06																5.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5																	
5-11½	8.6	2.9	0.1	0.4		4.2	16.2									74	
11½-15½																	
15½-22	12.4	5.6	0.1	0.6		5.0	23.7									79	
22-31	10.0	5.7	0.2	0.6		8.5	25.0									66	
31-37																	
37-41	6.0	3.5	0.1	0.3		5.6	15.5									64	
41-57	3.0	1.4	tr.	0.2		1.9	6.5									71	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	X-ray 7A2						7A3		

a No analyses on these horizons.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam
Soil No.: S53Ill-29-1
Location: Fulton County, Illinois. T.7 N., R.2 E., Sec. 18, NW 1/4, SW 40, SW 10 on low ridge in 6 foot road bank with 2 foot cut on north side of gravel road, 310 feet east of garden-orchard fence, 80 feet east and 50 feet west of telephone poles.
Vegetation and land use: Burned-off grass and weeds.
Slope and land form: 2 percent to east.
Sampled by and date: A. H. Beavers, R. T. Odell, H. L. Wascher. September 8, 1953.

Horizon and Beltsville Lab. No.	
A1 531692	0 to 5 inches. Very dark grayish brown (10YR 3.5/2), 1/8 inch crumb to indistinct thin platy in lower part, silt loam
A2 531693	5 to 11-1/2 inches. Brown (7.5YR 5/4), thin platy in upper to indistinct 1/8 - 1/4 inch granular to subangular in lower, silt loam.
B1 531694	11-1/2 to 15-1/2 inches. Brown (7.5YR 5/4), 1/8 - 1/4 inch subangular blocky, silty clay loam.
B21 531695	15-1/2 to 22 inches. Brown (7.5YR 4/4), 1/4 inch subangular blocky, silty clay loam.
B22 531696	22 to 31 inches. Brown (7.5YR 4/4), 1/2 inch subangular blocky to nutlike with few iron-manganese coatings of black (10YR 2/1) silty clay loam.
B3 531697	31 to 37 inches. Yellowish brown (9YR 5/5), 1 inch irregular subangular to nutlike with few iron-manganese splotches, light silty clay loam.
C1 531698	37 to 41 inches. Yellowish brown (9YR 5/4), irregular fragmental with an occasional iron-manganese splotch, light silty clay loam with sand.
Cu1(D1) 531699	41 to 57 inches. Dark yellowish brown (9YR 4/4), medium sandy loam to light sandy clay loam.
Cu2(D2) Not Sampled	57 to 70 inches plus. Medium to coarse loamy sand to sand.

Notes: Located in Spoon river valley. Material above 37 inches may be mostly loess of Peorian age, below 37 inches probably deposited primarily by waters of Shelbyville and/or Bloomington stages of Wisconsin glaciation. Elevation 520-540 feet.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. 853I11-51-7 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531741 - 531748

Depth (In.)	Horizon	1B1b Total Sand (2–0.05) Pct. of < 2 mm	Total Silt (0.05–0.002) Pct. of < 2 mm	Total Clay (< 0.002) Pct. of < 2 mm	Sand: Very coarse (2–1) Pct. of < 2 mm	Sand: Coarse (1–0.5) Pct. of < 2 mm	Sand: Medium (0.5–0.25) Pct. of < 2 mm	Sand: Fine (0.25–0.1) Pct. of < 2 mm	Sand: Very fine (0.1–0.05) Pct. of < 2 mm	Silt (0.05–0.02) Pct. of < 2 mm	Silt: Int. III (0.02–0.002) Pct. of < 2 mm	Int. II (0.2–0.02) Pct. of < 2 mm	(2–0.1) Pct. of < 2 mm	3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
0-4½	A1 a																
4½-10	A2	32.6	57.2	10.2	0.1	0.4	1.0	15.2	15.9	29.2	28.0	56.5	16.7			-	
10-14	A3 a																
14-17	B1 a																
17-23	B21	36.1	42.2	21.7	-	0.1	0.5	16.5	19.0	23.6	18.6	55.7	17.1			-	
23-29	B22	28.2	46.3	25.5	-	0.1	0.3	10.4	17.4	28.0	18.3	54.0	10.8			-	
29-36	B23	17.6	56.3	26.1	-	0.1	0.2	4.9	12.4	33.4	22.9	50.0	5.2			-	
36-47	C1	31.3	47.2	21.5	-	0.1	0.2	11.0	20.0	31.2	16.0	60.3	11.3			-	
47-62	C2	15.0	66.6	18.4	-	0.1	0.6	4.7	9.6	28.2	38.4	41.3	5.4			-	

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-4½																
4½-10	0.54															6.2
10-14																
14-17																
17-23	0.17															5.1
23-29	0.14															4.8
29-36	0.11															4.6
36-47	0.09															4.8
47-62	0.08															4.8

Depth (In.)	Extractable bases 5B1a 6N2d Ca meq/100 g	6O2b Mg meq/100 g	6P2a Na meq/100 g	6Q2a K meq/100 g	Sum meq/100 g	6H1a Ext. acidity meq/100 g	CEC 5A3a Sum cations meq/100 g	CEC meq/100 g	6G1d Ext. Al meq/100 g	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
0-4½															
4½-10	3.0	1.4	tr.	0.2		4.0	8.6							53	
10-14															
14-17															
17-23	4.1	2.2	tr.	0.3		6.5	13.1							50	
23-29	3.6	2.9	tr.	0.4		10.1	17.0							40	
29-36	3.3	2.9	0.2	0.3		10.7	17.4							38	
36-47	2.8	3.0	0.2	0.2		9.1	15.3							40	
47-62	2.9	3.0	0.2	0.2		8.5	14.8							42	

Depth (In.)	Clay Fraction Analysis 7A1b-d 7A2 X-ray: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	7A3: Kl.	Gibbsite

a No analyses on these horizons.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam.
Soil No.: S53Ill-51-7
Location: Lawrence County, Illinois. T.4 N., R.11 W., Sec. 1, NE 1/4, NW 40, SW 10, on north side of gravel road about 440 feet east of center of road corner (L-corner), which is also 1/2 line, and 72 feet west of power line pole on south side of road, in 2 foot road bank with one foot road ditch cut.
Vegetation and land use: Brush cover mostly poison ivy, blackberries and small oak and maple sprouts.
Slope and land form: 1 percent to east and west.
Sampled by and date: J. B. Fehrenbacher, R. H. Ruhe, and H. L. Wascher. September 16, 1953.

Horizon and Beltsville Lab. No.	
A1 531740	0 to 4 1/2 inches. Very dark grayish brown to dark brown (10YR 3/2 - 3/3), crumb silt loam with few fine sand grains.
A2 531741	4 1/2 to 10 inches. Dark yellowish brown (10YR 4.5/4) weak thin platy, silt loam with few grains of fine sand.
A3 531742	10 to 14 inches. Brown (7.5YR 5/5), indistinct weak platy silt loam with some fine sand.
B1 531743	14 to 17 inches. Strong brown (7.5YR 5/6), 1/4 inch subangular blocky light silty clay loam with some fine sand.
B21 531744	17 to 23 inches. Strong brown (7.5YR 5/6), 1/4 - 3/8 inch subangular clay loam or silty clay loam with fine sand.
B22 531745	23 to 29 inches. Dark brown (7.5YR 4/5) 1/4 - 1/2 inch subangular blocky silty clay loam with some fine sand.
B23 531746	29 to 36 inches. Dark brown (7.5YR 4/5) specked yellowish brown and dark yellowish brown (10YR 5/4), 3/8 - 3/4 inch subangular blocky coated yellowish brown (10YR 5/4), silty clay loam with fine sand.
C1 531747	36 to 47 inches. Strong brown (7.5YR 5/6) specked with iron-manganese 2/2, irregular fragmental to 1/4 inch platy, light clay loam or light silty clay loam with fine sand.
C2 531748	47 to 62 inches. Strong brown (7.5YR 5/6) specked and streaked very dark brown (7.5YR 2/2), massive breaking into irregular fragmental, heavy loam or heavy silt loam with fine sand.
Cu Not Sampled	62 inches plus. Fine sandy loam.

Notes: Taken on moderately wide terrace in Wabash river valley. Material to 62 inches may or may not be partly loess of Peorian age mixed with water deposited material from Wisconsin glaciation. Elevation about 445-450 feet. Profile very dry to 40 inch depth.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. S53Ill-51-8 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531749 - 531757

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5½	Ap a																	
5½-12	A2	15.5	72.5	12.0	-	0.2	0.5	5.0	9.8	36.0	36.5	49.7	5.7			-		
12-15	A3 a																	
15-18	B1 a																	
18-23	B21	15.3	57.3	27.4	-	-	0.2	5.0	10.1	27.0	30.3	41.6	5.2			-		
23-30	B22	21.0	51.0	28.0	-	-	0.2	7.4	13.4	21.7	25.8	45.3	7.6			-		
30-40	B23	10.1	60.5	29.4	-	-	0.1	1.4	8.6	31.2	29.3	41.1	1.5			-		
40-48	B3	4.3	66.5	29.2	-	-	0.1	1.6	2.6	26.9	39.6	30.7	1.7			-		
48-60	C1	19.5	55.2	25.3	-	-	0.1	5.5	13.9	29.3	25.9	48.3	5.6			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5½																	
5½-12	0.60																6.8
12-15																	
15-18																	
18-23	0.12																4.9
23-30	0.13																4.8
30-40	0.14																4.8
40-48	0.10																4.8
48-60	0.07																4.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5½																	
5½-12	4.9	1.8	0.2	0.2		3.1	10.2									70	
12-15																	
15-18																	
18-23	5.0	2.1	0.1	0.3		9.1	16.6									45	
23-30	4.7	2.7	tr.	0.3		10.1	17.8									43	
30-40	5.7	3.6	tr.	0.3		10.8	20.4									47	
40-48	5.8	3.7	tr.	0.3		11.5	21.3									46	
48-60	5.0	3.4	0.1	0.3		9.4	18.2									48	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a No analyses on these horizons.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam.
Soil No.: S53Ill-51-8
Location: Lawrence County, Illinois. T.4 N., R.12 W, Sec. 21, SE 1/4, NE 40, NW 10, on east side of gravel road about 570 feet south of L-road corner which is also 1/2 line, about 100 feet north of power line pole on west side of road, also about 42 feet north of large oak tree and 78 feet south of hackberry tree, at corner of field and lane to old abandoned house, in 2 foot road bank with 1 foot road cut.
Vegetation and land use: Thin stand of grass.
Slope and land form: 1 1/2 percent to NE and SW.
Sampled by and date: J. B. Fehrenbacher, R. H. Ruhe, and H. L. Wascher. September 17, 1953.

Horizon and Beltsville Lab. No.	
Ap 531749	0 to 5 1/2 inches. Dark grayish brown (10YR 4/2), 3/16 inch crumb, coarse silt loam.
A2 531750	5 1/2 to 12 inches. Brown (10YR 4/3), thin platy silt loam.
A3 531751	12 to 15 inches. Strong brown (7.5YR 5.5/6), thin platy silt loam.
B1 531752	15 to 18 inches. Strong brown (7.5YR 5/6), 1/4 - 3/8 inch subangular blocky light silty clay loam.
B21 531753	18 to 23 inches. Strong brown (7.5YR 5/6), 1/4 - 1/2 inch subangular with few thin iron-manganese splotches, silty clay loam.
B22 531754	23 to 30 inches. Strong brown (7.5YR 5/6) splotched iron-manganese, very dark brown (7.5YR 2/2), 1/2 - 1 inch subangular to nutlike some elongated up to 2 inches, silty clay loam, few fine sand grains.
B23 531755	30 to 40 inches. Strong brown (7.5YR 5/6) prominent iron-manganese splotches of very dark brown (7.5YR 2/2), 1 - 1 1/2 inch subangular to fragmental light silty clay loam.
B3 531756	40 to 48 inches. Yellowish brown (9YR 5/6) mottled strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2) and specked iron-manganese concretions very dark brown (7.5YR 2/2), 2 inch subangular often elongated to 4 - 5 inches coated reddish brown (5YR 4/4).
C1 531757	48 to 60 inches. Strong brown (7.5YR 5/6) spotted very dark brown (7.5YR 2/2) and light brownish gray (10YR 6/2) light clay loam or light silty clay loam with fine sand.

Notes: Taken on low terrace in Embarrass river basin. Material to 23 inches may be mostly loess of Peorian age, that below 23 inches is probably mostly deposited by water from till of Shelbyville, Cerro Gordo and Champaign stages of Wisconsin glaciation. Elevation about 435 feet.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. S53Il1-66-2 LOCATION Mercer County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531700 - 531707

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	A a																	
5-8	A21	10.9	72.5	16.6	0.1	1.7	2.2	2.9	4.0	39.7	32.8	45.3	6.9			-		
8-13	A22																	
13-16	B1 a																	
16-21	B21	8.2	62.9	28.9	0.1	1.1	2.4	2.4	2.2	32.0	30.9	35.3	6.0			-		
21-27	B22	13.5	56.5	30.0	0.1	1.7	4.9	4.6	2.2	28.1	28.4	31.9	11.3					
27-31	B3 a																	
31-38	C1	50.1	32.0	17.9	0.2	6.8	19.7	20.0	3.4	18.1	13.9	27.9	46.7			-		
38-43	Cu1	81.1	11.2	7.7	0.3	21.8	29.4	26.7	2.9	5.9	5.3	18.1	78.2			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density:	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5																		
5-8	0.28																	6.2
8-13																		
13-16																		
16-21	0.18																	5.8
21-27	0.15																	5.2
27-31																		
31-38	0.06																	4.8
38-43	0.05																	5.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-5																
5-8	6.6	0.9	tr.	0.2		2.3	10.0								77	
8-13																
13-16																
16-21	10.3	3.5	0.1	0.4		4.6	18.9								76	
21-27	9.2	1.4	0.1	0.4		6.8	17.9								62	
27-31																
31-38	4.3	0.6	0.1	0.2		6.0	11.2								46	
38-43	2.0	1.1	tr.	0.1		2.0	5.2								62	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a No analyses on these horisons.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam
Soil No.: S53I11-66-2
Location: Mercer County, Illinois. T.14 N., R.5 W., Sec. 10, NW 1/4, SW 40, SW 10, on north side of gravel road in 3 foot road bank with 2 foot cut, 100 feet east of center of T-road (also fence to north) and 25 feet west of electric power line pole.
Vegetation and land use: Bluegrass and weeds.
Slope and land form: Probably 1/2 percent.
Sampled by and date: A. H. Beavers, R. T. Odell, H. L. Wascher. September 9, 1953.

Horizon and Beltsville Lab. No.	
A1 531700	0 to 5 inches. Dark yellowish brown (10YR 3/4), 1/32 - 1/10 inch crumb in upper to indistinct thin platy in lower part, silt loam.
A21 531701	5 to 8 inches. Yellowish brown (10YR 5.5/4), thin platy to indistinct granular, silt loam.
A22	8 to 13 inches. Horizon same as above.
B1 531702	13 to 16 inches. Yellowish brown (10YR 5.5/5), 1/4 - 3/8 inch irregular subangular blocky, light silty clay loam.
B21 531703	16 to 21 inches. Yellowish brown (10YR 5.5/6), 1/4 - 3/8 inch rounded nutlike to subangular blocky with thin light gray (10YR 7/2) coatings, silty clay loam.
B22 531704	21 to 27 inches. Yellowish brown (10YR 5/6), 1/4 - 1/2 inch subangular with thin light gray (10YR 7/2) coatings, an occasional black (10YR 2/1) splotch, silty clay loam.
B3 531705	27 to 31 inches. Yellowish brown (10YR 5/6), 1/2 - 3/4 inch irregular subangular blocky, few faint iron-manganese splotches, silty clay loam with some sand grains.
C1 531706	31 to 38 inches. Dark brown (7.5YR 4/5), compact, fragipan-like tending to break into 1/2 inch thick platy clay loam.
Cu1 531707	38 to 43 inches. Brown (7.5YR 4/4), compact, slightly cemented loamy sand.
Cu2 Not Sampled	43 to 48 inches. Brown (7.5YR 4/4) sticky clay loam splotched very dark gray (N/3) iron-manganese.
Cu3 Not Sampled	48 to 54 inches. Variegated silt loam.

Notes: On terrace about 10 feet above Edwards river bottom at its junction with Mississippi river terraces. Material above 27 inches may be mostly loess of Peorian age, that below 37 inches may have been deposited by waters of any of Wisconsin glacial stages. Elevation 570-580 feet. Profile very dry to 36 inch depth.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. 853I11-56-9 LOCATION McHenry County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531758 - 531765

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-3½	A1	12.9b	69.5	17.6	0.8	3.1	4.2	3.5	1.3	27.3	42.2	29.7	11.6			-		
3½-5½	A21 a																	
5½-11	A22	9.5	72.0	18.5	0.4	1.6	3.6	3.0	0.9	32.2	39.8	33.8	8.6			-		
11-15	B1 a																	
15-22	B21	4.1	62.0	33.9	0.1	0.7	1.4	1.1	0.8	26.7	35.3	27.9	3.3			tr.		
22-32	B22	12.6	54.4	33.0	0.2	1.9	4.7	4.8	1.0	24.5	29.9	26.9	11.6			-		
32-38	B3 or C1	70.3	8.9	20.8	5.8	22.6	25.2	15.7	1.0	3.4	5.5	8.5	69.3			5		
45-49	Cu1	90.3	2.4	7.3	3.2	16.1	42.9	27.2	0.9	0.8	1.6	7.7	89.4			9		

Depth (in.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-3½	3.77																5.5
3½-5½																	
5½-11	0.71																5.1
11-15																	
15-22	0.36																5.2
22-32	0.22																5.2
32-38	0.08																5.0
45-49	0.07																5.4

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-3½	13.1	3.1	0.1	0.8		12.1	29.2									58	
3½-5½																	
5½-11	5.5	1.8	0.2	0.3		7.4	15.2									51	
11-15																	
15-22	10.9	6.8	0.1	0.4		7.4	25.6									71	
22-32	10.1	7.5	0.2	0.4		8.5	26.7									68	
32-38	5.9	4.5	0.1	0.3		6.8	17.6									61	
45-49	2.2	1.8	0.1	tr.		2.3	6.4									64	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a No analyses on these horizons.

b Undecomposed organic matter in all sand fractions.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam.
Soil No.: S53Ill-56-9
Location: McHenry County, Illinois. T.45 N., R.7 E., Sec. 4, NE 1/4, NE 40, SE 10, in wooded pasture, 6 feet north of fence along south side of pasture and about 240 feet west of center of gravel road on very low ridge.
Vegetation and land use: Bluegrass sod.
Slope and land form: 1-1/2 percent to east and west.
Sampled by and date: L. J. Bartelli, B. W. Ray, and H. L. Wascher. September 24, 1953.

Horizon and Beltsville Lab. No.	
A1 531758	0 to 3 1/2 inches. Very dark brown (10YR 2/2), crumb to soft granular, silt loam.
A21 531759	3 1/2 to 5 1/2 inches. Dark yellowish brown (10YR 3/4) mixed with filled worm channels of very dark brown (10YR 2/2), weak platy silt loam.
A22 531760	5 1/2 to 11 inches. Yellowish brown (10YR 5/4), weak platy silt loam.
B1 531761	11 to 15 inches. Dark yellowish brown (9YR 4/4), 1/8 - 3/16 inch subangular light silty clay loam.
B21 531762	15 to 22 inches. Dark yellowish brown (9YR 4/4), 1/8 - 3/8 inch subangular to nutlike, silty clay loam.
B22 531763	22 to 32 inches. Dark yellowish brown (9YR 4/4), 1/4 - 1/2 inch subangular to nutlike, faces splotched iron-manganese very dark brown (7.5YR 2/2) silty clay loam with grains of sand.
B3 or C1 531764	32 to 38 inches. Dark brown (7.5YR 3/4) splotched very dark brown 2/2, breaking into irregular fragments, sticky clay loam (sand mostly coarse).
Cu1 Not Sampled	38 to 45 inches. Dark brown (7.5YR 4/4), loamy fine to medium sand.
Cu1 531765	45 to 49 inches. Horizon same as above.
Cu2 Not Sampled	49 to 51 inches. Dark brown (7.5YR 4/4) sandy clay loam.
Cu3 Not Sampled	51 to 72 inches plus. Noncalcareous loamy sand to sand.

Notes: Taken in rather broad flat outwash plain in Nippersink drainage basin. Material above 32 inches may be partly or mostly loess of Peorian age, that below 32 inches probably was deposited by waters from a segment of the Valparaiso stage of Wisconsin glaciation. Elevation 860 - 870 feet. Profile very dry to 30 inch depth when sampled.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Camden silt loam SOIL Nos. 853I11-56-10 LOCATION McHenry County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531766 - 531774

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4½	A1 a																	
4½-11½	A2	5.2	75.2	19.6	0.4	1.3	1.5	1.1	0.9	29.4	45.8	30.7	4.3			-		
11½-15	A3 a																	
15-18	B1 a																	
18-24	B21	3.7	63.3	33.0	0.1	0.5	1.1	1.0	1.0	30.5	32.8	31.8	2.7			-		
24-31	B22	3.3	62.7	34.0	-	0.4	0.9	1.0	1.0	29.8	32.9	31.3	2.3			-		
31-37	B23	7.5	60.2	32.3	-	0.9	2.6	2.4	1.6	29.9	30.3	32.4	5.9			-		
37-44	B3 a																	
44-50	C1	11.1	64.4	24.5	0.1	1.4	3.5	3.5	2.6	35.5	28.9	39.6	8.5			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
9-4½																
4½-11½	1.10															6.1
11½-15																
15-18																
18-24	0.19															5.4
24-31	0.20															5.2
31-37	0.07															5.0
37-44																
44-50	0.09															5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al			Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																	
0-4½																		
4½-11½	7.9	2.8	0.1	0.8		6.2	17.8										65	
11½-15																		
15-18																		
18-24	14.7	6.6	0.1	0.5		8.5	30.4										72	
24-31	13.4	5.7	0.1	0.7		10.2	30.1										66	
31-37	14.4	6.0	0.1	0.6		9.9	31.0										68	
37-44																		
44-50	9.2	4.0	tr.	0.5		7.6	21.3										64	

Depth (In.)	Clay fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a No analyses on these horizons.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Camden silt loam.
Soil No.: S53Ill-56-10
Location: McHenry County, Illinois. T.45 N., R.5 E., Sec. 7, NE 1/4, NE 40, SE 10, in small pasture on east side of gravel road, 8 feet east of road fence and 25 feet south of fence along north side of pasture, also about 165 feet west of section line fence along east side of pasture.
Vegetation and land use: Bluegrass sod.
Slope and land form: 1 percent to north and northeast.
Sampled by and date: L. J. Bartelli, B. W. Ray, and H. L. Wascher. September 25, 1953.

Horizon and Beltsville Lab. No.	
A1 531766.	0 to 4 1/2 inches. Very dark grayish brown (10YR 3/2), crumb to thin platy, silt loam.
A2 531767	4 1/2 to 11 1/2 inches. Very dark grayish brown (10YR 3.5/2), thin platy, silt loam.
A3 531768	11 1/2 to 15 inches. Yellowish brown (10YR 5/4), weak platy to 1/4 inch irregular fragmental, silt loam.
B1 531769	15 to 18 inches. Yellowish brown (10YR 5/5), 1/8 - 1/4 inch subangular blocky light silty clay loam.
B21 531770	18 to 24 inches. Yellowish brown (10YR 5/4), 1/8 - 1/4 inch subangular blocky silty clay loam.
B22 531771	24 to 31 inches. Brown (10YR 4/3) mottled light brownish gray (2.5Y 6/2) and iron-manganese concretions dark reddish brown (5YR 3/2), 1/4 - 1/2 inch subangular, silty clay loam.
B23 531772	31 to 37 inches. Brown and dark yellowish brown mixed (10YR 4/4 and 5/3) mottled iron-manganese yellowish brown (10YR 5/6), 3/8 - 3/4 inch subangular to nearly angular blocky, silty clay loam with sand grain.
B3 531773	37 to 44 inches. Yellowish brown and pale brown and dark yellowish brown mixed (10YR 5/4, 5/6 and 6/3), 1 - 2 inch blocky, light silty clay loam with fine sand.
C1 531774	44 to 50 inches. Light brownish gray and pale brown (10YR 6/2 and 6/3) mottled iron-manganese yellowish brown (10YR 5/6), irregular fragmental light silty clay loam with medium sand.
C1	50 to 67 inches. Horizon same as above.
Not Sampled Cu	67 inches plus. Coarse sandy loam to 75 inches on coarse loose sand.

Notes: Taken in broad flat outwash plain in Piscasaw drainage basin. Material above 31 inches may be partly or mostly loess of Peorian age, between 31 and 67 inches may be outwash of early Cary age (late Chicago stage) or from Bloomington stage of Wisconsin glaciation. Below 67 inches material is probably all from Bloomington or older stages of Wisconsin glaciation. Elevation 860-870 feet. Profile very dry to 30 inch depth.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clarence silt loam SOIL Nos. S48Il1-99-5 LOCATION Will County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481127 - 481130

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-11	A1		32.8	35.4	0.8	2.1	2.3	4.1	2.5		39.2	18.4				1		
11-16	B1		40.6	49.7	1.3	1.5	1.6	3.0	2.3		31.8	12.9				12		
16-29	B2		34.8	57.2	0.5	1.2	1.4	2.9	2.0		28.6	9.9				9		
29+	C		43.4	48.4	1.0	1.2	1.1	2.4	2.5		35.2	12.1				2		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N	6A3a Organic Matter H_2O_2 Pct.	Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1a ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.			4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-11				3.2													6.7
11-16				1.3													6.8
16-29				0.4													7.2
29+				0.2													7.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Clarence silt loam
Soil No.: S48Ill-99-5
Location: Will County, Illinois. SW160 SE40 SW10, Sec. 2 T.43N R.12E.
Slope and land form: 2 percent
Sampled by and date: Paul T. Veale, 1948.

Horizon and Beltsville Lab. No.	
A1 481127	0 to 11 inches. Very dark gray to dark gray (10YR 3/1 - 4/1) moist, friable granular silt loam.
B1 481128	11 to 16 inches. Breaks into dark gray, dark grayish brown, and dark yellowish brown (10YR 4/1, 4/2 and 4/4) moist, heavy silty clay to silty clay loam. Massive structure.
B2 481129	16 to 29 inches. Breaks into gray (10YR 5/1) moist, silty clay. Blocky structure 1/2 to 3/4 inch in diameter.
C 481130	29 inches plus. Blends into light gray (10YR 7/1) moist, heavy silty clay calcareous till. Blocky structure 1/2 to 3/4 inch in diameter.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clarksdale silt loam SOIL Nos. 855I11-1-5 LOCATION Adams County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551813- 551820

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	3A1 (2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	A1p		81.0	15.4	0.2	0.8	0.6	0.5	1.5		40.5	42.3				-		
8-15	A1		77.7	18.6	0.1	0.8	0.7	0.6	1.5		41.2	38.2				-		
15-21	A2		75.9	19.5	0.6	1.8	0.8	0.6	0.8		39.5	37.5				-		
21-28	B21		56.5	41.4	0.1	0.5	0.3	0.4	0.8		32.6	25.0				-		
28-35	B22a		57.0	40.7	0.1	0.5	0.3	0.4	1.0		33.7	24.4				-		
35-42	B22b		62.3	36.0	0.1	0.6	0.3	0.3	0.4		36.8	26.0				-		
42-55	B3		67.8	30.4	0.1	0.6	0.2	0.3	0.6		39.5	29.0				-		
55+	C1		74.5	23.6	0.2	0.5	0.4	0.4	0.4		47.3	27.8				-		

Depth (In.)	Horizon	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N	Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-8	A1p	1.46														4.6
8-15	A1	1.17														5.5
15-21	A2	0.72														5.5
21-28	B21	0.50														5.2
28-35	B22a	0.36														5.2
35-42	B22b	0.25														5.4
42-55	B3	0.16														5.7
55+	C1	0.08														6.2

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay CEC Sum	Ratios to clay Ext. iron	Ratios to clay 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g															
0-8	11.9	2.5	0.1	0.2		3.2	17.9								82	
8-15	8.6	2.6	0.1	0.2		6.5	18.0								64	
15-21	7.2	4.1	0.2	0.2		6.3	18.0								65	
21-28	13.5	10.2	0.5	0.5		9.2	33.9								73	
28-35	13.8	11.1	0.7	0.6		8.6	34.8								75	
35-42	12.8	10.6	0.8	0.5		7.1	31.8								78	
42-55	11.7	9.4	0.8	0.4		5.2	27.5								81	
55+	9.0	7.1	0.6	0.3		3.7	20.7								82	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = **trace**, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Clarksdale silt loam
Soil No.: S55Il1-1-5
Location: Adams County, Illinois. T3S - R6W - Sec. 12 - SE160 - SW40 - SE 10 - 12 rds. north of c. of Blacktop road - also due north of 3rd highline pole E of 1/2 line.
Vegetation and land use: Corn field
Slope and land form: 1 percent
Erosion: None
Drainage: Imperfect
Permeability: Moderately slow
Parent Material: 95 inches of Peorian loess on buried profile - probably Loveland loess.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. October 19, 1955.

Horizon and Beltsville Lab. No.	
A1p 551813	0 to 8 inches. Very dark brown (10YR 2.5/1.5) silt loam, weak fine, crumb structure. Friable.
A1 551814	8 to 15 inches. Same color and texture as above, very weak, fine subangular blocky structure. Friable.
A2 551815	15 to 21 inches. Very dark gray to dark gray (10YR 3.5/1) silt loam with a few, fine prominent hard iron concretions, weak, fine subangular blocky structure. Friable.
B21 551816	21 to 28 inches. Yellowish brown (10YR 5/6 and 5/8), heavy silty clay loam, mottled with grayish brown and brown (10YR 5/2 and 5/3) mottles, moderate, fine subangular blocky structure with many flat cleavage plains, sticky. Dark clay skins.
B22a 551817	28 to 35 inches. Gray to grayish brown (10YR 5/1.5) silty clay loam, mottled with many fine, distinct yellowish brown (10YR 5/4 and 5/6) mottles, weak, coarse, prismatic structure which breaks to a strong, coarse, blocky structure. Sticky. Vertical krotovina holes filled with black organic clay. Many fine, long, dark streaks.
B22b 551818	35 to 42 inches. Same as the B22a.
B3 551819	42 to 55 inches. Dark brown (7.5YR 4/4), light silty clay loam, mottled with many fine, distinct gray and brown (10YR 5/1 and 5/3) mottles, weak coarse prisms which breaks to a weak to moderate, coarse blocky structure. Sticky. Many black (10YR 2/1) concretions. Krotovina holes filled with black clay.
C1 551820	55 inches plus. Yellowish brown (10YR 5/6 and 5/8), heavy silt loam, mottled with gray (2.5Y 5/1). Friable. Many black (10YR 2/1) concretions. The krotovina holes and dark streaks terminates in this horizon.

Notes: Roots to C horizon-well distributed in B horizon. Colors refer to moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Clarksdale silt loam **LOCATION** Christian County, Illinois

SOIL NOS. S60Ill-11-1 **LAB. NOS.** 14274-14283

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.2a	0.7a	0.6b	1.0b	1.1b	78.0	18.4	33.9	45.7	-	
7-12	A2	0.4a	1.0a	0.7b	1.0b	0.9b	73.6	22.4	30.4	44.6	-	
12-15	B1	0.9a	1.0a	0.6b	0.8b	0.8b	66.5	29.4	26.8	40.9	-	
15-20	B21	0.3a	0.4a	0.3a	0.7a	0.8a	58.1	39.4	22.1	37.2	-	
20-26	B22	0.3a	0.4a	0.3a	0.7a	0.7a	57.0	40.6	21.5	36.6	-	
26-33	B23	0.3a	0.4a	0.3a	0.5a	0.8a	60.9	36.8	23.7	38.3	-	
33-39	B31	0.2a	0.3a	0.2a	0.4b	0.7b	69.2	29.0	28.7	41.4	-	
39-49	B32	0.2c	0.3c	0.2c	0.6d	0.8d	77.9	20.0	35.8	43.2	-	
49-55	C1	0.2c	0.2c	0.1c	0.3d	0.7d	81.6	16.9	38.8	43.7	-	
55-65	C2	-	0.1e	0.3e	1.3e	1.3e	80.4	16.6	38.1	44.4	-	

8C1a pH 1:1	6G1a Al KCl-Ext. me/100g	6E1c Carbonate as $CaCO_3$ % f	ORGANIC MATTER 6A1a ORGANIC CARBON % g	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	4A1a g/cc	30-Cm. 4B3 % W.	4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
5.7	-		1.52	0.122	12	0.8	7.4	1.41	24.7	1.35	1.42	7.6
5.0	0.4		0.69	0.065	11	0.9	10.1	1.53	24.2	1.45	1.54	10.0
5.3	0.1		0.81	0.077	10	1.2						13.1
5.4	0.1		0.74	0.073	10	1.3						18.4
6.1			0.62	0.061	10	1.5	18.2	1.60	30.0	1.40	1.68	19.6
6.7		-	0.44			1.7						18.5
7.2		Tr.	0.32			1.3						15.2
7.8		10	0.20			1.3						10.2
7.9		10	0.12			1.3	18.8	1.58	25.8	1.54	1.60	8.7
7.7		1	0.11			0.7						8.4

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	on Sum Cations % 5C3	Ratios to Clay 8D1 NH_4OAc CEC	Ext. Iron	Water at 15 Atm.	8D3 Ca/Mg
← milliequivalents per 100g. soil →						→						
14.2	10.3	2.2	6.7	Tr.	0.2	19.4	89	65	.77	.043	.41	4.7
15.2	7.9	3.3	8.6	Tr.	0.3	20.1	76	57	.68	.040	.45	2.4
20.4	10.7	6.4	8.2	0.1	0.4	25.8	86	68	.69	.041	.44	1.7
27.0	14.6	10.7	9.0	0.1	0.6	35.0	96	74	.68	.033	.47	1.4
29.5	16.1	12.7	6.5	0.2	0.6	36.1	100	82	.73	.037	.48	1.3
27.1	15.0	12.8	4.4	0.2	0.5	32.9	105	87	.74	.046	.50	1.2
23.5				0.2	0.4				.81	.045	.52	
16.0				0.2	0.3				.80	.065	.51	
12.5				0.2	0.2				.74	.077	.51	
13.4				0.2	0.2				.81	.042	.51	

a. Many Fe-Mn nodules.
b. Common Fe-Mn nodules.
c. Many Fe-Mn nodules. Trace carbonate nodules.
d. Few Fe-Mn nodules. Trace carbonate nodules.
e. Trace carbonate nodules.
f. No carbonate clay.
g. 12 Kg/M^2 to 60 inches. (Method 6A)

Soil type: Clarksdale silt loam
Soil Nos. : S60Ill-11-1
Location: Christian County, Illinois; T13N, R3W, Section 12, SE160, SE40, NW10, 145 feet south and 315 feet east of center of turn-in road at northwest corner of NW10.
Parent material: Deep loess on Illinoian till. Drainage: Somewhat poorly.
Classification: Gray-Brown Podzolic intergrading to Brunizem. Slope: 0 to 1/2 percent. Erosion: None.
Physiography: Upland Illinoian till plain. Vegetative cover: Red clover.
Described by: F. J. Carlisle, J. B. Fehrenbacher, C. E. Downey, G. O. Walker, J. F. Steinkamp, D. E. Phillips and V. G. Link, October 13, 1960.

Horizon and Lincoln Lab. No.	
Ap 14274	0 to 7 inches. Very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) moist, silt loam with silt concentrations of dark grayish brown (10YR 4/2) up to 5-mm. thick; dry color grayish brown (10YR 5/2); weak fine granular structure; friable; common fine pores; pH 6.0; abrupt smooth boundary.
A2 14275	7 to 12 inches. Dark gray (10YR 4/1) to very dark gray (10YR 3/1) 70 percent and grayish brown (10YR 5/2) to dark grayish brown (10YR 4/2) 30 percent moist, silt loam mottled with few fine distinct dark yellowish brown (10YR 4/4); weak medium platy structure; friable; few fine pores; dry color light brownish gray (10YR 6/2), resultant of two color components: bleached silt of about 10YR 7/1 and a finer-textured material of about 10YR 5/3; the bleached silt occurs in discontinuous patches of variable thickness up to 2 or 3 mm. across; about 20 percent of the available sample is 10YR 3/1 to 4/1, dry.
B1 14276	12 to 15 inches. Brown (10YR 4/3) moist silty clay loam with few fine prominent grayish brown (2.5Y 5/2) mottles; strong medium to fine angular blocky and subangular blocky structure; firm; predominant colors, dry, of ped surfaces range from grayish brown (10YR 5/2) to gray (10YR 6/1) with discontinuous patches of very dark gray (10YR 3/1) to dark gray (10YR 4/1) clay films; interior of peds yellowish brown, dry; thick continuous very dark gray (10YR 3/1) clay films (3/1 color of clay films more dominant than 4/3 of ped interiors); few fine pores through clay films and few fine iron concretions; pH 5.8; clear smooth boundary.
B21 14277	15 to 20 inches. Brown (10YR 4/3) moist, heavy silty clay loam with common fine prominent grayish brown (10YR 5/2) mottles; weak medium prismatic breaking to strong medium to fine angular blocky structure; firm; continuous very dark gray (10YR 3/1) clay film on ped faces which have many root tracks or impressions and few fine pores extending through clay film and many fine tubular pores inside peds; predominant dry color of thickest parts of clay films range between very dark gray (10YR 3/1) and black (10YR 2/1); the surface colors, dry, grade to about dark grayish brown (10YR 4/2) where the clay films are thin; common fine very dark grayish brown (10YR 3/2) iron concretions; pH 5.8; gradual smooth boundary.
B22 14278	20 to 26 inches. Grayish brown (2.5Y 5/2) to light olive brown (2.5Y 5/4) moist, heavy silty clay loam with many medium distinct dark yellowish brown (10YR 4/4) mottles; moderate to strong medium prismatic breaking to moderate medium angular blocky structure; very firm; very thick vertical continuous black (10YR 2/1) and moderately thick continuous horizontal very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) clay films with numerous root tracks or impressions and few fine pores; predominant dry color of thickest parts of clay films range between very dark gray (10YR 3/1) and black (10YR 2/1); surface, dry, colors grade to about dark grayish brown (10YR 4/2) where clay films are thin. This horizon appears to be very dark because of clay films; many fine roots and root channels lined with very dark gray (10YR 3/1) in interior of peds; common fine 10YR 2/2 iron concretions; pH 6.0; gradual smooth boundary.
B23 14279	26 to 33 inches. Grayish brown (2.5Y 5/2) moist, heavy silty clay loam with many fine distinct yellowish brown (10YR 5/4) mottles; strong medium prismatic breaking to weak to moderate coarse angular blocky structure; very firm; very thick continuous black (10YR 2/1) clay films on vertical faces and moderately thick very dark gray (10YR 3/1) clay films on horizontal faces and numerous root tracks or impressions and some pores; predominant dry color of thickest parts of clay films ranges between very dark gray (10YR 3/1) and black (10YR 2/1); surface colors, dry, grade to about dark grayish brown (10YR 4/2) where clay films are thin. This horizon and B22 appear to be darkest color in profile because of dark clay films; many fine pores and root channels lined with very dark gray (10YR 3/1) in interior of peds; common fine very dark brown (10YR 2/2) iron concretions; pH 7.5; clear smooth boundary.
B31 14280	33 to 39 inches. Grayish brown (10YR 5/2) moist, light silty clay loam with many medium prominent yellowish brown (10YR 5/8) mottles; strong medium prismatic breaking to weak coarse angular blocky structure; firm; thick continuous black (10YR 2/1) clay films on vertical ped surfaces and few very dark grayish brown (10YR 3/2) clay films on horizontal ped surfaces; numerous root tracks or impressions coated with black (10YR 2/1) on ped surfaces and few pores through clay films; many fine pores and root channels coated with very dark gray (10YR 3/1) inside of peds; common, fine very dark brown (10YR 2/2) iron concretions; pH 8.0; clear smooth boundary.
B32 14281	39 to 49 inches. Grayish brown (2.5Y 5/2) moist, silt loam with many medium prominent yellowish brown (10YR 5/8) mottles; weak coarse angular blocky structure; thick very dark gray (10YR 3/1) to black (10YR 2/1) organic clay films on vertical faces and very dark grayish brown (10YR 3/2) clay films on horizontal faces; many fine pores lined with very dark gray (10YR 3/1) and common very coarse root channels lined with black (10YR 2/1) inside of peds; common fine very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 8.0; clear smooth boundary.
C1 14282	49 to 55 inches. Gray (5Y 5/1) to olive gray (5Y 5/2) moist, silt loam with common coarse prominent yellowish brown (10YR 5/8) mottles; massive; friable; occasional crack or root channel coated with black (10YR 2/1) and occasional black (10YR 2/1) clay film mostly on vertical faces; common fine discontinuous tubular pores lined with very dark gray (10YR 3/1); few fine prominent very dark brown (10YR 2/2) iron concretions; calcareous.
C2 14283	55 to 65 inches. Gray (5Y 5/1) moist, silt loam with common coarse prominent strong brown (7.5YR 5/8) mottles; massive; friable; common fine discontinuous tubular pores, lined with very dark gray (10YR 3/1) material; occasional iron concretions; calcareous.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Clarksdale silt loam **LOCATION** Christian County, Illinois

SOIL NOS. S60Ill-11-2 **LAB. NOS.** 14284-14292

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.4a	0.9a	0.6a	0.8b	1.0b	81.3	15.0	35.0	47.7	-	
7-11	A2	0.6a	0.9a	0.5a	0.7b	0.7b	76.1	20.5	30.6	46.5	-	
11-16	B1	0.6a	0.7a	0.4a	0.6b	0.7b	71.8	25.2	27.9	44.9	-	
16-20	B21	-	0.2a	0.2a	0.4a	0.6a	55.6	43.0	19.8	36.6	-	
20-26	B22	-	0.2a	0.3a	0.5a	0.8a	57.3	40.9	21.9	36.5	-	
26-34	B23	-	0.1a	0.2a	0.4b	0.8b	61.0	37.5	29.7	32.3	-	
34-44	B31	0.1c	0.2c	0.1c	0.2d	0.6d	70.4	28.4	38.1	33.0	-	
44-55	C1	0.1e	0.1e	0.1c	0.2d	0.8d	83.5	15.2	39.9	44.5	-	
55-65	C2	-	0.1	0.3	1.2	1.2	79.9	17.3	39.1	42.7	-	

8C1a pH 1:1	6G1a Al KCl-Ext. me/100g	6E1c Carbonate as $CaCO_3$ % f	ORGANIC MATTER 6A1a ORGANIC CARBON % g	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	Field-Moist 4A1a g/cc	30-Cm. 4B3 % W.	30-Cm. 4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
5.2	-		1.01	0.093	11	0.7	7.4	1.47	24.2	1.43	1.48	5.9
4.8	0.5		0.43	0.051	8	0.8	8.6	1.57	23.2	1.51	1.57	7.7
4.8	0.9		0.41	0.050	8	0.7						10.1
4.7	1.2		0.50	0.057	9	1.2						19.3
5.4	0.1		0.50	0.055	9	1.5	20.0	1.56	30.2	1.39	1.64	19.0
6.7		-	0.38			1.5						18.3
7.5		Tr.	0.24			1.4						13.8
7.9		17	0.08			1.2	19.2	1.61	25.8	1.54	1.64	6.7
7.7		Tr.	0.13			0.4						8.5

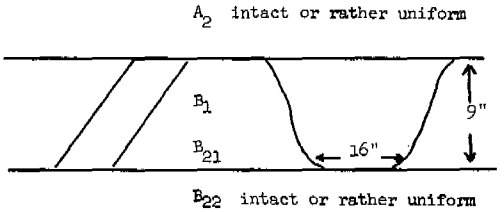
5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	Base Sat. on Sum Cations % 5C3	Ratios to Clay 8D1 NH_4OAc CEC	Ratios to Clay 8D1 Ext. Iron	Ratios to Clay 8D1 Water at 15 Atm.	8D3 Ca/Mg
← milliequivalents per 100g. soil →						→						
10.2	5.8	1.5	8.5	Tr.	0.2	16.0	74	47	.68	.047	.39	3.9
12.1	5.8	2.4	6.6	0.1	0.2	15.1	70	56	.59	.039	.38	2.4
15.5	6.9	4.2	8.4	0.1	0.3	19.9	74	58	.62	.028	.40	1.6
28.9	13.9	10.4	12.9	0.2	0.6	38.0	87	66	.67	.028	.45	1.3
29.1	15.5	11.8	7.5	0.3	0.6	35.7	97	79	.71	.037	.46	1.3
27.2	15.3	12.3	3.6	0.4	0.6	32.2	105	89	.72	.040	.49	1.2
21.8				0.4	0.4				.77	.049	.48	
11.8				0.3	0.2				.78	.079	.44	
14.0				0.3	0.2				.81	.023	.49	

a. Many Fe-Mn nodules.
b. Common Fe-Mn nodules.
c. Many Fe-Mn nodules. Trace carbonate nodules.
d. Few Fe-Mn nodules. Trace carbonate nodules.
e. Few Fe-Mn nodules. Many carbonate nodules.
f. No carbonate clay.
g. 8.4 Kg/M^2 to 60 inches. (Method 6A)

Soil type: Clarksdale silt loam
Soil Nos. : S60Ill-11-2
Location: Christian County, Illinois; T13N, R3W, Section 12, SE160, SE40, NW10, 310 feet south and 200 feet east of center of turn-in road at northwest corner of NW10.
Parent material: Deep loess on Illinoian till. Drainage: Somewhat poorly.
Classification: Gray-Brown Podzolic intergrading to Brunizem. Slope: 0 to 1/2 percent. Erosion: None.
Physiography: Upland Illinoian till plain. Vegetative cover: Red clover.
Described by: G. O. Walker, C. E. Downey, J. B. Fehrenbacher, F. J. Carlisle, V. G. Link, J. F. Steinkamp, and D. B. Phillips, October 14, 1960.

Horizon and Lincoln Lab.No.	
Ap 14284	0 to 7 inches. Dark grayish brown (10YR 4/2 moist) silt loam with some 10YR 5/2 coated with lots of grainy 10YR 7/2, dry, silt; weak medium granular structure; friable; color when dry is light brownish gray (10YR 6/2) with many 1-mm. patches of 10YR 7/1; few fine pores; many fine 10YR 3/2 iron concretions; pH 6.0; abrupt smooth boundary.
A2 14285	7 to 11 inches. Mixed grayish brown (10YR 5/2) 60 percent and dark grayish brown (10YR 4/2) 40 percent silt loam with areas of 10YR 3/2 clay concentrations which appear to be clay films in some cases; weak medium to fine platy structure; friable; when dry, about 50/50 10YR 6/2 and 10YR 7/1 with 7/1 predominantly on surfaces of aggregates; few fine pores and many fine 10YR 3/2 iron concretions; pH 5.8; clear smooth boundary.
B1 14286	11 to 16 inches. Dark brown (10YR 3/3 moist) light silty clay loam with few fine faint 10YR 4/4 mottles and with 10YR 5/2 silt coats and 10YR 3/2 clay films; strong fine to medium angular to subangular blocky structure; firm; dry color of ped surfaces ranges from 10YR 5/3 to 10YR 6/3 to 10YR 7/1; the 6/3 to 7/1 colors are predominant; 7/1 colors are on coatings of blanched silt; 10YR 5/3 films are evident on surfaces; common fine pores and common fine 10YR 3/2 iron concretions; pH 5.0; clear smooth boundary.
B21 14287	16 to 20 inches. Brown to dark brown (10YR 4/3 moist) heavy silty clay loam with few fine prominent 5Y 5/2 mottles; moderate medium prismatic breaking to moderate fine angular blocky structure; firm; moderately thick 10YR 3/2 clay films on both vertical and horizontal faces and numerous root tracks or impressions; common fine tubular pores in clay films and common fine to very fine pores inside the peds; the overall dry color of 10YR 5/3 results from an intermingling of light colored patches of blanched silt and darker brown patches of clay films; few iron concretions; pH 5.2; clear smooth boundary.
B22 14288	20 to 26 inches. Olive (5Y 5/3) heavy silty clay loam with many medium prominent 10YR 4/4 and few coarse prominent 10YR 5/8 mottles; strong medium to fine prismatic breaking to moderate medium fine angular blocky structure; firm; thick 10YR 2/1 clay films on vertical faces and moderately thick 10YR 3/2 and 10YR 3/1 clay films on horizontal faces; dry colors of the thickest clay films range from 10YR 3/1 to 10YR 2/1 and grade to 10YR 4/1 and 10YR 4/2 where the clay films are thin; numerous root tracks or impressions and some fine pores in clay films; many fine pores lined with 10YR 3/2 and 10YR 3/1 clay films inside the peds; fine 10YR 3/2 and 10YR 2/2 iron concretions; pH 6.0; gradual smooth boundary. This horizon appears the darkest; several 1/8-inch cracks extending through B that appear same as all other prism faces.
B23 14289	26 to 34 inches. Olive (5Y 5/3) silty clay loam with many medium prominent 10YR 4/4 and common coarse prominent 10YR 5/8 mottles; moderate to strong medium prismatic breaking to weak coarse angular blocky structure; firm; moderately thick 10YR 2/1 and 10YR 3/1 clay films on vertical faces and thin 10YR 3/2 clay films on horizontal faces and distinct 10YR 5/2 silt concentrations on few faces; dry colors of thickest clay films range from very dark gray (10YR 3/1) to black (10YR 2/1) and grade to 10YR 4/1 and 10YR 4/2 where the clay films are thin; numerous root tracks or semicircular impressions and some pores in clay films; many fine pores lined with 10YR 3/2 clay films inside the peds; common fine 10YR 3/2 iron concretions; pH 7.0; clear but slightly wavy boundary.
B31 14290	34 to 44 inches. Olive (5Y 5/3) light silty clay loam with many coarse to medium prominent 10YR 5/8 and 7.5YR 5/8 mottles; weak coarse prismatic structure; firm to friable; moderately thick 10YR 2/1 and 10YR 3/2 clay films on ped faces and in root channels; dry colors of thickest clay films range from 10YR 3/1 to 10YR 2/1 and grade to 10YR 4/1 and 10YR 4/2 where clay films are thin; many fine pores lined with 10YR 3/2 clay films; common fine 10YR 3/2 iron concretions; pH 8.0; gradual smooth boundary.
C1 14291	44 to 55 inches. Olive gray (5Y 5/2) to olive (5Y 5/3) silt loam with many coarse prominent 10YR 5/8 and common medium prominent 7.5YR 5/8 mottles; very coarse prismatic structure to massive with some vertical cleavage; friable; root channels and cleavage faces have moderately thick 10YR 3/1 to 3/2 clay films; common fine pores lined with 10YR 3/2 clay films; common fine 10YR 3/2 clay films; common 10YR 3/2 iron concretions; calcareous; clear smooth boundary.
C2 14292	55 to 65 inches. Gray (5Y 5/1) to olive gray (5Y 5/2) silt loam mottled and banded horizontally with common coarse prominent 7.5YR 5/8 mottles and horizontal bands of the same color; massive with fine vertical cleavages; friable; fine root channels with 10YR 3/1 and 10YR 3/2 clay films; some fine pores; fine 10YR 3/2 iron concretions; calcareous.

Remarks: In the 15 feet of pit surfaces, there were two areas about two feet apart showing evidence of disturbance (possibly tree-fall effect?) having the following configuration:



The disturbed parts are 10YR 3/2 - 3/3 light silty clay loam with moderate medium subangular blocky structure in which many peds break to a weak medium platy structure; firm to friable; 10YR 2.5/1 clay films and 10YR 5/2 silt coats (moist) and 6/2 and 7/2 silt coats (dry); boundaries above and below this area are clear and smooth.

The disturbed areas were avoided in sampling.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Clarksdale silt loam **LOCATION** Christian County, Illinois

SOIL NOS. S60Ill-11-3 **LAB. NOS.** 14293-14301

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.3a	0.6a	0.5a	0.7b	1.0b	80.0	16.9	42.2	39.1	-	
7-10	A2	0.2a	0.7a	0.5a	0.6b	0.8b	73.2	24.0	31.5	42.8	-	
10-14	B1	0.2a	0.7a	0.5a	0.7a	0.7a	70.1	27.1	28.1	43.0	-	
14-18	B21	0.2a	0.5a	0.4a	0.6a	0.7a	66.5	31.1	27.5	40.0	-	
18-24	B22	0.1a	0.3a	0.2a	0.5a	0.8a	59.3	38.8	26.6	33.8	-	
24-33	B23	0.2a	0.5a	0.4a	0.6a	0.9a	61.0	36.4	26.2	36.0	-	
33-46	B3	0.2a	0.4a	0.3a	0.4a	0.5b	65.2	33.0	24.2	41.7	-	
46-57	C1	-	0.2c	0.2c	0.4c	1.2c	77.6	20.4	36.2	42.8	-	
57-66	C2	-	0.2d	0.1d	0.3e	1.1e	83.9	14.4	44.1	41.1	-	

8C1a pH 1:1	6E1c Carbonate as $CaCO_3$ %	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	4A1a g/cc	30-Cm. 4B3 % W.	4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
5.5		1.55	0.133	12	0.8						7.8
5.7		1.00	0.092	11	0.8	10.3	1.55	23.1	1.47	1.56	10.7
5.9		0.99	0.089	11	1.0						12.5
5.9		0.96	0.039	11	1.1						14.9
5.7		0.74	0.075	10	1.4	17.4	1.56	27.3	1.40	1.63	18.3
5.8		0.55			1.7						18.2
7.0	-	0.34			1.5						16.6
7.6	4	0.17			1.7	19.8	1.48	29.4	1.41	1.53	10.4
7.8	10	0.11			1.3						7.5

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a Sum	Base Sat. on NH_4OAc CEC % 5C1	on Sum Cations % 5C3	Ratios to Clay NH_4OAc CEC	Ext. Iron	8D1 Water at 15 Atm.	8D3 Ca/Mg
← milliequivalents per 100g. soil →						→						
13.2	9.0	1.8	6.7	Tr.	0.5	18.0	86	63	.78	.047	.46	5.0
16.6	11.0	3.4	6.4	Tr.	0.5	21.3	90	70	.69	.033	.44	3.2
18.9	11.9	4.9	6.5	Tr.	0.4	23.7	91	72	.70	.038	.46	2.4
20.8	12.8	6.2	6.5	0.1	0.6	26.2	95	75	.67	.035	.48	2.1
25.4	15.1	9.1	7.5	0.1	0.6	32.4	98	77	.65	.036	.47	1.6
24.6	13.7	10.0	7.3	0.2	0.6	31.8	100	77	.68	.047	.50	1.4
23.7	14.2	11.3	3.1	0.3	0.5	29.4	111	89	.72	.045	.50	1.2
14.7				0.3	0.3				.72	.083	.51	
11.1				0.2	0.2				.77	.090	.52	

a. Many Fe-Mn nodules.
b. Common Fe-Mn nodules.
c. Many Fe-Mn nodules. Trace carbonate nodules.
d. Few Fe-Mn nodules. Many carbonate nodules.
e. Trace carbonate nodules.

Soil type: Clarksdale silt loam
Soil No. : S60Ill-11-3
Location: Christian County, Illinois; T14N, R3W, Section 20, NW160, SW40, SW10, 438 feet north and 423 feet east of southwest corner of SW10, which is center of junction of east-west road and private road running north on section line.
Parent material: Thick loess. Drainage: Somewhat poorly.
Classification: Gray Brown Podzolic intergrading to Brunizem. Slope: 1/2 percent to east. Erosion: None.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Soybeans
Described by: F. J. Carlisle, J. B. Fehrenbacher, C. E. Downey, G. O. Walker, J. F. Steinkamp, and D. B. Phillips, October 14, 1960.

Horizon and Lincoln Lab.No.

Ap 14293 — 0 to 7 inches. Grayish brown (10YR 5/2 dry) and very dark gray (10YR 3/1 moist) silt loam with few small patches of grayish brown (10YR 5/2 moist); weak medium granular structure; friable when moist; common fine very dark grayish brown (10YR 3/2) iron concretions; pH 6.0; abrupt smooth boundary.

A2 14294 — 7 to 10 inches. Mixed very dark gray (10YR 3/1) and dark gray (10YR 4/1) silt loam with few fine distinct brown (10YR 4/3) and common fine faint grayish brown (10YR 5/2) mottling; dry color is dark gray (10YR 4/1) with many patches, commonly 1-mm. across, of light gray blanched silt; weak medium platy breaking to strong fine angular blocky structure; friable when moist; some of the very dark gray (10YR 3/1 moist) colors are clay films which are slightly grainy or degraded; many fine very dark grayish brown (10YR 3/2) iron concretions; few fine pores; pH 5.8; clear smooth boundary.

B1 14295 — 10 to 14 inches. Dark brown (10YR 3/3 to 4/3) light silty clay loam with few fine faint yellowish brown (10YR 5/4) mottles; strong medium to fine angular blocky structure; friable to firm when moist; dry colors are similar to horizon above except for considerable light brownish gray (10YR 6/2) silt coatings when dry; thick continuous black (10YR 2/1) clay films; many fine very dark grayish brown (10YR 3/2) iron concretions; many fine tubular pores; pH 6.0; clear smooth boundary.

B21 14296 — 14 to 18 inches. Brown to dark brown (10YR 4/3) silty clay loam with few fine distinct olive (5Y 5/3) and few medium faint dark yellowish brown (10YR 4/4) mottles; strong medium to fine angular blocky structure; firm when moist; black (10YR 2/1) to very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) thick continuous clay films coated with light brownish gray (10YR 6/2 moist) silt grains; many fine tubular pores and some root tracks on clay films; clay films are 10YR 4/2 to 5/2 in color when dry; many fine very dark grayish brown (10YR 3/2) iron concretions; pH 5.8 to 6.0; clear smooth boundary.

B22 14297 — 18 to 24 inches. Olive (5Y 5/4) to pale olive (5Y 6/4) heavy silty clay loam with common fine prominent dark yellowish brown (10YR 4/4) mottles; weak medium prismatic breaking to moderate fine to medium blocky structure; very firm when moist; thick black (10YR 2/1) and very dark gray (10YR 3/1) clay films which have 10YR 3/1 and 4/1 colors when dry with patches of grayish brown (10YR 4/2 to 6/2); numerous root tracks and some fine pores in clay films; many fine pores lined with very dark grayish brown (10YR 3/2 moist) clay films in ped interiors; many fine very dark grayish brown (10YR 3/2) and few medium very dark brown (10YR 2/2) iron concretions; pH 5.8; gradual smooth boundary.

B23 14298 — 24 to 33 inches. Olive (5Y 5/3) to pale olive (5Y 6/3) heavy silty clay loam with many coarse prominent yellowish brown (10YR 5/8) and dark yellowish brown (10YR 4/4) and a few medium prominent strong brown (7.5YR 5/8) mottles; moderate to strong medium prismatic structure which readily breaks to moderate medium blocks; very firm when moist; thick to very thick black (10YR 2/1 moist, 3/1 dry) clay films on vertical faces; moderately thick very dark grayish brown (10YR 3/2 moist, 4/1 dry) clay films on horizontal faces; some grayish brown (10YR 5/2) silty coatings when dry; numerous root tracks and some fine pores in clay films; many fine pores lined with very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) clay films inside peds; many fine very dark grayish brown (10YR 3/2) iron concretions; pH 6.2; gradual smooth boundary.

B3 14299 — 33 to 46 inches. Olive gray (5Y 5/2) to light olive gray (5Y 6/2) silty clay loam with many medium prominent yellowish brown (10YR 5/8) mottles; moderate medium prismatic structure which readily breaks into moderate medium blocks; firm when moist; very thick black (10YR 2/1 moist, 3/1 dry) clay films on vertical faces and medium thick very dark grayish brown (10YR 3/2 moist, 4/1 dry) on horizontal faces; many root tracks and few fine pores in clay films; many fine pores lined with very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) clay films inside peds; many very dark grayish brown (10YR 3/2) iron concretions; pH 8.0; gradual smooth boundary.

C1 14300 — 46 to 57 inches. Olive (5Y 5/3) to pale olive (5Y 6/3) silt loam with many medium prominent yellowish brown (10YR 5/8) mottles; massive to weak very coarse prismatic structure; friable when moist; black (10YR 2/1) and very dark grayish brown (10YR 3/2) clay films on vertical faces; many fine pores lined with very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) clay films; many very dark grayish brown (10YR 3/2) iron concretions; calcareous; gradual smooth boundary.

C2 14301 — 57 to 66 inches. Olive gray (5Y 5/2) to light olive gray (5Y 6/2) silt loam with many coarse prominent yellowish red (5YR 5/8) mottles and streaks; massive; friable when moist; some black (10YR 2/1) and very dark gray (10YR 3/1) clay films in root channels and cracks; few fine pores lined with very dark grayish brown (10YR 3/2) clay films; some very dark grayish brown (10YR 3/2) iron concretions; calcareous.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Clarksdale silt loam **LOCATION** Macoupin County, Illinois

SOIL NOS. S60Ill-59-2 **LAB. NOS.** 14332-14340

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-8	Ap	0.1a	0.8b	1.5	2.3	1.6	79.5	14.2	38.4	43.8	-	
8-12	A21	0.2a	1.2b	1.3b	2.2	1.5	75.2	18.4	35.0	42.7	-	
12-17	A22	0.4a	1.0b	1.3b	1.8	1.3	71.8	22.4	32.6	41.3	-	
17-20	B & A2	0.3a	0.9a	1.1c	1.7c	1.2	66.0	28.8	31.3	36.7	-	
20-26	B21	0.4a	0.9a	0.8c	1.4c	1.2c	57.3	38.0	24.8	34.3	-	
26-32	B22	0.4a	0.9a	0.8b	1.0b	0.9c	58.2	37.7	24.4	35.2	-	
32-43	B23	0.1a	0.6a	0.6b	0.9c	0.7c	64.2	32.9	26.2	39.1	-	
43-55	B3	0.3a	0.5a	0.6c	1.0c	0.9	71.6	25.1	29.5	43.5	-	
55-66	C1	0.2	1.8	3.2	5.3	2.6	65.7	21.2	36.6	34.1	-	

8C1a pH 1:1	6G1a Al KCl-Ext. me/100g	6E1c Carbonate as $CaCO_3$ %	ORGANIC MATTER 6A1a ORGANIC CARBON %	6H1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	Field-Moist 4A1a g/cc	30-Cm. 4B3 % W.	30-Cm. 4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
6.1			1.02	0.085	12	0.4						6.6
5.4	Tr.		0.48	0.052	9	0.6	5.5	1.53	23.9	1.46	1.52	7.4
5.2	0.3		0.38	0.045	8	0.7						10.0
5.2	0.5		0.43	0.051	8	1.1						13.2
5.3	0.3		0.56	0.058	10	1.3						17.7
5.5	0.1		0.38			1.5	18.4	1.64	27.9	1.43	1.74	18.0
5.8			0.26			1.3						16.0
6.1			0.13			1.0						12.4
6.3			0.07			0.4	21.8	1.56	26.1	1.49	1.64	9.9

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	Base Sat. on Sum Cations % 5C3	Ratios to Clay 8D1 NH_4OAc CEC	Ratios to Clay 8D1 Ext. Iron	Water at 15 Atm.	8D3 Ca/Mg
← milliequivalents per 100g. soil →						→						
11.0	9.4	1.6	3.1	0.1	0.2	14.4	103	78	.77	.028	.46	5.9
10.8	6.8	2.6	4.5	0.1	0.2	14.2	90	68	.59	.033	.40	2.6
14.0	7.8	4.1	5.7	0.1	0.3	18.0	88	68	.62	.031	.45	1.9
18.9	10.0	5.7	7.2	0.2	0.4	23.5	86	69	.66	.038	.46	1.8
25.6	13.8	8.7	8.9	0.3	0.6	32.3	91	72	.67	.034	.46	1.6
25.7	14.7	10.1	6.7	0.4	0.6	32.5	100	79	.68	.040	.48	1.4
22.3	13.5	9.3	4.8	0.4	0.5	28.5	106	83	.68	.040	.49	1.4
18.6	11.0	7.6	3.6	0.4	0.4	23.0	104	84	.74	.040	.49	1.4
14.5	8.4	6.0	2.4	0.4	0.3	17.5	104	86	.68	.019	.47	1.4

a. Many Fe-Mn nodules.
b. Common Fe-Mn nodules.
c. Few Fe-Mn nodules.

Soil type: Clarksdale silt loam
Soil Nos. : S60Ill-59-2
Location: Macoupin County, Illinois; T10N, R6W, Section 21, SE160, SW40, SE10, 565 feet north from center of road and 42 feet west of southeast corner of SE10.
Parent material: Loess. Erosion: None. Drainage: Somewhat poorly, on the wet side.
Classification: Planosol. Slope: Nearly level, less than 1/2 percent.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Soybean stubble.
Described by: F. J. Carlisle, J. B. Fehrenbacher, C. E. Downey, G. O. Walker, D. B. Phillips, and J. F. Steinkamp, October 10, 1960.

Horizon and Lincoln Lab. No.	
Ap 14332	0 to 8 inches. Very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) silt loam with some patches of grayish brown (10YR 5/2) grainy silt concentrations; dry colors grayish brown (10YR 5/2) with lighter areas of grainy silt concentrations; cloddy (massive) to weak medium granular structure; friable when moist; few fine pores throughout; common fine very dark grayish brown (10YR 3/2) iron concretions; pH 6.5; abrupt smooth boundary.
A21 14333	8 to 12 inches. Dark gray (10YR 4/1) silt loam with 25 percent of area grayish brown (10YR 5/2); dry colors mottled gray (10YR 6/1 to 7/1) and brown (10YR 5/3 to 6/3) in equal proportions in a fine faint pattern; 7/1 colors are due to concentrations of blanched silt; moderate medium platy structure which breaks to weak fine angular blocks; friable; many fine pores throughout; common fine soft very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 5.8; clear smooth boundary.
A22 14334	12 to 17 inches. Mixed grayish brown (10YR 5/2) 50 percent, gray (10YR 6/1) 25 percent, and dark grayish brown (10YR 4/2) 25 percent, silt loam with few fine distinct yellowish brown (10YR 5/4) mottles; dry colors mottled gray (10YR 6/1 and 7/1) and brown (10YR 5/3 to 6/3) in about equal proportions in a fine faint pattern; the 7/1 colors are due to blanched silt; weak medium to thick platy structure which breaks to moderate fine angular blocks; friable; few very dark grayish brown (10YR 3/2) worm casts; very few very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) clay films along worm channels; common fine soft very dark grayish brown (10YR 3/2) to very dark brown (10YR 2/2) iron concretions; many fine pores throughout peds; few worm channels; pH 5.5; clear smooth boundary.
B and A2 14335	17 to 20 inches. The A2 is grayish brown (10YR 5/2) and the B is brown (10YR 5/3) silty clay loam with few fine distinct yellowish brown (10YR 5/8) mottles; overall dry color of ped surfaces is light brownish gray (10YR 6/2) with color value being higher than 6/ for concentration of blanched silt and ped interiors are mottled with yellowish brown; moderate to strong medium and fine angular blocky structure arranged in weak medium and fine prisms; friable to firm; some dark grayish brown (10YR 4/2) and few very dark grayish brown (10YR 3/2) and few very dark gray (10YR 3/1) clay films; rather thick 10YR 5/1 to 6/1 grainy silt coatings; very many fine tubular pores throughout peds; many fine and medium very dark grayish brown (10YR 3/2) to very dark brown (10YR 2/2) iron concretions; pH 5.5; clear smooth boundary.
B21 14336	20 to 26 inches. Grayish brown (10YR 5/2) heavy silty clay loam with common fine distinct yellowish brown (10YR 5/4) and few fine distinct yellowish brown (10YR 5/8) mottles; the predominant dry color of the prism surfaces is grayish brown (10YR 5/2) which grades to dark grayish brown (10YR 4/2) in small spots; strong medium prisms which break to strong medium angular blocky and moderate medium and fine angular blocky structure; firm; thick very dark gray (10YR 3/1) and some dark gray (10YR 4/1) clay films, dry; occasional light gray (10YR 6/1 and 7/1 dry) grainy silty patches; many fine pores and root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) inside peds; many fine and medium very dark brown (10YR 3/3) and very dark brown (10YR 2/2) iron concretions; pH 5.8; clear smooth boundary.
B22 14337	26 to 32 inches. Olive gray (5Y 5/2) heavy silty clay loam with some olive (5Y 5/3) and with many medium prominent dark yellowish brown (10YR 4/4) and few medium prominent yellowish brown (10YR 5/8) mottles; moderate to strong medium prismatic structure which breaks to moderate to strong coarse and weak medium angular blocks; firm; dark gray (10YR 4/1) and some very dark gray (10YR 3/1 moist and 10YR 4/1 dry) thick clay films on ped surfaces; the predominant dry color of the prisms is grayish brown (10YR 5/2) to dark grayish brown (10YR 4/2) with occasional gray (10YR 6/1 moist and 7/1 dry) grainy silt patches on horizontal and vertical faces; common fine tubular pores and many root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) inside peds; common fine very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 6.0; gradual smooth boundary.
B23 14338	32 to 43 inches. Olive gray (5Y 5/2) heavy silty clay loam with many medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/8) mottles; weak to moderate medium prismatic structure which breaks to weak coarse angular blocks; firm; dark gray (10YR 4/1) and very dark gray (10YR 3/1) clay films on structural faces; occasional gray (10YR 6/1 moist and 7/1 dry) grainy silt patches on horizontal and vertical faces; common fine pores and many root tracks in clay films; many fine pores inside peds are lined with very dark gray (10YR 3/1); pH 6.0; gradual smooth boundary.
B3 14339	43 to 55 inches. Mixed olive gray (5Y 5/2) and olive (5Y 5/3) light silty clay loam with many medium prominent dark yellowish brown (10YR 4/4) and common medium prominent yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure; firm; some dark gray (10YR 4/1) and very dark gray (10YR 3/1) clay films on prism faces; many fine pores and root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) inside peds; dark gray (10YR 4/1) and very dark gray (10YR 3/1) krotovinas; few coarse worm channels filled with very dark gray (10YR 3/1); common fine very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 6.2; gradual smooth boundary.
C1 14340	55 to 66 inches. Gray to light gray (10YR 6/1) silt loam with some sand with common coarse prominent strong brown (7.5YR 5/8) and many medium distinct dark yellowish brown (10YR 4/4) mottles and streaks; massive with few vertical cleavage planes with dark gray (10YR 4/1) clay films; friable; many fine pores lined with very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2); common fine very dark grayish brown (10YR 3/2) iron concretions; few one-to two-inch dark gray (10YR 4/1) and very dark gray (10YR 3/1) krotovinas; pH 6.2; clear wavy boundary.
II Not sampled	66 inches plus. Loam with some pebbles which is interpreted as glacial till mixed with some loess.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clarksdale silt loam SOIL Nos. 855Ill-75-8 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551839 - 551847

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap		79.4	17.6	0.2	0.9	0.6	0.5	0.8		40.9	39.5				-		
8-11	A1		75.9	19.8	0.1	1.4	0.7	0.6	1.5		40.2	37.5				-		
11-15	A12		76.5	17.6	0.2	2.5	1.0	0.7	1.5		43.1	35.2				-		
15-19	A2		75.6	17.2	0.5	2.1	1.8	1.1	1.7		43.0	34.9				-		
19-24	B21		59.6	38.2	-	0.2	0.6	0.6	0.8		36.0	24.7				-		
24-31	B22		57.6	40.0	-	0.1	0.6	0.7	1.0		35.2	23.8				-		
31-41	B23		62.1	35.6	-	0.1	0.6	0.8	0.8		36.9	26.4				-		
41-52	B3		68.2	30.1	-	0.1	0.5	0.5	0.6		39.6	29.4				-		
52-75	C1		72.2	26.0	-	0.3	0.4	0.4	0.7		41.5	31.6				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-8	1.58															7.0
8-11	1.21															6.2
11-15	0.78															5.4
15-19	0.46															5.3
19-24	0.52															5.0
24-31	0.50															5.1
31-41	0.34															5.5
41-52	0.16															6.1
52-75	0.07															6.3

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al		Ratios to clay CEC Sum	Ratios to clay Ext. iron	Ratios to clay 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g																
0-8	13.4	2.3	0.1	0.4		3.5	19.7									82	
8-11	10.0	2.0	0.1	0.3		5.9	18.3									68	
11-15	6.7	1.8	0.1	0.2		7.6	16.4									54	
15-19	5.3	2.2	0.1	0.2		7.4	15.2									51	
19-24	10.8	7.8	0.3	0.6		10.7	30.2									64	
24-31	12.0	9.2	0.4	0.6		10.4	32.6									68	
31-41	11.2	9.4	0.6	0.5		7.4	29.1									74	
41-52	10.8	8.8	0.7	0.4		4.9	25.6									81	
52-75	10.0	7.9	0.7	0.4		3.5	22.5									84	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Clarksdale silt loam
Soil No.: S55Ill-75-8
Location: Pike County, Illinois. T4S - R4W - Sec. 7 - NW160 - NE40 - NE10 - 21 rds. south, 106 feet west of road junction.
Vegetation and land use: Soybean field
Slope and land form: 2 percent
Erosion: None
Drainage: Imperfect
Permeability: Slow
Parent Material: 75 inches of Peorian loess - 75 to 110 inches Farmdale loess over buried soil developed in Loveland loess possibly.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. October 21, 1955.

Horizon and Beltsville Lab. No.	
Ap 551839	0 to 8 inches. Very dark gray (10YR 3/1), silt loam, weak, fine, crumb structure. Friable.
A1 551840	8 to 11 inches. Very dark gray (10YR 3/1), silt loam specked with dark gray (10YR 4/1), weak, fine, crumb structure. Friable.
A12 551841	11 to 15 inches. Dark gray (10YR 4/1), silt loam specked with gray and very dark gray (10YR 5/1 and 3/1), weak, fine, platy structure. Friable.
A2 551842	15 to 19 inches. Gray (10YR 6/1), silt loam specked with very dark gray, dark yellowish brown, and yellowish brown (10YR 3/1, 3/4 and 5/6), very weak, medium subangular blocky structure. Friable.
B21 551843	19 to 24 inches. Yellowish brown (10YR 5/6), silty clay loam, mottled with many fine, distinct grayish brown (10YR 5/2) and many very fine, distinct very dark gray (10YR 3/1) mottles, strong, medium, subangular blocky structure. Firm.
B22 551844	24 to 31 inches. Yellowish brown (10YR 5/4), silty clay loam, mottled with many fine, pale brown (10YR 6/3) mottles, strong, medium to coarse, subangular blocky to blocky structure. Very firm. Many fine, prominent and common coarse, prominent black (10YR 2/1) concretions.
B23 551845	31 to 41 inches. Yellowish brown (10YR 5/6), silty clay loam mottled with many fine, distinct light gray (10YR 7/2) mottles, moderate, coarse, blocky structure with black (10YR 2/1) coatings on the peds. Firm.
B3 551846	41 to 52 inches. Brownish yellow (10YR 6/6), light silty clay loam mottled with many fine distinct light gray (10YR 7/2) mottles, very weak, very coarse, blocky to massive structure with black (10YR 2/1) fillings in worm and root channels.
C1 551847	52 to 75 inches. Yellowish brown (10YR 5/8), silt loam mottled with many fine, distinct light brownish gray (10YR 6/2) mottles and some black (10YR 2/1) splotches.
C2 Not Sampled	75 to 110 inches. Dark brown (7.5YR 4/4), silt loam mottled with brown (7.5YR 5/2) mottles. Farmdale loess.

Notes: Colors refer to moist soil.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clary silt loam SOIL Nos. S48Ill-65-4 LOCATION Menard County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481400 - 481407

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	A1	2.7	76.2	21.1	0.1	0.1	0.1	0.4	2.0	35.7	40.5	38.0	0.7			Tr.		
6-10	B1	1.4	65.5	33.1	-	-	-	0.2	1.2	30.1	35.4	31.3	0.2			-		
10-18	B21	1.4	59.6	39.0	-	-	-	0.1	1.3	29.2	30.4	30.5	0.1			-		
18-28	B22	1.6	65.7	32.7	-	-	0.1	0.3	1.2	33.3	32.4	34.7	0.4			-		
28-40	B3	1.7	70.7	27.6	-	-	-	0.1	1.6	34.2	36.5	35.8	0.1			-		
40-48	C1	2.7	73.3	24.0	-	-	-	0.1	2.6	36.0	37.3	38.7	0.1			-		
48-61	C21	2.3	80.1	17.6	-	-	-	0.1	2.2	44.8	35.3	47.0	0.1			-		
61-68	C22	1.7	84.7	13.6	-	-	-	0.1	1.6	44.1	40.6	45.8	0.1			-		

Depth (In.)	6A1a Organic carbon & Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e & 1/3 bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c 1/3 bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) & H_2O
0-6	1.3						1.46									5.7
6-10	0.6						1.50									5.8
10-18	0.5						1.51									6.1
18-28	0.3						1.56									6.1
28-40	0.2						1.55									6.0
40-48	0.2															6.0
48-61	0.2															6.2
61-68	0.1															7.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 & Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-6	6.0	2.2	0.1	0.7		5.9	14.9						2.7	60	
6-10	10.6	4.7	0.2	0.6		5.7	21.8						2.2	74	
10-18	12.4	5.9	0.3	0.6		5.9	25.1						2.1	76	
18-28	10.2	5.6	0.2	0.5		5.3	21.8						1.8	76	
28-40	9.3	5.2	0.4	0.5		5.1	20.5						1.8	75	
40-48	8.3	5.1	0.3	0.5		4.7	18.9						1.6	75	
48-61	6.5	3.8	0.2	0.3		3.7	14.7						1.7	75	
61-68	9.3	4.3	0.2	0.2		0.6	14.6								

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

& Determinations by University of Illinois.

Soil Type: Clary silt loam
Soil No.: S48Ill-65-4
Location: Menard County, Illinois. T. 18 N., R. 8 W., Sec. 14, NE 1/4, SE 40, 125 feet west and 100 feet N. of SE corner.
Vegetation and land use: Pasture
Slope and land form: 7 percent to NW.
Sampled by and date: J. B. Fehrenbacher and E. P. Whiteside. August 11, 1948.

Horizon and Beltsville Lab. No.	
A1 481400	0 to 6 inches. 10YR 4/2. Silt loam. Mostly fine crumb, 1/4 inch. Thin platy in middle of this layer, 1/32 inch. Friable.
B1 481401	6 to 10 inches. 7.5YR 5/4. Light silty clay loam. Coarse granular to fine nuciform 1/8-3/8 inch. Faint gray silty coatings in upper part. Moderately sticky.
B21 481402	10 to 18 inches. 7.5YR 5/4. Silty clay loam. Medium nuciform 1/4-3/4 inch. Sticky.
B22 481403	18 to 28 inches. 7.5YR 5/4. Silty clay loam. Nuciform, 3/8-7/8 inch. Sticky.
B3 481404	28 to 40 inches. 7.5YR 4.5/4. 'Light' silty clay loam. Coarse to very coarse nuciform 1/2-1 1/2 inch. Slightly sticky.
C1 481405	40 to 48 inches. 10YR 4.5/4. 'Heavy' silt loam. Massive. Few coatings, 10YR 4/4. Friable.
C21 481406	48 to 61 inches. 10YR 5/5 - 5/6. Silt loam. Massive. Friable.
C22 481407	61 to 68 inches. 10YR 7/5. Silt. Massive. Very friable. Calcareous.

Notes: Roots were abundant in the A1 and B1, few were present in the B3, and very few in the C. This profile was slightly moist in the A1, and moist in the other horizons when sampled. Munsell notations are of the moist colors of freshly broken fragments.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clinton silt loam SOIL Nos. 855I11-1-7 LOCATION Adams County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551830 - 551838

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap		80.5	15.6	0.1	0.7	0.7	0.8	1.6		38.7	43.8				-		
7-13	A2		78.3	19.8	-	0.1	0.5	0.5	0.8		40.9	38.4				-		
13-16	B1		74.5	22.5	-	0.1	0.6	0.7	1.6		40.5	36.0				-		
16-21	B21		66.6	31.0	-	0.2	0.4	0.4	1.4		37.4	30.8				-		
21-24	B22		55.3	43.2	-	0.1	0.1	0.2	1.1		32.5	23.9				-		
24-27	B23		57.4	41.6	-	-	0.1	0.2	0.7		35.0	23.2				-		
27-34	B24		62.1	37.2	-	-	-	0.1	0.6		38.0	24.7				-		
34-40	B3		68.5	30.4	-	-	-	0.1	1.0		39.4	30.1				-		
40-60	C		74.2	24.9	-	0.1	0.1	0.1	0.6		45.0	29.9				-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. Iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc		Pct.	Pct.	Pct.		in/in		
0-7	1.07															6.6
7-13	0.30															4.9
13-16	0.22															4.6
16-21	0.18															4.6
21-24	0.21															4.4
24-27	0.18															4.4
27-34	0.12															4.4
34-40	0.10															4.6
40-60	0.07															5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	8.0	1.4	0.1	0.7		3.6	13.8									74	
7-13	3.4	1.6	0.1	0.4		7.6	13.1									42	
13-16	2.8	2.9	0.2	0.3		10.7	16.9									37	
16-21	4.1	5.6	0.4	0.4		13.8	24.3									43	
21-24	7.0	9.2	0.6	0.5		17.5	34.8									50	
24-27	7.2	9.2	0.7	0.5		16.6	34.2									51	
27-34	6.9	8.8	0.6	0.5		13.1	29.9									56	
34-40	7.2	7.8	0.7	0.4		9.1	25.2									64	
40-60	7.4	7.8	0.8	0.4		4.9	21.3									77	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Ki.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Ki. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Clinton silt loam
Soil No.: S55Ill-1-7
Location: Adams County, Illinois. T3S - R6W - Sec. 25 - SW160 - SW40 - SW10 - 37 rds. N. and 106 feet E. of the SW corner of Sec. 25.
Vegetation and land use: Lespedeza, bluegrass pasture.
Slope and land form: 3-1/2 percent
Erosion: Slight
Drainage: Moderately well
Permeability: Slow
Parent Material: 60 inches of Peorian loess on possibly Illinoian outwash.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. October 20, 1955.

Horizon and Beltsville Lab. No.	
Ap 551830	0 to 7 inches. Dark grayish brown (10YR 4/2), silt loam with some dark brown specks (10YR 4/3), moderate, coarse, platy structure. Friable.
A2 551831	7 to 13 inches. Yellowish brown (10YR 5/4), silt loam, weak, fine, plates which break to a weak, fine subangular blocky structure. Friable.
B1 551832	13 to 16 inches. Yellowish brown (10YR 5/4), light silty clay loam coated with pale brown (10YR 6/3), weak to moderate, fine, subangular blocky structure. Friable.
B21 551833	16 to 21 inches. Brown (10YR 5/3), silty clay loam, coated with light brownish gray and pale brown (10YR 6/2 and 6/3), strong, medium, subangular blocky structure. Firm.
B22 551834	21 to 24 inches. Yellowish brown (10YR 5/6), heavy silty clay loam mottled with a few, fine distinct dark brown (7.5YR 4/4) and grayish brown (10YR 5/2) mottles, and coated when dry with gray (10YR 6/1), strong coarse, subangular blocky to blocky structure. Firm.
B23 551835	24 to 27 inches. Dark brown (7.5YR 4/4), silty clay loam mottled with a few, fine distinct reddish brown (5YR 4/4) and grayish brown (10YR 5/2) mottles and coated with gray (10YR 6/1) when dry; weak, coarse, blocky structure. Firm when moist, sticky when wet.
B24 551836	27 to 34 inches. Yellowish brown (10YR 5/8), silty clay loam mottled with a few, medium, prominent grayish brown (10YR 5/2), reddish brown (2.5YR 4/4) and white (10YR 8/1) mottles, weak, medium blocky structure.
B3 551837	34 to 40 inches. Brown (10YR 5/3), light silty clay loam mottled with common, coarse, prominent yellowish red (5YR 5/8) and few, coarse, prominent white (10YR 8/1) mottles, weak, very coarse blocky structure.
C 551838	40 to 60 inches. Light brownish gray (10YR 6/2) silt loam mottled with common, coarse, prominent dark brown (7.5YR 4/4) mottles. Friable.
Not Sampled	60 inches plus. Loam textured Illinoian outwash surface over possibly weathered Kansan till.

Notes: Colors refer to moist soil unless indicated otherwise.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clinton silt loam SOIL Nos. 21[a] LOCATION Macoupin County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. D3981 - D3999

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	6A3a Organic matter by H_2O_2	Coarse fragments 3B1: 2A2 > 2	Coarse fragments 3B1: 2 - 19	Coarse fragments 3B1: 19 - 76
		Pct. of < 2 mm												Pct.	Pct.	Pct. of < 76mm	
0-3½	A1	4.3	76.6	19.1	0.1	0.3	0.3	0.7	2.9	36.5	40.1	39.9	1.4	4.9	-		
3½-6½	A21	4.0	77.5	18.5	0.1	0.2	0.2	0.6	2.9	37.0	40.5	40.2	1.1	3.0	tr.		
6½-11	A22	4.9	76.0	19.1	0.1	0.3	0.3	0.8	3.4	35.9	40.1	39.7	1.5	1.6	tr.		
11-15	A3	3.7	74.0	22.3	-	0.2	0.2	0.5	2.8	34.7	39.3	37.7	0.9	0.8	tr.		
15-19	B1	3.8	67.2	29.0	-	0.1	0.2	0.6	2.9	29.4	37.8	32.6	0.9	0.4	tr.		
19-23	B21	2.6	62.9	34.5	-	0.1	0.1	0.3	2.1	26.3	36.6	28.6	0.5	0.3	tr.		
23-27	B22	2.3	61.6	36.1	-	0.1	0.1	0.3	1.8	25.2	36.4	27.2	0.5	0.2	tr.		
27-31	B23	2.3	61.9	35.8	-	0.1	0.1	0.3	1.8	25.8	36.1	27.8	0.5	0.3	-		
31-34	B31	2.8	64.3	32.9	-	0.1	0.1	0.5	2.1	29.4	34.9	31.7	0.7	0.2	-		
34-36½	B32	3.6	63.8	32.6	0.1	0.2	0.2	0.6	2.5	29.2	34.6	32.1	1.1	0.2	-		
36½-39	B33	3.1	65.8	31.1	-	0.1	0.1	0.5	2.4	31.2	34.6	33.9	0.7	0.2	-		
39-43	B34	3.0	67.2	29.8	0.1	0.2	0.2	0.4	2.1	31.4	35.8	33.7	0.9	0.1	-		
43-49	B35	2.4	69.3	28.3	-	0.1	0.1	0.3	1.9	32.6	36.7	34.6	0.5	0.2	-		
49-52	B36	2.3	70.6	27.1	-	0.1	0.1	0.2	1.9	31.3	39.3	33.3	0.4	0.1	-		
52-56	C1	2.6	73.2	24.2	-	0.1	0.2	0.4	1.9	31.6	41.6	33.7	0.7	0.1	-		
56-60	C2	2.4	74.5	23.1	-	0.1	0.1	0.3	1.9	32.2	42.3	34.2	0.5	-	-		
60-66	C3	2.7	75.4	21.9	-	0.2	0.3	0.4	1.8	33.0	42.4	35.1	0.9	-	-		
66-72	C4	8.5	72.1	19.4	0.1	1.1	1.8	2.2	3.3	35.3	36.8	39.6	5.2	0.1	-		
72-79	C5	15.2	66.1	18.7	0.3	2.6	3.6	4.3	4.4	34.4	31.7	40.8	10.8	0.2	tr.		

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g												
0-3½	12.9	2.2				4.3				6.9		78	
3½-6½	8.7	1.6				6.0				5.9		63	
6½-11	5.5	1.6				6.4				5.2		52	
11-15	6.3	2.7				4.7				5.2		66	
15-19										5.2			
19-23	10.2	6.7				6.1				5.3		74	
23-27	10.9	7.7				6.8				5.3		73	
27-31	10.2	7.7				8.5				5.1		68	
31-34										4.9			
34-36½	8.7	7.1				8.8				4.8		64	
36½-39										4.8			
39-43										4.7			
43-49	6.9	6.2				8.5				4.6		61	
49-52										4.6			
52-56	7.7	6.3				6.0				5.0		70	
56-60										5.1			
60-66	8.0	6.6				4.2				5.4		78	
66-72										5.6			
72-79	6.5	4.9				2.8				5.8		80	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

[a] Part of Project Z-1-2-8

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Clinton silt loam
Soil No.: 21[a]
Location: Macoupin County, Illinois. SW 1/4 of NW 1/4 of Sec. 30, T 8 N, R 9 W about one mile southwest of Piasa, Illinois.
Vegetation and land use: Hickory, white oak, post oak, bur oak, elm, with a ground cover of grape vines, elm and oak seedlings, gooseberry and various herbaceous plants.
Slope and land form: 6 percent
Sampled by and date: H. Wascher, E. P. Whiteside, G. Mickelson, L. T. Alexander, A. M. O'Neal and R. J. Muckenhirn. October 11, 1944.

Horizon and Beltsville Lab. No.	
Not Sampled	One-half inch of fresh and partially decomposed organic matter.
D3981	0 to 3 1/4 inches. Weak brown silt loam; fine to very fine granular structure; roots up to 3/4 inch in diameter.
D3982	3 1/4 to 6 1/2 inches. Light brownish gray or brownish gray silt loam; fine granular structure; little evidence of platiness; roots abundant up to one inch in diameter; worm casts common.
D3983	6 1/2 to 11 inches. Light yellowish brown silt loam; coarse granular structure; moderately to highly vesicular; lightly sprinkled with silica flour; friable; root channels and insect burrows filled with weak brown or brownish gray material from the layer above; worm casts very abundant; roots common.
D3984	11 to 15 inches. Moderate yellowish brown silt loam; medium blocky structure; moderately vesicular; very slight sprinkling of silica flour; friable; wormholes abundant; roots fairly common; tongue of brownish gray material extend into this layer.
D3985	15 to 19 inches. Moderate yellowish brown "light" silty clay loam; medium blocky structure; moderately vesicular; friable; roots fairly common; worm and insect burrows common.
D3986	19 to 23 inches. Moderate brown to moderate yellowish brown silty clay loam; medium angular blocky structure; slightly vesicular; friable; wormholes fairly common; roots few.
D3987	23 to 27 inches. Moderate brown silty clay loam; medium to coarse blocky structure; very slightly vesicular; very hard; wormholes and roots few.
D3988	27 to 31 inches. Moderate brown silty clay loam; medium blocky structure; similar to layer above.
D3989	31 to 34 inches. Moderate to dark yellowish brown silty clay loam; medium blocky structure; irregularly sprinkled with silica flour; very slightly vesicular; firm; roots few.
D3990	34 to 36 1/2 inches. Moderate yellowish brown "light" silty clay loam; medium blocky structure; very slightly vesicular; well coated with silica flour; friable; specked with dark brown; roots fairly common.
D3991	36 1/2 to 39 inches. Moderate yellowish brown "light" silty clay loam; medium blocky structure; heavily coated with silica flour; slightly vesicular; firm; roots fairly common.
D3992	39 to 43 inches. Moderate yellowish brown silty clay loam; medium to coarse blocky structure; heavily coated with silica flour; and otherwise similar to those in above layer.
D3993	43 to 49 inches. Moderate yellowish brown silty clay loam; coarse blocky structure; slightly vesicular; irregularly coated with moderate brown; grayish and light orange mottlings in interiors; firm.
D3994	49 to 52 inches. Dark yellowish brown silty clay loam; very coarse blocky structure; thinly coated with silica flour; slightly vesicular; thoroughly mottled with very pale brown, light orange and strong brown; roots few.
D3995	52 to 56 inches. Mottled light to moderate yellowish brown silt loam; massive in place; thoroughly specked and mottled with very pale brown, strong brown and dark brown; very dense and compact in place crushing to a loose light yellowish brown silt.
D3996	56 to 60 inches. Moderate to dark yellowish brown silt loam; similar to layer above.
D3997	60 to 66 inches. Light to moderate yellowish brown silt loam, massive in place; slightly vesicular; specked with dark brown; friable.
D3998	66 to 72 inches. Light yellowish brown silt loam; massive in place; mottled with very pale brown and strong brown.
D3999	72 to 79 inches. Light yellowish brown silt loam, similar to above layer.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Clinton silt loam SOIL Nos. 15[a] LOCATION Warren County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. D3914 - D3937

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		6A3a Organic matter by H_2O_2	Coarse fragments 3B1: 2A2 ≥ 2	Coarse fragments 3B1: 2 – 19	Coarse fragments 3B1: 19 – 76
		Pct. of < 2 mm													Pct.	Pct.	Pct. of < 76mm	
0-2½		6.4	81.4	12.2	0.1	0.4	0.3	1.1	4.5	42.9	38.5	48.1	1.9		2.7	-		
2½-6		5.3	82.4	12.3	-	0.3	0.3	0.6	4.1	43.2	39.2	47.7	1.2		0.9	tr.		
6-9		5.2	79.1	15.7	-	0.2	0.2	0.6	4.2	40.7	38.4	45.2	1.0		0.5	tr.		
9-12		3.7	74.6	21.7	-	0.1	0.1	0.3	3.2	38.2	36.4	41.6	0.5		-	-		
12-15		4.2	68.3	27.5	-	0.2	0.2	0.5	3.3	32.8	35.5	36.4	0.9		0.5	tr.		
15-17½		2.9	66.9	30.2	-	-	0.1	0.2	2.6	31.2	35.7	33.9	0.3		0.6	-		
17½-20		2.7	63.9	33.4	-	-	0.1	0.2	2.4	29.1	34.8	31.6	0.3		0.6	-		
20-23		3.4	61.9	34.7	0.1	0.2	0.1	0.4	2.6	26.0	35.9	28.9	0.8		0.5	-		
23-26		2.0	60.3	37.7	-	0.1	0.1	0.3	1.5	22.9	37.4	24.6	0.5		0.6	-		
26-29½		2.9	62.5	34.6	-	0.1	0.1	0.3	2.4	27.7	34.8	30.3	0.5		0.5	-		
29½-31½		2.8	63.5	33.7	-	-	0.1	0.3	2.4	29.1	34.4	31.7	0.4		0.5	-		
31½-33½		3.0	63.6	33.0	-	0.1	0.2	0.5	2.2	25.9	37.1	28.3	0.8		0.3	-		
33½-35½		1.8	64.2	34.0	-	-	0.1	0.2	1.5	25.5	38.7	27.1	0.3		0.3	-		
35½-39		2.0	64.9	33.1	0.1	-	0.1	0.2	1.6	23.6	41.3	25.4	0.4		0.2	-		
39-42		2.0	64.8	33.2	-	0.2	0.1	0.2	1.5	24.7	40.1	26.5	0.5		0.2	-		
42-46		2.2	65.3	32.5	-	-	0.1	0.3	1.8	28.8	36.5	30.7	0.4		0.2	-		
46-49		2.7	66.6	30.7	-	0.1	0.1	0.3	2.2	31.6	35.0	34.0	0.5		0.2	-		
49-52		3.1	68.0	28.9	-	0.1	0.1	0.3	2.6	32.8	35.2	35.6	0.5		0.2	-		
52-58		3.2	69.0	27.8	-	0.1	0.1	0.4	2.6	33.8	35.2	36.6	0.6		0.2	-		
58-64		3.7	70.0	26.3	-	0.1	0.1	0.3	3.2	35.1	34.9	38.6	0.5		0.1	-		
64-70		3.8	70.7	25.5	-	-	-	0.2	3.6	36.7	34.0	40.3	0.2		-	-		
70-77		6.2	71.4	22.4	0.1	0.2	0.2	0.7	5.0	39.3	32.1	44.7	1.2		-	tr.		
77-84		5.8	73.7	20.5	0.1	0.2	0.2	0.8	4.5	39.5	34.2	44.5	1.3		-	-		
84-94		2.7	80.5	16.8	-	0.1	0.2	0.4	2.0	33.8	46.7	35.9	0.7		-	-		

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al			pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																
0-2½	4.4	1.6				4.9							5.8			55	
2½-6	2.3	1.2				4.3							5.3			45	
6-9	2.3	tr.				5.4							4.8			30	
9-12													4.6				
12-15	4.0	3.8				9.2							4.6			46	
15-17½													4.7				
17½-20	6.8	5.4				10.4							4.7			54	
20-23													4.7				
23-26	9.8	7.4				11.1							4.8			61	
26-29½													4.8				
29½-31½	9.8	6.8				9.6							4.8			63	
31½-33½													4.9				
33½-35½	10.6	7.2				9.2							4.9			66	
35½-39	10.8	7.2				8.6							5.0			68	
39-42													5.1				
42-46	12.0	7.7				7.1							5.2			74	
46-49													5.2				
49-52	11.1	7.6				5.9							5.3			76	
52-58													5.3				
58-64													5.5				
64-70	9.8	6.7				4.2							5.6			80	
70-77													6.0				
77-84													7.2				
84-94	9.3	6.4				-							7.8			100	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Part of Project Z-1-2-8.

Soil Type: Clinton silt loam
Soil No.: 15[A]
Location: Warren County, Illinois. NW 1/4 of NW 1/4 of Sec. 21, T 11 N.
Vegetation and land use: Woods had thin stand of white oaks with understory of elm and hickory saplings, some underbrush, and a thin bluegrass stand over most of the area.
Slope and land form: 5 percent to southwest.
Sampled by and date: H. Wascher, E. P. Whiteside and R. J. Muckenhirn. September 30, 1944.

Horizon and Beltsville Lab. No.	
D3914	0 to 2 1/2 inches. Weak brown silt loam of fine granular structure; friable; numerous roots; tendency toward platiness in the lower part of this layer; worm casts relatively few.
D3915	2 1/2 to 6 inches. Light yellowish brown silt loam of fine platy structure; breaking to flattened medium granules; friable; thinly sprinkled with silica flour; roots abundant; worm casts few.
D3916	6 to 9 inches. Moderate yellowish brown silt loam of medium platy structure in place; moderately vesicular; lightly coated with silica flour; breaks to a coarse granular to medium blocky structure; roots fairly abundant, generally of 1/8 inch in diameter; wormholes and casts not evident.
D3917	9 to 12 inches. Moderate yellowish brown silt loam of medium blocky structure; lightly coated with silica flour; slightly vesicular; roots common and generally 1/8 to 1/4 inch in diameter; worm activity not evident.
D3918	12 to 15 inches. Moderate yellowish brown silty clay loam of medium blocky structure; thinly coated with silica flour; slightly vesicular; friable; roots fairly common.
D3919	15 to 17 1/2 inches. Moderate brown to dark yellowish brown silty clay loam; fine blocky structure; friable; well coated with silica flour; very slightly vesicular; roots common.
D3920	17 1/2 to 20 inches. Moderate brown "heavy" silty clay loam to silty clay; medium blocky structure; slightly vesicular; angular; firm; sprinkled with silica flour; roots common.
D3921	20 to 23 inches. Dark yellowish brown "light" silty clay; medium blocky structure; slightly coated with silica flour; vesicular; firm; fibrous roots present in crevices.
D3922	23 to 26 inches. Dark yellowish brown silty clay; coarse blocky structure; slightly vesicular; occasional sprinklings of silica flour; firm; roots common; and follow crevices.
D3923	26 to 29 1/2 inches. Dark yellowish brown silty clay; coarse blocky structure; slightly vesicular; thinly coated with silica flour, occasional dark orange mottling; firm.
D3924	29 1/2 to 31 1/2 inches. Moderate brown to dark yellowish brown silty clay; medium blocky structure; specked with dark brown; sprinkled with silica flour; roots common.
D3925	31 1/2 to 33 1/2 inches. Dark yellowish brown silty clay loam; medium blocky structure; slightly vesicular; thinly sprinkled with silica flour; specked with dark brown; fibrous roots fairly common.
D3926	33 1/2 to 35 1/2 inches. Dark yellowish brown silty clay loam; coarse blocky structure; similar to layer above.
D3927	35 1/2 to 39 inches. Dark yellowish brown silty clay loam; coarse blocky structure; slightly vesicular; specked with dark brown and faintly mottled on the interior; irregular coatings of silica flour; roots few and generally in crevices.
D3928	39 to 42 inches. Dark yellowish brown silty clay loam; medium to coarse blocky structure; similar to above layer.
D3929	42 to 46 inches. Moderate to dark yellowish brown "light" silty clay loam; coarse blocky structure; moderately vesicular; coated with silica flour; roots fairly common.
D3930	46 to 49 inches. Moderate yellowish brown "heavy" silt loam; coarse to very coarse blocky structure; moderately vesicular; faint mottlings; friable; roots few.
D3931	49 to 52 inches. Light yellowish brown "heavy" silt loam; similar to above.
D3932	52 to 58 inches. Light yellowish brown "heavy" silt loam; coarse, weak blocky structure; orange and light gray mottlings; moderately vesicular; roots few.
D3933	58 to 64 inches. Moderate yellowish brown "light" silty clay loam; coarse blocky structure; moderately vesicular; mottled with light yellowish brown and light gray.
D3934	64 to 70 inches. Moderate yellowish brown "heavy" silt loam; similar to above layer.
D3935	70 to 77 inches. Light yellowish brown "heavy" silt loam; weak coarse blocky structure; slightly vesicular; specked with brown and light gray.
D3936	77 to 84 inches. Light yellowish brown silt loam; weakly developed coarse blocky structure; slightly calcareous at 84 inches.
D3937	84 to 94 inches. Light yellowish brown silt loam; calcareous; faintly mottled with light gray and medium yellowish brown and specked with dark brown.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Colo silty clay loam SOIL Nos. S63Ill-8-1 LOCATION Carroll County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19340-19347 May 16, 1966
General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) a 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	6.3	64.3	29.4	0.1	0.1	0.2	0.9	5.0	34.3	30.0	39.9	1.3			-		
9-14	A12	6.3	63.7	30.0	-	0.1	0.2	1.1	4.9	37.7	26.0	43.4	1.4			-		
14-23	A13	7.1	64.3	28.6	-	0.1	0.2	1.1	5.7	39.3	25.0	45.8	1.4			-		
23-33	A14	7.9	64.3	27.8	-	0.1	0.2	1.0	6.6	39.9	24.4	47.2	1.3			-		
33-44	AC	7.5	65.2	27.3	-	0.1	0.2	0.9	6.3	38.4	26.8	45.4	1.2			-		
44-53	C1g	10.4	67.7	21.9	-	0.2	0.3	1.8	8.1	43.8	23.9	53.2	2.3			-		
53-61	C2g	8.5	69.4	22.1	0.1	0.5	0.5	1.2	6.2	43.7	25.7	50.7	2.3			-		
61-70	C3g	5.1	73.6	21.3	0.3	0.8	0.4	0.6	3.0	43.6	30.0	46.9	2.1			-		

Depth (In.)	6A1a Organic carbon a, b Pct.	6B1a Nitrogen Pct.	C/N		6E2a Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4A1a Field-State g/cc	4A1d 1/3-Bar g/cc	4A1b Air-Dry g/cc	4D1 COLE	Water content: 4B4 Field-State Pct.	4B1c 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-to 15-Bar in/in.		pH a:	8C1a (1:1)
0-9	3.11	0.264	12		-(s)	0.8	1.39	1.30	1.47	0.044	19.3	27.2	15.2	0.16			7.1
9-14	2.44	0.201	12		-(s)	0.5	1.45	1.36	1.56	0.047	20.7	27.9	15.9	0.16			6.9
14-23	1.44	0.114	13		-(s)	0.4	1.56	1.38	1.54	0.036	9.9	23.0	14.3	0.12			7.2
23-33	0.88	0.064	14		-(s)	0.4	1.62	1.48	1.64	0.036	12.6	22.2	13.8	0.12			7.3
33-44	0.70	0.048	14		-(s)	0.7	1.60	1.50	1.66	0.036	17.8	23.4	14.6	0.13			7.3
44-53	0.25				-(s)	1.1	1.58	1.50	1.64	0.032	17.6	23.3	12.3	0.16			7.5
53-61	0.24				-(s)	1.5	1.54	1.48	1.61	0.028	19.0	23.9	12.7	0.16			7.4
61-70	0.17				-(s)	1.6	1.47	1.43	1.54	0.024	21.1	25.7	12.1	0.19			7.4

Depth (In.)	Extractable bases a 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	5B1a Sum	6H2a Ext. Acidity	Cat. Exch Cap a 5A3a Sum Cations	5A1a NH_4OAc	KCl-Ext. Al					8D3 Ca/Mg		Base saturation 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.
0-9	27.8	10.2	0.2	0.5	38.7	3.4	42.1	35.8						2.7		92	108
9-14	27.9	10.4	0.2	0.4	38.9	3.2	42.1	38.0						2.7		92	102
14-23	23.9	9.8	0.2	0.4	34.3	2.2	36.5	32.6						2.4		94	105
23-33	21.0	9.3	0.3	0.5	31.1	1.6	32.7	29.4						2.2		95	106
33-44	19.0	9.3	0.2	0.5	29.0	1.6	30.6	27.9						2.0		95	104
44-53	15.9	7.8	0.3	0.5	24.5	1.6	26.1	23.5						2.0		94	104
53-61	16.5	8.1	0.2	0.5	25.3	1.8	27.1	24.2						2.0		93	104
61-70	14.5	7.5	0.2	0.5	22.7	1.4	24.1	21.7						1.9		94	105

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-9	1.22	0.03	0.52
9-14	1.27	0.02	0.53
14-23	1.14	0.01	0.59
23-33	1.06	0.01	0.50
33-44	1.02	0.02	0.53
44-53	1.07	0.05	0.56
53-61	1.10	0.07	0.57
61-70	1.02	0.08	0.56

a. Determined by Soil Survey Laboratory - Riverside, California.
b. 26 kg/m^2 to 60 inches. (Method 6A)

Mineralogy (Methods 7A1, 7A2).
C1g horizon
Well crystallized montmorillonite dominates the clay. Small amounts of mica (or illite), kaolinite and vermiculite are present. The clay mineralogy is montmorillonitic.

Soil type: Colo Silty Clay Loam
Soil Nos.: S63 Ill-8-1
Location: Carroll County, Illinois, 340 feet west from center of private road at the SE corner of the NE¼ of the NW¼ of Section 31, T23N, R4E and 100 feet north of north side of drainage ditch on quarter-line.
Vegetation and use: Cropland (fall plowed soybean stubble).
Slope and land form: Nearly level Mississippi River valley floor.
Drainage and permeability: Poorly drained with slow surface run-off; moderately permeable.
Parent material: Alluvium
Described and sampled by: L. E. Tyler, R. L. Newbury, R. Rehner, October 15, 1963.

Horizon and Lab. Nos.	
Ap LSL 19340 UIL 19446	0-9 inches, black (10YR 2/1) to very dark gray (10YR 3/1) light silty clay loam; weak, medium granular structure; friable; neutral to mildly alkaline; abrupt, smooth boundary. (Clay estimate: 27 to 28 percent.)
A12 LSL 19341 UIL 19447	9-14 inches, black (N 2/ to 10YR 2/1) medium to heavy silty clay loam; weak, fine angular blocky structure; firm; neutral to mildly alkaline; gradual smooth boundary. (Clay estimate: 35 to 38 percent.)
A13 LSL 19342 UIL 19448	14-23 inches, black (10YR 2/1) medium silty clay loam with common, fine, distinct reddish brown (5YR 4/4) to dark reddish brown (5YR 3/4) mottles forming a network in root channels and along roots; moderate, fine and very fine angular blocky structure (some tendency toward prismatic); firm; few clean sand grains on ped surfaces; neutral to mildly alkaline; gradual smooth boundary. (Clay estimate: 33 to 35 percent.)
A14 LSL 19343 UIL 19449	23-33 inches, very dark gray (10YR 3/1) medium silty clay loam with mottling network as above; medium to strong, fine prismatic structure; firm; few clean sand grains on ped surfaces; neutral to mildly alkaline; gradual smooth boundary. (Clay estimate: 33 to 35 percent.)
AC LSL 19344 UIL 19450	33-44 inches, very dark gray (10YR 3/1) medium silty clay loam with mottling network as above but becoming more plentiful and distinct in lower part; weak medium prismatic structure; firm; crayfish tunnels common; mildly alkaline; gradual, smooth boundary. (Clay estimate: 32 to 34 percent.)
C1g LSL 19345 UIL 19451	44-53 inches, dark gray (2.5Y 4/1) heavy silt loam with common, medium, prominent yellowish brown (10YR 5/6) and dark red (2.5YR 3/6) mottles; massive with some vertical cleavage; friable; some soft Fe-Mn concretions; crayfish tunnels common; mildly alkaline; gradual smooth boundary. (Clay estimate: 25 to 27 percent.)
C2g LSL 19346 UIL 19452	53-61 inches, as above horizon except slightly lighter texture.
C3g LSL 19347 UIL 19453	61-70 inches, grayish brown (2.5Y 5/2) silt loam with common, medium, prominent strong brown (7.5YR 5/6) mottles; massive; friable, crayfish tunnels common; mildly to moderately alkaline.

Remarks: Colors described for moist soil. May be some recent overwash incorporated in Ap. Crayfish tunnels were 2 to 3 inches in diameter, more or less vertically aligned and filled with material usually black (10YR 2/1), silty clay loam with common, fine, faint very dark grayish brown (10YR 3/2) mottles. These fillings made up nearly 50 percent of the matrix in the lower horizons but were avoided in sampling.

Lack of visible color differences between ped interiors and exteriors, including mottles, and inability to identify ped coatings was the basis for omitting a B horizon.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Cowden silt loam **LOCATION** Montgomery County, Illinois

SOIL NOS. S60Ill-68-1 **LAB. NOS.** 14302-14311

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.2a	1.1a	1.1b	2.0b	1.6a	81.0	13.0	47.1	36.4	-	
7-12	A21	1.2a	1.6a	1.0b	1.6b	1.0c	75.7	17.9	33.0	44.4	-	
12-14½	A22	0.8a	1.4a	0.9b	1.4b	1.3c	74.4	19.8	31.7	44.6	-	
14½-16	A2&B	0.5a	0.9a	0.7b	1.2b	0.9b	65.8	30.0	27.0	40.3	-	
16-21	B21	0.1a	0.7a	0.6b	0.9a	0.9b	53.9	42.9	21.0	34.2	-	
21-27	B22	0.3a	0.8a	0.7a	1.3a	0.8a	55.8	40.3	22.7	34.5	-	
27-36	B23	0.4a	0.9a	0.8a	1.5a	1.0a	60.8	34.6	27.1	35.4	-	
36-44	B31	0.4a	1.5a	1.5c	3.3c	1.5c	64.0	27.8	30.4	36.6	-	
44-55	B&IIB32	0.7c	3.0	4.5	10.9	3.8	54.3	22.8	35.2	27.9	-	
55-65	IIC	1.2c	3.8	5.5	13.6	4.6	50.6	20.7	35.7	25.8	Tr.	

pH 1:1	8C1a Al KCl-Ext. me/100g	6G1a Carbonate as $CaCO_3$ %	6E1c ORGANIC MATTER ORGANIC CARBON %	NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	4A1a g/cc	30-Cm. 4B3 % W.	4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
6.5		-	0.96	0.079	12	0.6						5.7
5.2	0.1		0.75	0.069	11	0.8	7.2	1.50	25.0	1.43	1.50	7.3
5.2	0.2		0.49	0.053	9	1.0						8.5
5.2	0.4		0.53	0.060	9	1.2						13.6
5.0	0.7		0.62	0.064	10	1.4						20.1
5.3	0.4		0.50	0.054	9	1.3	15.4	1.68	29.4	1.40	1.73	19.1
5.4	Tr.		0.34			1.4						16.9
6.2			0.24			1.7	8.4	1.70	25.2	1.52	1.71	14.0
6.7		-	0.15			1.0						10.5
7.1			0.09			0.9	14.7	1.72	21.7	1.61	1.78	9.5

CATION EXCHANGE CAPACITY NH_4OAc	5A1a EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	on Sum Cations % 5C3	Ratios to Clay NH_4OAc CEC	Ext. Iron	8I1 Water at 15 Atm.	8D3 Ca/Mg
←	milliequivalents per 100g. soil					→						
10.3	9.0	1.6	2.8	0.1	0.2	13.7	106	80	.79	.046	.44	5.6
11.5	6.3	2.3	5.7	0.1	0.2	14.6	77	61	.64	.045	.41	2.7
12.6	6.1	3.5	5.7	0.2	0.2	15.7	79	64	.64	.050	.43	1.7
18.4	8.6	6.1	8.2	0.4	0.4	23.7	84	65	.61	.040	.45	1.4
27.0	12.5	10.3	11.2	0.7	0.6	35.3	89	68	.63	.033	.47	1.2
26.4	11.9	10.5	9.2	1.1	0.6	33.3	91	72	.66	.032	.47	1.1
22.8	10.9	9.9	6.5	1.2	0.5	29.0	99	78	.66	.040	.49	1.1
18.6	9.3	8.1	4.3	1.2	0.3	23.2	102	81	.67	.061	.50	1.1
14.6	7.4	6.3	2.9	0.9	0.2	17.7	101	84	.64	.044	.46	1.2
13.5	7.0	5.7	2.4	0.7	0.2	16.0	101	85	.65	.043	.46	1.2

a. Many Fe-Mn nodules.
b. Common Fe-Mn nodules.
c. Few Fe-Mn nodules.

Soil type: Cowden silt loam
Soil Nos. : S60111-68-1
Location: Montgomery County, Illinois; T10N, R5W, Section 25, SW160, SW40, NW10, 618 feet south and 255 feet east of center of "T" road junction at the northwest corner of NW10.
Parent material: Loess. Drainage: Somewhat poorly grading towards poor.
Classification: Planosol. Slope: 0 to 1/2 percent. Erosion: None.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Corn.
Described by: F. J. Carlisle, C. E. Downey, J. B. Fehrenbacher, L. J. Bartelli, J. F. Steinkamp, and D. B. Phillips, October 20, 1960.

Horizon and Lincoln Lab.No.	
Ap 14302	0 to 7 inches. Very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) silt loam; dry colors are grayish brown (10YR 5/2) with some 10YR 7/2 grain silt patches; weak medium granular structure; friable when moist; common 10YR 3/2 moist iron concretions; few fine pores; pH 7.0; abrupt smooth boundary.
A21 14303	7 to 12 inches. Very dark gray (10YR 3/1) to dark gray (10YR 4/1) silt loam with some specks of 10YR 5/2; dry color gray (10YR 5/1), which is much affected by thin coating of blanched silt grains that is discontinuous at a scale of 1 to 2 mm.; the 5/1 color is summation of effect of light gray to white blanched silt and darker (estimate 4/1) material; weak fine subangular blocky structure; friable when moist; possibly a few 10YR 3/1 clay films; common fine pores and few medium pores throughout peds; numerous 10YR 3/2 iron concretions; pH 5.5; clear smooth boundary.
A22 14304	12 to 14½ inches. Dark gray (10YR 4/1) to dark grayish brown (10YR 4/2) silt loam with few fine faint 10YR 4/4 mottles and some flecks of 10YR 5/2; flecks when dry are 10YR 7/1 and 10YR 6/1; dry colors are mottled 10YR 6/2 and 10YR 7/1 in fine faint pattern with few fine yellowish brown mottles; the 10YR 7/1 colors are patches of blanched silt; weak coarse platy and weak very fine subangular blocky structure; friable when moist; clay films not identifiable with any certainty; common fine to medium pores through peds; numerous 10YR 3/2 iron concretions; pH 5.3; abrupt smooth boundary.
A2 and B 14305	14½ to 16 inches. Brown (10YR 5/3) silty clay loam for B; gray (10YR 5/1) silty clay loam for A2; few fine faint 10YR 5/8 mottles; strong medium and fine subangular blocky structure; firm when moist; moderate 10YR 4/2, moist, clay films but predominant dry surface colors are in range of 10YR 7/1 to 10YR 6/2 as a result of varying thicknesses of blanched silt on ped surfaces; few fine pores throughout peds; many 10YR 4/4 and 10YR 3/2 iron concretions; pH 5.5; abrupt smooth boundary.
B21 14306	16 to 21 inches. Brown (10YR 5/3) heavy silty clay loam with common fine faint to distinct 10YR 5/8 mottles; moderate fine and medium prismatic breaking to moderate to strong medium to fine blocky structure; firm when moist; moderately thick 10YR 4/1 to 10YR 4/2 clay films (moist and dry); some patches of 10YR 5/2, moist, and 10YR 6/1 blanched silt grains on prism faces; many fine pores and root tracks in clay films; many fine pores in peds lined with 10YR 3/1 clay films; some 10YR 4/4 iron concretions; pH 5.3; clear smooth boundary.
B22 14307	21 to 27 inches. Olive gray (5Y 5/2) heavy silty clay loam with many medium prominent 10YR 5/6 mottles; strong fine and medium prismatic breaking to moderate medium blocky structure; very firm when moist; clay films are moderately thick continuous 10YR 4/1 to 10YR 4/2, moist; blanched silt grains of 10YR 5/2, moist, and 10YR 6/1, dry, on main prism faces; common fine pores and many root tracks in clay films; common to many fine pores inside peds lined with 10YR 3/1, moist; many fine 10YR 4/4 iron concretions; pH 5.2; gradual smooth boundary.
B23 14308	27 to 36 inches. Olive gray (5Y 5/2) heavy silty clay loam with many medium prominent 10YR 5/4 and 5/8 moist, mottles; strong medium prismatic breaking to moderate medium and coarse blocky structure; very firm when moist; clay films are fine discontinuous and 10YR 4/1 to 10YR 4/2, moist; some 10YR 5/2, moist, and 10YR 6/1, dry, blanched silt grains on some of prism faces (may have fallen down cracks); common fine pores and root tracks in clay films; common to many fine pores in peds lined with 10YR 3/1, moist; common medium 10YR 3/2, moist, iron concretions; pH 5.5; gradual smooth boundary.
B31 14309	36 to 44 inches. Gray (5Y 5/1) silty clay loam with small amount of sand; many medium prominent 10YR 5/4 and 5/8, moist, mottles; compound moderate medium irregular prismatic and weak coarse blocky structure; very firm when moist; moderately thick 10YR 3/1, moist, and 10YR 2/1, moist, clay films on prisms and ped faces; common fine pores and root tracks in clay film; many fine pores lined with 10YR 3/1, moist, clay films; common 10YR 3/2, moist, fine iron concretions; pH 6.0; gradual wavy boundary.
I and IIB32 14310	44 to 55 inches. Gray (10YR 5/1) gritty heavy silt loam with common coarse distinct 10YR 4/4, moist, and many coarse prominent 7.5YR 4/4, moist, mottles; irregular weak coarse prismatic structure; firm when moist; thick 10YR 2/1, moist, and 10YR 3/1, moist, clay films with common fine pores and root tracks in clay films; many fine pores in peds lined with 10YR 3/1 and 3/2 colored clay films; common fine 10YR 3/2 iron concretions; pH 6.5; clear smooth boundary. At intervals of 4 to 10 inches there are zones or volumes of material with horizontal dimensions of 1 to 2 inches for the shortest and 3 to 6 inches for the longest which extend vertically from top of B32 to top of C horizon; these zones have these characteristics: moist colors are grayish brown (10YR 5/2); many coarse distinct 10YR 4/4 mottles; silty clay loam texture with some grit; moderate medium to fine blocky structure; firm when moist; thick 10YR 2/1, moist, and 10YR 3/1, moist, clay films with many fine pores and root tracks; many fine pores in peds lined with 10YR 3/1 and 3/2, moist, clay films; pH 6.2
IIC 14311	55 to 65 inches. Gray (10YR 5/1) light clay loam with some pebbles; many coarse distinct 10YR 4/4 mottles; very weak coarse prismatic structure with one cleavage plane about every 5 to 8 inches; firm when moist; thick 10YR 2/1, moist, and 10YR 3/1, moist, clay films on moderate cleavage planes with numerous root tracks and few fine pores in clay films; few fine pores inside structure blocks; numerous 10YR 3/2, moist, iron concretions; pH 7.0.

Remarks: At this moisture content (well below field capacity but above wilting point), there are 1/2- to 2-mm. cracks visible between prisms in the three B2 horizons. Corn roots are numerous on prism faces. Some roots are in peds but less roots are in the peds than in the Clarksdale profiles.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Cowden silt loam **LOCATION** Montgomery County, Illinois

SOIL NOS. S60Ill-68-3 **LAB. NOS.** 14341-14349

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 1B1a VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-8	Ap	0.4a	1.3b	2.1c	3.6	1.7	77.9	13.0	38.3	42.9	Tr.	
8-14	A21	0.8a	1.3b	1.9c	3.2	1.1	74.8	16.9	35.0	42.3	Tr.	
14-17	A22	1.1a	1.6b	1.8c	3.1	1.3	72.5	18.6	30.6	44.6	Tr.	
17-19	A2&B	0.5a	0.9b	1.2c	2.1	1.1	69.8	24.4	27.2	44.7	Tr.	
19-21	B2&A2	0.2a	0.6b	1.0c	1.5c	0.9c	59.9	35.9	22.1	39.4	-	
21-28	B21	0.2a	0.5a	0.8b	1.1b	0.7c	53.2	43.5	18.3	36.1	-	
28-36	B22	0.4a	0.6b	0.7c	1.1c	0.7c	60.8	35.7	23.4	38.6	-	
36-45	B31	0.3a	0.8b	1.1c	1.5c	0.8c	64.5	31.0	27.4	38.6	-	
45-57	B32	0.2a	1.9	3.3	6.0	2.2	63.0	23.4	32.4	35.3	-	

pH 8C1b Saturated Paste	pH 8C1a 1:1	6E1c Carbonate as $CaCO_3$ %	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	Field-Moist 4A1a g/cc	30-Cm. 4B3 % W.	30-Cm. 4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
5.8	5.6		1.22	0.105	12	0.5						6.2
5.1	5.4		0.86	0.076	11	0.8	7.1	1.45	25.6	1.40	1.45	7.4
5.1	5.2		0.55	0.054	10	0.9						7.7
4.9	5.1		0.45	0.050	9	1.0						11.1
4.8	5.1		0.50	0.054	9	1.2						16.0
5.1	5.3		0.54	0.055	10	1.3						20.1
6.0	6.2		0.32			1.3	15.8	1.68	26.9	1.45	1.72	17.3
6.4	6.5	-	0.23			1.6						15.4
6.5	6.8	-	0.13			0.9	15.8	1.64	24.2	1.55	1.69	10.8

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	Base Sat. on Sum Cations % 5C3	6G1a Al KCl Ext.	6P1a Water Sol. Na	5D2 Exch. Na	8A1a Elec. Cond.
←	milliequivalents per 100g. soil					→			← me/100g →		%	mmhos.
10.5	7.2	1.5	5.0	0.1	0.1	13.9	85	64	-	Tr.	1	0.5
11.5	6.0	2.4	6.4	0.1	0.2	15.1	76	58	0.1	Tr.	1	0.4
11.7	5.6	3.3	6.2	0.2	0.2	15.5	79	60	0.4	Tr.	2	0.4
16.3	7.3	5.3	7.4	0.4	0.3	20.7	82	64	0.6	0.1	2	0.4
23.7	10.4	8.5	9.4	0.7	0.5	29.5	85	68	0.8	0.1	2	0.4
30.0	13.7	11.7	10.2	1.1	0.6	37.3	90	73	0.6	0.2	3	0.4
25.4	13.1	11.4	5.1	1.4	0.5	31.5	104	84		0.2	5	0.5
22.4	12.0	9.8	4.1	1.5	0.4	27.8	106	85		0.2	6	0.5
16.0	8.5	6.8	2.6	1.1	0.3	19.3	104	86		0.2	6	0.5

a. Many Fe-Mn nodules
b. Common Fe-Mn nodules.
c. Few Fe-Mn nodules.

Soil type: Cowden silt loam
Soil Nos. : S60Ill-68-3
Location: Montgomery County, Illinois; T8N, R3W, Section 28, NW160, SE40, NW10, 438 feet south and 260 feet east of point which is in center of State Highway 185 and directly in front (south) of the center of farm house located on north side of Highway 185.
Parent material: Loess. Drainage: Poor, grading toward somewhat poorly.
Classification: Planosol. Slope: 1/2 to 1 percent. Erosion: None.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Soybean stubble.
Described by: F. J. Carlisle, J. B. Fehrenbacher, C. E. Downey, G. O. Walker, D. B. Phillips, and J. F. Steinkamp, October 19, 1960.

Horizon and Lincoln Lab.No.	
Ap 14341	0 to 8 inches. Very dark gray (10YR 3/1) silt loam; grayish brown (10YR 5/2) dry; massive (cloddy) to very weak coarse granular structure; friable when moist; very few tubular pores; many fine very dark grayish brown (10YR 3/2) and common medium very dark brown (10YR 2/2) iron concretions; pH 6.0; abrupt smooth boundary.
A21 14342	8 to 14 inches. Very dark gray(10YR 3/1)60 percent and grayish brown(10YR 5/2)40 percent silt loam; dry colors are gray (10YR 6/1 and 5/1); moderate to strong medium platy structure; friable when moist; discontinuous patches of light gray blanched silt on plate surfaces; common fine pores with possibly a few very dark brown (10YR 2/2) and very dark grayish brown (10YR 3/2) iron concretions; pH 5.7; clear smooth boundary.
A22 14343	14 to 17 inches. A silt loam with mixed moist colors of grayish brown (10YR 5/2) 60 percent, gray (10YR 6/1) 20 percent, and dark gray (10YR 4/1) 20 percent; dry colors are light gray (10YR 7/1) and light brownish gray (10YR 6/2); moderate medium subangular blocky structure with weak medium plates; friable when moist; very porous with fine tubular pores; peds have a puffy appearance; possibly a few very dark gray (10YR 3/1) clay films in worm channels or may be material from upper horizons; pH 4.5; clear smooth boundary.
A2 and B 14344	17 to 19 inches. The component is grayish brown (10YR 5/2 moist) heavy silt loam and the B has the same texture but is brown (10YR 5/3 moist); dry colors of ped surfaces are light gray (10YR 7/1), white (10YR 8/2) and light brownish gray (10YR 6/2); weak fine subangular blocky structure; friable when moist; many fine tubular pores throughout peds; possibly a very occasional 10YR 4/1 clay film in worm channel; many fine very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 5.5; very abrupt smooth boundary.
B2 and A2 14345	19 to 21 inches. The B2 is brown (10YR 5/3) heavy silty clay loam whereas the A2 consists of 10YR 6/1 and some 10YR 5/1 moist; common fine faint dark yellowish brown (10YR 4/4) mottles; dry ped colors are light gray (10YR 7/1) and light brownish gray (10YR 6/2) with some white (10YR 8/2); strong medium to fine subangular blocky and blocky structure; firm when moist; very many fine tubular pores; many very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 5.5; abrupt smooth boundary.
B21 14346	21 to 28 inches. Brown (10YR 5/3) silty clay loam to silty clay with many fine prominent olive gray (5Y 5/2) and common fine distinct yellowish brown (10YR 5/6) mottles; strong medium prismatic breaking to strong medium to coarse blocky structure; very firm to firm when moist; moderately thick very dark gray (10YR 3/1 moist) clay films; when dry the prism surfaces are predominately grayish brown (10YR 5/2) and pale brown (10YR 6/3) with about 1/3 of surface covered by discontinuous dark gray (10YR 4/1) to dark grayish brown (10YR 4/2) clay films; occasional patch of light gray blanched silt; some black (10YR 2/1) clay films in few worm channels; common fine pores and many root tracks in clay films; very many fine very dark grayish brown (10YR 3/2) to very dark brown (10YR 2/2) iron concretions; few worm channels; pH 5.5; gradual smooth boundary.
B22 14347	28 to 36 inches. Olive gray (5Y 5/2 moist) heavy silty clay loam with many fine prominent yellowish brown (10YR 5/4) and brownish yellow (10YR 6/8) mottles; moderate medium prismatic structure which breaks to moderate coarse blocky structure; firm to very firm when moist; moderately thick dark gray (10YR 4/1) clay films on peds; some very dark gray (10YR 3/1) to black (10YR 2/1) clay films in worm channels; dry colors are mottled 2.5Y 6/2 and yellowish brown (10YR 5/8); common fine pores and many root tracks in clay films; many fine pores inside peds; many fine very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 6.5; gradual wavy boundary.
B31 14348	36 to 45 inches. Light olive brown (2.5Y 5/3) light silty clay loam with common large prominent yellowish brown (10YR 5/8) and common medium prominent olive gray (5Y 5/2) mottles; weak coarse prismatic with some weak coarse blocky structure; firm when moist; dark gray (10YR 4/1 moist) clay skins; many fine pores and root tracks on faces; many fine pores lined with very dark gray (10YR 3/1) clay films; some worm channels; very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; krotovinas, 2 to 4 inches in diameter and 8 to 10 inches apart, consisting of dark gray (5Y 4/1) silty clay loam to silty clay, extend through to the next horizon (krotovinas not sampled); pH 6.5; clear wavy boundary.
B32 14349	45 to 57 inches. Light olive brown (2.5Y 5/4) heavy silt loam with many coarse prominent yellowish brown (10YR 5/8) and common medium distinct olive gray (5Y 5/2) mottles; massive or possibly very weak coarse blocky structure; friable when moist; some very dark gray (10YR 3/1) and dark gray (10YR 4/1) clay films on vertical cleavage planes; common fine pores and root tracks lined with very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) clay films; common fine and medium very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 6.8; clear wavy boundary.
IIC Not sampled	57 to 63 inches plus. Gritty silt loam to loam; mixed till and Farmdale loess.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Cowden silt loam **LOCATION** Montgomery County, Illinois

SOIL NOS. S60Ill-68-4 **LAB. NOS.** 14350-14360

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-8	Ap	0.1	0.9	1.6	2.5	1.4	80.3	13.2	32.1	50.7	Tr.	
8-11	A21	0.3a	1.2	1.6	2.7	1.5	79.5	13.2	32.9	49.3	Tr.	
11-14	A22	0.1a	1.2	1.7	2.8	1.6	82.0	10.6	34.2	50.7	Tr.	
14-17	A23	0.6a	1.3	1.8	2.7	1.5	76.3	15.8	33.0	46.0	Tr.	
17-20	B2&A2	0.7a	1.2	1.6	2.3	1.3	64.3	28.6	27.3	39.3	Tr.	
20-27	B21	0.5a	0.9	1.2	1.8	1.1	59.1	35.4	25.6	35.4	Tr.	
27-36	B22	0.4b	0.8c	1.0c	1.6c	1.0c	60.4	34.8	24.7	37.4	Tr.	
36-45	B23	0.3b	0.6d	0.6b	1.0b	0.8b	60.1	36.6	23.2	38.2	Tr.	
45-52	B31	0.4a	0.9e	1.3e	1.8	1.1	64.9	29.6	26.6	40.2	Tr.	
52-62	IIB&TR2	0.7a	2.4e	3.8	6.2	3.0	55.9	28.0	36.2	25.5	Tr.	
62-70	II Ab	1.4	3.1	4.9	8.5	3.9	49.6	28.6	32.0	25.4	Tr.	

pH 8C1b Saturated Paste	pH 8C1a 1:1	6E1c Carbonate as $CaCO_3$ %	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	Field-Moist 4A1a g/cc	30-Cm. 4B3 % W.	30-Cm. 4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
6.7	6.6	-	1.42	0.119	12	0.3						6.5
5.6	5.7		0.96	0.081	12	0.4						5.6
5.9	6.1		0.54	0.044	12	0.4	2.0	1.52	24.6	1.47	1.50	3.8
6.2	6.5	-	0.47	0.043	11	0.4						6.7
6.6	6.8	-	0.50	0.054	9	0.7						13.4
6.8	7.2	-	0.46	0.049	9	0.7						16.4
7.5	7.6	Tr.	0.30			0.8	12.1	1.75	28.0	1.44	1.78	17.4
7.7	7.7	Tr.	0.23			1.1						17.9
7.6	7.7	-	0.15			1.0	20.4	1.61	26.4	1.50	1.71	15.1
7.6	7.7	-	0.13			0.9						13.9
7.4	7.6	-	0.10			0.4						13.4

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	on Sum Cations % 5C3	6P1a Water Sol. Na	5D2 Exch. Na	8A1a Elec. Cond.
←	milliequivalents per 100g. soil					→			← me/100g →	%	mmhos.
11.0	9.8	1.4	2.8	0.1	0.2	14.3	104	80	Tr.	1	0.6
9.0	6.1	1.5	4.7	0.1	0.1	12.5	87	62	Tr.	1	0.4
6.1	4.4	1.3	2.4	0.2	0.1	8.4	98	71	Tr.	3	0.4
9.7	6.4	2.6	2.6	0.5	0.2	12.3	100	79	0.1	4	0.5
19.4	12.2	6.1	3.6	1.4	0.3	23.6	103	85	0.3	6	0.8
24.0	15.2	7.9	3.4	1.9	0.4	28.8	106	88	0.3	7	0.7
24.6	15.6	8.6	1.7	2.4	0.4	28.7	110	94	0.5	8	0.8
21.9	16.5	9.6	1.4	2.6	0.4	30.5	133	95	0.5	10	0.8
20.6	13.3	8.0	2.2	2.2	0.3	26.0	116	92	0.4	7	0.7
18.5	11.5	6.8	1.4	1.7	0.2	21.6	109	94	0.3	8	0.6
18.6	11.7	7.0	1.7	1.5	0.2	22.1	110	92	0.2	7	0.5

a. Many Fe-Mn nodules.
b. Few Fe-Mn nodules. Trace carbonate nodules.
c. Trace carbonate nodules.
d. Many Fe-Mn nodules. Trace carbonate nodules.
e. Few Fe-Mn nodules.

Soil type: Cowden silt loam
Soil Nos. : S60Ill-68-4
Location: Montgomery County, Illinois; T7N, R4W, Section 1, NW160, NW40, NE10, 400 feet south and 180 feet west of center of crossroad junction at northeast corner of NE10.
Parent material: Loess. Drainage: Poor.
Classification: Planosol. Slope: 0 to 1 percent. Erosion: None.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Soybean stubble.
Described by: F. J. Carlisle, J. B. Fehrenbacher, C. E. Downey, G. O. Walker, J. F. Steinkamp, and D. B. Phillips, October 20, 1960.

Horizon and Lincoln Lab. No.	
Ap 14350	0 to 8 inches. Very dark gray (10YR 3/1 moist) silt loam which is gray (10YR 5/1) when dry; massive (cloddy) to weak moderate granular structure; friable when moist; few medium pores; common fine very dark grayish brown (10YR 3/2) iron concretions; few patchy grayish brown (10YR 5/2 moist) silt concentrations; pH 6.5; abrupt smooth boundary.
A21 14351	8 to 11 inches. A silt loam with mixed very dark gray (10YR 3/1) 75 percent and grayish brown (10YR 5/2) 25 percent colors; dry color gray (10YR 5/1); weak medium to fine platy structure with patches of light gray (10YR 7/1) blanched silt on plates; friable when moist; many fine tubular pores; few coarse pores; discontinuous patches light gray blanched silt on ped surfaces; pH 5.6; clear smooth boundary.
A22 14352	11 to 14 inches. A silt loam with mixed grayish brown (10YR 5/2) and gray (10YR 5/1) 75 percent and gray (10YR 6/1) 25 percent colors; dry colors about equal 10YR 5/1 and 10YR 6/1; weak fine platy structure; friable when moist; few very dark gray to black (10YR 3/1 to 2/1) clay films in worm channels; many fine and few coarse tubular pores throughout peds; many 10YR 3/2 iron concretions; pH 6.0; clear smooth boundary.
A23 14353	14 to 17 inches. A silt loam with mixed grayish brown (10YR 5/2) 75 percent and dark grayish brown (10YR 4/2) with some gray (10YR 6/1); dry colors gray (10YR 5/1); also frequent fine patches of 10YR 6/1 to 7/1; weak medium platy structure breaking to weak very fine subangular blocky to blocky structure; friable when moist; common fine tubular pores throughout peds; few coarse pores or worm channels lined with very dark gray (10YR 3/1) to black (10YR 2/1) clay films; many fine very dark grayish brown (10YR 3/2) iron concretions; pH 6.0; clear smooth boundary.
B2 and A2 14354	17 to 20 inches. This mixed horizon is composed of 25 percent A2 and 75 percent B2; color of A2 is grayish brown (10YR 5/2 moist) and light gray (10YR 6/1 dry); the B2 is dark grayish brown (10YR 4/2) with few fine faint yellowish brown (10YR 5/6) mottles when moist and grayish brown (10YR 5/2) when dry; texture is silty clay loam; weak to moderate medium to fine subangular blocky to blocky structure; friable to firm when moist; patchy black (10YR 2/1) to very dark gray (10YR 3/1) clay films; many fine pores in peds; many fine 10YR 3/2 iron concretions; pH 6.5; clear smooth boundary.
B21 14355	20 to 27 inches. Brown (10YR 4/3) heavy silty clay loam to silty clay with few fine prominent olive (5Y 5/3) and few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium prismatic structure which breaks to weak to moderate medium to coarse blocky structure; firm to very firm when moist; predominate overall dry color of ped surfaces is grayish brown (10YR 5/2) which consists of very fine faint mottles of gray and yellowish brown; thick black (10YR 2/1) to very dark gray (10YR 3/1 moist) continuous clay films; few fine tubular pores and some root tracks on clay films; common fine pores inside peds are lined with very dark gray (10YR 3/1); occasional light gray (10YR 7/1 dry) and light brownish gray (10YR 6/2 moist) silty coatings on horizontal faces and peds; very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; pH 6.8; clear smooth boundary.
B22 14356	27 to 36 inches. Olive gray (5Y 5/2) and olive (5Y 5/3) heavy silty clay loam with many medium prominent yellowish brown (10YR 5/4 and 5/8) and few coarse prominent strong brown (7.5YR 5/8) mottles; dry colors grayish brown (10YR 5/2) with fine faint yellowish brown mottles; moderate to strong medium prismatic breaking to moderate to strong coarse blocky structure; firm when moist; thick continuous very dark gray (10YR 3/1) and black (10YR 2/1) clay skins when moist and dark gray (10YR 4/1) when dry; few fine pores and common root tracks in clay films; occasional slickensides; common fine pores lined with very dark gray (10YR 3/1) clay films; many spherical very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 4/4) iron concretions 1 to 2 mm. in diameter; pH 7.8; gradual smooth boundary.
B23 14357	36 to 45 inches. Olive gray (5Y 5/2) to olive (5Y 5/3) silty clay loam with many medium prominent dark yellowish brown (10YR 4/4) and common coarse prominent yellowish brown (10YR 5/8) mottles; moderate medium prismatic structure breaking to moderate coarse and medium blocky structure; moderately thick dark gray (10YR 4/1) and very dark gray (10YR 3/1) and occasional black (10YR 2/1) clay films on ped faces; common fine pores and many root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) clay films inside peds; many 10YR 2/2 and 10YR 3/2 iron concretions; pH 8.0; gradual smooth boundary.
B31 14358	45 to 52 inches. Gray (5Y 5/1) and olive gray (5Y 5/2) light silty clay loam with many medium distinct olive (5Y 5/4) and common coarse prominent yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure with weak coarse blocky peds adjacent to prism faces; firm when moist; continuous moderately thick dark gray (10YR 4/1) and very dark gray (10YR 3/1) clay films on ped faces; few black (10YR 2/1) clay films along larger pores; common fine pores and many root tracks in clay films; many fine pores inside peds lined with very dark gray (10YR 3/1) clay films; some fine very dark grayish brown (10YR 3/2) iron concretions; pH 8.0; clear wavy boundary.
I and IIB32 14359	52 to 62 inches. Gray (10YR 5/1) gritty light silty clay loam with some pebbles; some areas of dark gray (10YR 4/1); many coarse prominent olive brown (2.5Y 4/4) and common medium prominent brown (10YR 4/3) mottles; weak coarse prismatic structure; firm when moist; continuous very dark gray and dark gray (10YR 3/1 and 4/1) clay films on ped faces; some black (10YR 2/1) clay films in larger cracks and worm channels; common fine pores and many root tracks in clay films; many fine pores inside peds lined with very dark gray (10YR 3/1) clay films; few coarse worm channels; some fine very dark grayish brown (10YR 3/2) iron concretions; pH 8.0; clear wavy boundary.
IIAb 14360	62 to 70 inches. Dark gray (10YR 4/1) gritty silty clay loam with some pebbles; some areas of gray (10YR 5/1); many medium prominent olive brown (2.5Y 4/4) and common medium prominent brown (10YR 4/3) mottles; weak coarse blocky structure; continuous very dark gray (10YR 3/1) and black (10YR 2/1) clay films on ped faces and cleavage planes; many to common fine tubular pores; common fine very dark grayish brown (10YR 3/2) and large very dark brown (10YR 2/2) iron concretions; pH 8.0.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Darwin clay SOIL Nos. S50Ill-51-7 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 501324 - 501328

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-15	A1	0.8	42.1	57.1	0.1	0.1	0.1	0.2	0.3	9.9	32.2	10.3	0.5			-		
15-25	A	0.6	41.4	58.0	-	0.1	0.1	0.2	0.2	9.9	31.5	10.2	0.4			-		
25-32	A	0.6	42.1	57.3	-	0.1	0.1	0.2	0.2	10.6	31.5	10.9	0.4			-		
32-44	C	0.6	42.6	56.8	-	0.1	0.1	0.2	0.2	10.8	31.8	11.1	0.4			-		
44-55	C	0.5	43.3	56.2	-	0.1	0.1	0.1	0.2	10.8	32.5	11.1	0.3			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) & H_2O
0-15	1.30																6.5
15-25	0.92																7.0
25-32	0.67																7.4
32-44	0.52																7.5
44-55	0.41																7.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																
0-15	29.5	10.1	1.0	0.6		5.8	47.0									88	
15-25	30.2	11.6	1.2	0.4		4.6	48.0									90	
25-32	30.0	12.2	1.2	0.4		2.7	46.7									94	
32-44	29.7	12.5	1.4	0.4		2.1	46.1									95	
44-55	34.3	12.4	1.4	0.4		1.1	49.6									98	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Determinations by University of Illinois.

Soil Type: Darwin clay
Soil No.: S50Ill-51-7
Location: Lawrence County, Illinois. T2N, R12W, Sec. 8, SW 1/4, NE 40.
Vegetation and land use: Alfalfa
Slope and land form: Less than 0.2 percent.
Sampled by and date: M. M. Mortland, E. C. Knox, and J. B. Fehrenbacher. August 7, 1950.

Horizon and Beltsville Lab. No.	
A1 501324	0 to 15 inches. Very dark gray (10YR 3/1) silty clay.
A 501325	15 to 25 inches. Dark gray (10YR 4/1) and gray (10YR 5/1) silty clay.
A 501326	25 to 32 inches. Dark gray (N 4/) and dark grayish brown (2.5Y 4/2) silty clay.
C 501327	32 to 44 inches. Light gray (5Y 7/1) and olive (5Y 4/3) mottled with yellowish brown (10YR 5/6) silty clay.
C 501328	44 to 55 inches. Gray (5Y 6/1), olive (5Y 5/3), and yellowish brown (10YR 5/6) silty clay high in lime.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Darwin silty clay SOIL Nos. S63Ill-51-1 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19325-19332 May 16, 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (in.)	Horizon	Size class and particle diameter (mm) a 3A1 — Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm														Pct.		
0-7	Ap	4.3	41.8	53.9	0.1	0.1	0.2	1.6	2.3	8.9	32.9	12.2	2.0			-		
7-14	A3	3.9	40.2	55.9	-	0.1	0.1	1.1	2.6	8.3	31.9	11.7	1.3			-		
14-24	B21g	3.8	40.5	55.7	-	-	0.1	1.2	2.5	8.1	32.4	11.5	1.3			-		
24-33	B22g	4.8	41.8	53.4	0.3	0.3	0.2	1.4	2.6	8.0	33.8	11.6	2.2			-		
33-40	B23g	6.9	44.1	49.0	1.2	0.7	0.4	1.7	2.9	9.1	35.0	13.1	4.0			-		
40-46	B24g	6.5	47.0	46.5	0.4	0.8	0.5	1.7	3.1	9.4	37.6	13.6	3.4			-		
46-56	B3g	5.5	55.1	39.4	-	0.1	0.2	1.8	3.4	12.2	42.9	16.8	2.1			-		
56-68	Cg	12.3	60.6	27.1	-	0.1	0.4	3.9	7.9	19.6	41.0	30.4	4.4			-		

Depth (in.)	6A1a Organic carbon a, b Pct.	6B1a Nitrogen Pct.	C/N		6E1b 6F2a Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4A1a Field-State g/cc	4A1d 1/3-Bar g/cc	4A1b Air-Dry g/cc	4D1 COLE	Water content: 4B4 Field-State Pct.	4B1c 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-to 15-Bar in./in.		pH a	8C1a (1:1)
0-7	2.35	0.220	11			1.1	1.51	1.35	1.81	0.10	22.8	30.8	19.8	0.15			5.9
7-14	1.30	0.128	10			1.3	1.52	1.35	1.82	0.11	22.4	30.5	21.7	0.12			6.6
14-24	0.76	0.087	9		tr(s)	1.2	1.54	1.38	1.86	0.11	22.5	29.5	21.3	0.11			7.1
24-33	0.51	0.065	8		1	1.0	1.57	1.42	1.86	0.096	21.1	27.9	20.4	0.11			7.8
33-40	0.33				3	0.8	1.62	1.47	1.82	0.073	19.0	25.4	19.7	0.08			7.9
40-46	0.28				4	0.7	1.63	1.48	1.77	0.059	17.9	24.5	18.2	0.09			7.9
46-56	0.27				tr	0.9	1.62	1.50	1.77	0.056	18.9	24.4	17.2	0.11			7.6
56-68	0.27				10	1.0	1.64	1.60	1.72	0.024	18.8	21.0	12.7	0.13			7.8

Depth (in.)	Extractable bases a 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. Acidity a	Cat. Exch. Cap. a: 5A3a Sum Cations	5A1a NH_4OAc	KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g										Pct.	Pct.
0-7	29.2	11.5	0.4	0.5	41.6	7.4	49.0	46.5		2.5	85	89
7-14	28.8	16.0	0.3	0.4	45.5	4.3	49.8	48.0		1.8	91	95
14-24	28.4	15.0	0.4	0.4	44.2	2.8	47.0	45.9		1.9	94	96
24-33	31.4 c	17.5 d	0.3	0.4	49.6			44.5		1.8		111
33-40	32.2 c	15.6 d	0.4	0.4	48.6			42.5		2.1		114
40-46	29.1 c	11.8 d	0.3	0.4	41.6			36.0		2.5		116
46-56	22.2 c	7.6 d	0.3	0.4	30.5			30.6		2.9		100
56-68	14.3 c	5.7 d	0.2	0.4	20.6			18.4		2.5		112

Depth (in.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-7	0.86	0.02	0.37
7-14	0.86	0.02	0.39
14-24	0.82	0.02	0.38
24-33	0.83	0.02	0.38
33-40	0.87	0.02	0.40
40-46	0.77	0.02	0.39
46-56	0.78	0.02	0.44
56-68	0.68	0.04	0.47

a. Determined by Soil Survey Laboratory - Riverside, California.
b. 16 kg/m^2 to 60 inches. (Method 6A)
c. NH_4Cl-EtOH extract. (Method 6N3a).
d. NH_4Cl-EtOH extract. (Method 6O3a).

Mineralogy (Methods 7A1, 7A2).

B23g horizon

The clay contains small to moderate amounts of kaolinite, montmorillonite, vermiculite and mica (or illite). Collapse of the montmorillonite with potassium suggests a high negative charge. Mineralogy is mixed.

Soil type: Darwin Silty Clay
Soil No.s.: S63 Ill-51-1
Location: Lawrence County, Illinois, 320 feet south of road center and 110 feet east of NW corner of NE¼ of NE¼ of Section 6, T4N, R10W.
Vegetations and use: Cropland (Lespedeza and weeds).
Slope and land form: Level. Probably former channel of Wabash River--about ½ mile wide and about 2½ miles west of present channel.
Drainage and permeability: Poorly drained with slow surface run-off; very slow permeability.
Parent material: Alluvium
Described and sampled by: L. E. Tyler, G. O. Walker, and I. Jorgensen, October 18, 1963.

Horizon and Lab. Nos.

Ap
LSL 19325
UIL 19438
0-7 inches, very dark gray (10YR 3/1) to very dark grayish brown (10YR 3/2) silty clay; weak, very fine granular structure in upper part and moderate fine and medium uncoated blocks in lower part (blocks probably due to compaction); very hard; slightly acid; abrupt smooth boundary.

A3
LSL 19326
UIL 19439
7-14 inches, very dark gray (2.5Y 3/1) silty clay to clay with few, fine faint to distinct dark yellowish brown (10YR 3/4 to 4/4) mottles in ped interiors only; weak, medium prismatic structure breaking to moderate medium blocky; extremely firm; neutral; gradual, smooth boundary.

B21g
LSL 19327
UIL 19440
14-24 inches, dark gray (2.5Y 4/1) silty clay to clay with common, fine to medium, distinct dark yellowish brown (10YR 4/4) and few, fine, faint yellowish brown (10YR 5/6) mottles principally in ped interiors; weak medium prismatic structure breaking to moderate, medium and coarse blocks; extremely firm; neutral; gradual smooth boundary.

B22g
LSL 19328
UIL 19441
24-33 inches, dark gray (5Y 4/1) silty clay to clay with common fine to medium, distinct yellowish brown (10YR 5/4 and 5/6) mottles principally in ped interiors; weak coarse prismatic structure breaking to moderate, medium blocks; extremely firm; few fine Fe-Mn concretions and few hard lime concretions (about 5 mm. in diameter); neutral to mildly alkaline; gradual smooth boundary.

B23g
LSL 19329
UIL 19442
33-40 inches, gray (5Y 5/1) silty clay to clay with common, medium and fine, distinct yellowish brown (10YR 5/6) mottles principally in ped interiors; weak, coarse prismatic structure breaking to weak to moderate, medium blocky; extremely firm; common to many, hard lime concretions (about 5 mm. in diameter) increasing in number in lower part of horizon and few Fe-Mn concretions; mildly alkaline; abrupt wavy boundary.

B24g
LSL 19330
UIL 19443
40-46 inches, same as horizon above; separated for sampling purposes.

B3g
LSL 19331
UIL 19444
46-56 inches, gray (5Y 5/1) heavy silty clay loam with many, fine, distinct brown (7.5YR 4/4) and strong brown (7.5YR 5/6) mottles; weak, medium and coarse blocky structure; very firm; mildly alkaline; gradual, smooth boundary.

Cg
LSL 19332
UIL 19445
56-68 inches, gray (5Y 5/1) light to medium silty clay loam, with many, fine and medium, distinct yellowish brown (10YR 5/6 and 5/8) mottles; massive; firm to friable; mildly to moderately alkaline.

Remarks: Colors described for moist soil. Matrix did not effervesce with acid in any horizon.

From 7 to 46 inches, peds may have thin clay films but difficult to determine in the field whether oriented clay is actually present on the peds.

Krotovina (crayfish tunnels) are prominent in B3g and Cg and evident in B22g and B23g. Lime concretions are often not present in Darwin soils and their occurrence is not predictable.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Champaign County, Illinois

SOIL NOS. S57Ill-10-1 **LAB. NOS.** 6940-6947

DEPTH INCHES	HORIZON	1B1a VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
		PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1		
0-7	A11	0.6a	1.8a	2.7a	3.4a	1.0a	60.2	30.3	24.0	38.6	Tr.	sicl
7-14	A12	0.9a	2.0a	2.6a	3.8a	1.1a	58.4	31.2	24.6	36.5	Tr.	sicl
14-19	B1	1.2a	2.0a	2.4a	3.5a	1.1a	58.9	30.9	24.6	36.9	Tr.	sicl
19-25	B21	0.6a	1.3a	1.8a	2.5a	0.9a	60.0	32.9	26.8	35.2	Tr.	sicl
25-32	B22	0.3a	0.7a	0.8a	1.1a	0.6a	59.5	37.0	25.2	35.4	Tr.	sicl
32-39	B23	0.4a	1.0a	1.0a	1.4a	0.5a	64.1	31.6	24.3	40.9	Tr.	sicl
39-46	C	1.7a	3.0a	4.0a	6.5a	1.8a	60.0	23.0	30.6	33.9	Tr.	sil
46-60+	D	8.6a	12.7a	12.4a	17.5a	5.1a	26.8	16.9	21.5	17.6	26	sl

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC x 10^3 MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	b Bulk Density g/cc	WATER CONTENT b Field-State %	c 15-Bar %
5.5			4.08	0.317	13			-		1.18	22.2	17.7
6.2			3.49	0.262	13			-				18.9
6.7			1.45	0.117	12			-		1.28	19.7	16.7
7.0			0.70	0.066	11			-				15.2
7.1			0.37					-		1.35	16.0	18.0
7.2			0.26					-				14.5
7.3			0.23					-				10.6
7.5			0.20					-		1.59	10.4	6.4

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations 100g	8D3 Ca/Mg	MOISTURE AT SATURATION %
←	milliequivalents per 100g. soil				→						
33.5	21.2	7.0	13.7	-	0.4	85	68	28.6	47.3	3.0	
34.3	25.0	8.3	8.3	0.1	0.4	98	80	33.8	42.1	3.0	
27.7	19.4	8.0	4.6	0.1	0.4		86	27.9	32.5		
26.0	17.8	8.4	3.3	0.1	0.4		89	26.7	30.0		
28.7	19.8	10.3	2.5	0.1	0.5		92	30.7	33.2		
23.4	16.7	8.8	2.1	0.1	0.4		92	26.0	28.1		
15.3	11.1	5.6	1.6	-	0.3		91	17.0	18.6		
8.8	6.4	3.1	1.2	-	0.2		89	9.7	10.9		

a. Common smooth and irregular light brown to black concr. (Fe-Mn?)

b. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)

c. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil No s. : S57Ill-10-1
University of Illinois Laboratory Nos.: 18066 through 18073.
Location: Champaign County, Illinois; 245 feet north and 135 feet east of corner post in southwest corner of Agronomy farm at the University of Illinois, SW160, SE40, SW10 of Section 19, T19N, R9E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 1/2 percent to west.
Erosion: None.
Elevation: Approximately 710 feet.
Parent material: 40 to 60 inches of Peorian loess on medium-textured outwash of Wisconsin age.
Sampled by: G. O. Walker, R. E. Bourland, and R. H. Jordan, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 23, 1957.

Horizon and Lincoln Lab. Number	
A11 6940	0 to 7 inches. Black (10YR 2/1 moist) very light silty clay loam; weak fine granular structure; friable when moist; boundary gradual and smooth; pH is 5.8; roots many; some foreign silty dark gray (10YR 3.5/1 moist) pockets occur here, which were drier than surrounding soil.
A12 6941	7 to 14 inches. Black (10YR 1/1 moist) light silty clay loam; moderate fine subangular blocky structure breaking to weak fine granular; friable when moist; boundary clear and smooth; pH is 6.5; many roots.
B1 6942	14 to 19 inches. Very dark gray (10YR 3/1 moist) heavy silty clay loam with few fine faint very dark grayish brown (2.5Y 3/2 moist) mottles; moderate fine to medium subangular blocky structure; firm when moist; boundary gradual and smooth; pH is 6.5; roots many.
B21 6943	19 to 25 inches. Very dark gray (2.5Y 3/1 moist) heavy silty clay loam with common fine yellowish brown (10YR 5/4 to 5/6 moist) mottles; moderate fine prismatic structure breaking to moderate fine blocky; firm when moist; boundary gradual and smooth; pH is 7.0; very few pebbles; roots common; many wormholes.
B22 6944	25 to 32 inches. Yellowish brown (10YR 5/4 to 5/6 moist) silty clay with many medium distinct grayish brown (2.5Y 5/2 moist) mottles; weak to moderate fine to medium prismatic structure breaking to moderate fine blocky; thin discontinuous dark gray (2.5Y 4/1 moist) clay skins; firm when moist; boundary gradual and wavy; pH is 7.8; roots few; root holes common with very dark gray (10YR 3/1 moist) fillings; very few pebbles.
B23 6945	32 to 39 inches. Yellowish brown (10YR 5/4 to 5/6-5/8 moist) silty clay loam with many medium distinct gray (2.5Y 5/1 moist) mottles; weak medium prismatic structure breaking to weak medium blocky; thin discontinuous dark gray (2.5Y 4/1 moist) clay skins; firm when moist; boundary clear and wavy; pH is 7.8; roots few, occasional pebbles; root channels filled with very dark gray (10YR 3/1 moist) material.
C 6946	39 to 46 inches. Yellowish brown (10YR 5/6 to 5/8 moist) silt loam with common medium distinct gray (2.5Y 5/1 moist) mottles; massive; firm when moist; boundary to horizon below is abrupt and wavy; pH is 8.0; few root channels filled with dark yellowish brown (10YR 3/4 moist) material; few thin discontinuous dark gray (10YR 4/1 moist) clay skins; few pebbles.
D 6947	46 to 60 inches plus. This is a stratified horizon having layers of loam, sandy loam, and fine gravelly loam; the coarse sandy loam is mostly dark gray (10YR 4/1 moist); the loam and sandy loam is olive brown to light olive brown (2.5Y 4/4 to 5/4 to 5/6 moist) streaked with gray (N 5/ moist); pH is 8.0; massive to single grain structure; friable when moist.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas start at 14 inches and extend to bottom of pit (60 inches). The fillings are black (10YR 1/1 moist) and number 2 or 3 per square foot of horizontal surface. Loose loam till was encountered at 72 inches.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Champaign County, Illinois

SOIL NOS. S57Il1-10-2 **LAB. NOS.** 6948-6956

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-7	A11p	0.6a	1.2a	1.4a	2.3a	1.1a	59.6	33.8	24.7	37.1	Tr.	sicl
7-10	A12	0.5a	0.9a	1.0a	1.8a	0.8a	60.0	35.0	23.7	37.9	Tr.	sicl
10-16	B1	0.1a	0.7a	0.7a	1.3a	0.6a	60.5	36.1	23.0	38.7	Tr.	sicl
16-22	B21	0.2a	0.4a	0.5a	0.7a	0.4a	60.5	37.3	21.1	40.1	Tr.	sicl
22-29	B22	0.2a	0.3a	0.2a	0.3a	0.3a	61.5	37.2	20.4	41.5	Tr.	sicl
29-36	B23	-	0.3a	0.2a	0.3a	0.3a	65.9	33.0	25.0	41.3	Tr.	sicl
36-48	C	0.1a	0.5a	0.5a	0.7a	0.6a	74.3	23.3	32.1	43.1	Tr.	sil
48-53	D1	1.8a	2.4a	2.4a	4.0a	2.2a	70.6	16.6	32.0	42.7	Tr.	sil
53-63+	D2	6.8a	9.9a	10.3a	15.5a	8.1a	38.2	11.2	32.9	20.8	6	l

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	b Bulk Density g/cc	WATER CONTENT b Field-State %	c 15-Bar %
7.3			2.99	0.248	12			-		1.24	21.4	17.2
7.3			1.95	0.177	11			-				17.7
7.4			0.89	0.084	10			-		1.40	20.6	16.6
7.4			0.51	0.049	10			-				16.7
7.5			0.38	0.039	10			-		1.42	19.4	17.8
7.6			0.26					-				16.4
7.9			0.18					11				9.3
7.9			0.12					24				7.1
8.1			0.09					21		1.68	11.3	3.9

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations me/100g	MOISTURE AT SATURATION %
←	milliequivalents per 100g. soil →								
35.8	27.3	11.3	3.3	-	0.5	92	39.1	42.4	
34.2	26.4	11.4	3.3	-	0.4	92	38.2	41.5	
30.8	23.2	11.1	2.5	-	0.4	93	34.7	37.2	
29.7	21.4	11.1	2.1	0.1	0.4	94	33.0	35.1	
29.5	20.6	11.2	1.7	0.1	0.4	95	32.3	34.0	
24.2	17.5	9.4	0.8	0.1	0.4	97	27.4	28.2	
16.3		8.8	0.4	-	0.3				
10.4		6.2	-	-	0.3				
5.3		3.2	-	-	0.1				

a. Few irregular and smooth light brown to black concr. (Fe-Mn?)

b. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)

c. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil Nos. : S57Ill-10-2
Location: Champaign County, Illinois; 755 feet west of southeast corner of Section and 36 feet north of center of east-west gravel road, SE160, SE40, SW10 of Section 29, T19N, R7E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Corn.
Climate: Humid temperate.
Slope: 1/2 percent to west.
Erosion: None.
Elevation: Approximately 710 feet.
Parent material: 30 to 60 inches of Peorian loess over loam Wisconsin till of Tazewell age.
Sampled by: R. E. Bourland, G. O. Walker, and R. H. Jordan, Soil Conservation Service; J. D. Alexander, University of Illinois, October 24, 1957.

Horizon and Lincoln Lab. Number	
A11p 6948	0 to 7 inches. Black (10YR 2.5/1 moist) silty clay loam; weak fine granular structure; friable when moist; boundary gradual and smooth; pH is 7.8; roots many.
A12 6949	7 to 10 inches. Black (10YR 2.5/1 moist) heavy silty clay loam; weak fine to medium granular; friable when moist; boundary clear and smooth; pH is 7.8; roots many.
B1 6950	10 to 16 inches. Dark gray (2.5Y 4/1 moist) heavy silty clay loam; weak fine granular to weak fine subangular blocky structure; friable to firm when moist; boundary clear and wavy; pH is 8.0; roots few; thin discontinuous dark gray (2.5Y 4/1 moist) clay skins; some black (10YR 2/1 moist) stains.
B21 6951	16 to 22 inches. Dark grayish brown (2.5Y 4.5/2 moist) heavy silty clay loam with few fine faint light olive brown (2.5Y 5/4 moist) mottles; moderate fine subangular blocky structure; firm when moist; boundary clear and wavy; pH is 8.0; roots few; thin discontinuous dark gray (5Y 4/1 moist) clay skins; occasional pebble.
B22 6952	22 to 29 inches. Dark grayish brown (2.5Y 4/2 moist) very heavy silty clay loam with common medium distinct gray (10YR 5/1 moist) mottles; moderate medium prismatic structure breaking to moderate medium blocky; very firm when moist; boundary diffuse and smooth; pH is 7.5; roots common on major ped faces; thin discontinuous dark gray (5Y 4/1 moist) clay skins; some black (10YR 2/1 moist) organic stains; few small iron-manganese concretions.
B23 6953	29 to 36 inches. Gray (2.5Y 5/1 moist) silty clay loam with many medium distinct yellowish brown (10YR 5/4 to 5/6-5/8 moist) mottles; moderate medium prismatic structure breaking to moderate medium to coarse blocky; firm when moist; boundary clear and wavy; pH is 8.0; roots common; black (10YR 2/1 moist) organic stains.
C 6954	36 to 48 inches. Light brownish gray (2.5Y 6/2 moist) silt loam with many medium distinct yellowish brown (10YR 5/4 to 5/6-5/8 moist) mottles; massive; friable when moist; boundary to horizon below is abrupt and smooth; pH is 8.0; roots few; pebbles few.
D1 6955	48 to 53 inches. Mixed yellowish brown (10YR 5/8 moist) and gray (N 5.5/ moist) loam; massive; friable when moist; boundary to horizon below is abrupt and smooth; roots few; pebbles common; calcareous.
D2 6956	53 to 63 inches. Mixed yellowish brown (10YR 5/6 moist) and gray (N 5.5/ moist) light loam to sandy clay loam; massive; slightly sticky when wet; calcareous; roots, none to occasional; pebbles, many.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas start in B1 (10 inches) and extend into D2 horizon (63 inches). Some tendency for them to end at calcareous till; they are mostly 1 to 3 inches wide and number 5 to 6 per square foot of horizontal surface. The upper part of the glacial till appears to have been somewhat mixed by water action.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Champaign County, Illinois

SOIL NOS. S57Ill-10-3 **LAB. NOS.** 6957-6965

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-8	A11p	0.2a	3.0a	7.6a	13.8a	5.0a	46.4	24.0	30.6	27.0	Tr.	l
8-13	A12	0.3a	2.8a	7.0a	12.5a	4.5a	47.7	25.2	29.9	28.0	Tr.	l
13-17	B1	0.2a	2.7a	6.4a	10.8a	3.9a	49.6	26.4	28.4	29.9	-	l
17-21	B21	0.2a	2.3a	5.3a	8.9a	3.3a	51.4	28.6	26.6	32.1	-	sicl/cl
21-26	B22	0.1a	1.6a	3.3b	6.0b	2.4b	56.6	30.0	26.2	35.6	-	sicl
26-35	B23	0.3a	1.9a	3.9b	7.4b	4.1b	60.6	21.8	34.9	33.2	Tr.	sil
35-41	C1	0.5a	3.6a	8.5b	15.3b	6.8b	51.0	14.3	41.6	23.1	Tr.	sil
41-49	C2	0.3a	6.8a	16.9b	33.1b	11.6b	23.7	7.6	40.3	10.6	Tr.	fsl
49-60+	C3	0.4a	2.4a	5.3b	9.6b	3.3b	69.5	9.5	46.3	30.9	3	sil

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC x 10^3 MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field State %	d 15-Bar %
7.5			3.07	0.274	11			-		1.09	18.2	15.2
7.6			1.41	0.138	10			-				13.2
7.7			0.83	0.082	10			-		1.46	14.1	12.1
7.7			0.58	0.054	11			-				12.5
7.7			0.41	0.038	11			3		1.45	16.9	12.8
7.9			0.23					9				9.7
8.1			0.13					13				4.9
8.3			0.06					15				2.2
8.3			0.09					28		1.75	14.1	4.5

5A1a CATION EXCHANGE CAPACITY NH_4 Ac	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6G2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations		MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →							me/100g			
29.7	23.9	8.7	2.1	-	0.4	94	33.0	35.1		
24.7	18.3	9.0	1.2	-	0.4	96	27.7	28.9		
22.5	16.6	9.1	0.8	-	0.4	97	26.1	26.9		
23.5	16.4	9.4	1.2	0.1	0.3	96	26.2	27.4		
23.2		10.6	0.4	-	0.3					
16.6		8.8	0.8	-	0.3					
10.5		6.6	-	-	0.2					
5.0		2.9	-	-	0.1					
6.0		3.4	-	0.1	0.2					

a. Few irregular and smooth light brown to black concr. (Fe-Mn?)

b. Few irregular and smooth light brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.

c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field State" moisture)

d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil No. : S57Ill-10-3
Location: Champaign County, Illinois; 800 feet west of southeast corner of Section and 83 feet north of center of gravel road, SE160, SE40, SW10 of Section 5, T19N, R14W.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Corn.
Climate: Humid temperate.
Slope: 0 percent.
Erosion: None.
Elevation: Approximately 670 feet.
Parent material: Medium-textured Wisconsin outwash.
Sampled by: R. E. Bourland and R. H. Jordan, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 25, 1957.

Horizon and Lincoln Lab. Number	
A11p 6957	0 to 8 inches. Black (10YR 2.5/1 moist) light silty clay loam; weak medium granular structure; friable when moist; boundary abrupt and smooth; pH is 8.0; roots common.
A12 6958	8 to 13 inches. Very dark brown (10YR 2/2 moist) silty clay loam; weak medium granular structure; friable when moist; boundary clear and smooth; pH is 8.0; roots and wormholes common.
B1 6959	13 to 17 inches. Very dark gray (2.5Y 3/1 moist) silty clay loam with few fine faint yellowish brown (10YR 5/4 moist) mottles; weak medium granular to weak fine subangular blocky structure; friable when moist; boundary clear and smooth; pH is 8.0; roots common; few wormholes.
B21 6960	17 to 21 inches. Very dark gray (2.5Y 3/1 moist) silty clay loam with common fine distinct yellowish brown (10YR 5/4 to 5/6 moist) mottles; weak very fine to fine subangular blocky structure; firm when moist; boundary clear and smooth; pH is 8.0; roots few; common black (10YR 2/1 moist) worm casts; few small iron-manganese concretions.
B22 6961	21 to 26 inches. Dark gray (2.5Y 4/1 moist) silty clay loam with common medium distinct light olive brown (2.5Y 5/4 moist) and yellowish brown (10YR 5/4 to 5/6 moist) mottles; moderate fine subangular blocky structure; firm when moist; boundary clear and wavy; pH is 8.0; roots few; few black (10YR 2/1 moist) worm casts; common small iron-manganese concretions; thin discontinuous very dark grayish brown (2.5Y 3.5/2 moist) clay skins.
B23 6962	26 to 35 inches. Dark gray (2.5Y 4/1 moist) light silty clay loam with many medium to coarse distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak fine prismatic structure breaking to moderate medium blocky; firm when moist; boundary clear and smooth; pH is 8.0; roots few; few wormholes; few small iron-manganese concretions; thin discontinuous very dark grayish brown (2.5Y 3.5/2 moist) clayskins.
C1 6963	35 to 41 inches. Mixed gray (2.5Y 5/1 moist) and yellowish brown (10YR 5/8 to 5/6 moist) gritty silt loam; massive; firm when moist; boundary clear and wavy; pH is 8.0; roots few, few wormholes; common small iron-manganese concretions; an occasional lime concretion of 1/2- to 1-inch diameter; calcareous.
C2 6964	41 to 49 inches. Gray (2.5Y 6/1 moist) fine sandy loam with many medium to coarse distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; massive; very friable when moist; boundary clear and smooth; roots very few; few small pebbles; occasional lime concretions; calcareous.
C3 6965	49 to 60 inches plus. Gray to light gray (2.5Y 6/1 moist) heavy silt loam with few coarse prominent yellowish brown (10YR 5/8 to 5/6 moist) mottles; massive; friable when moist; pH is 8.0; a hard concretionary layer of lime about 2 inches thick occurs somewhat irregularly at a depth of 48 to 50 inches, color is white (N 8/ moist) on the outside, light gray (N 7/ moist) in the center, and a dark gray (10YR 4/1 moist) coating around the center portion; calcareous.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas in the B1 (13 inches) and extend to sampling depth (60 inches) with the majority of them ending in the C2 (41 to 49 inches); they are generally 1 to 2 inches in diameter and number about 2 per square foot on a horizontal surface. Color of krotovinas ranges from very dark gray (10YR 3/1) to dark gray (2.5Y 4.5/1). Ground water at 70 inches.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Iroquois County, Illinois

SOIL NOS. S57Ill-38-1 **LAB. NOS.** 6933-6939

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-8	A1p	0.3a	1.8a	3.1a	7.4a	4.7a	48.6	34.1	23.8	33.1	Tr.	sicl
8-11	A3	1.3a	2.2a	2.6a	5.5a	3.6a	50.0	34.8	21.6	34.7	Tr.	sicl
11-13	B1	0.8a	2.0a	2.9a	5.9a	3.8a	50.1	34.5	23.9	32.8	Tr.	sicl
13-18	B21	0.6a	1.2a	1.8a	3.6a	2.6a	51.1	39.1	21.0	34.5	Tr.	sicl
18-23	B22	0.8a	2.1a	2.9a	6.1a	4.3a	49.4	34.4	21.3	35.4	Tr.	sicl
23-28	B23	1.3a	2.3a	3.1a	6.1a	4.7a	50.2	32.3	22.1	35.9	Tr.	sicl
28-44+	C	1.7b	3.3b	3.7b	7.8b	5.2b	54.1	24.2	24.1	39.1	Tr.	sil

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field-State %	d 15-Bar %
6.0			3.97	0.325	12			-		1.17	29.4	17.7
6.4			2.01	0.186	11			-				18.7
6.6			1.49	0.142	10			-				16.5
6.9			0.76	0.081	9			-		1.34	18.1	16.4
7.3			0.49	0.052	9			-				14.7
7.5			0.30	0.036	8			-		1.46	16.0	13.4
8.0			0.32					21		1.84	13.9	10.0

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5E1a 6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	8D3 Ca/Mg	MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →								me/100g			
34.6	25.1	6.9	10.8	-	0.4	94	75	32.4	43.2	3.6	
28.7	20.3	6.5	5.4	-	0.4	95	83	27.2	32.6	3.1	
26.3	18.8	6.2	5.0	-	0.4	96	84	25.4	30.4	3.0	
27.7	20.0	7.7	3.3	0.1	0.4		90	28.2	31.5		
21.8	16.0	6.5	2.5	-	0.3		90	22.8	25.3		
17.9	13.7	5.8	1.2	-	0.3		94	19.8	21.0		
9.1		3.4	0.4	-	0.2						

a. Common smooth light brown to black concr. (Fe-Mn?)
b. Common smooth light brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil Nos. : 857Ill-38-1
University of Illinois Laboratory Nos.: 18059 through 18065.
Location: Iroquois County, Illinois; 693 feet south of crossroad and 60 feet west of center of dirt road, NW1/4, NE1/4, SE1/4 of Section 35, T27N, R11W.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Corn.
Climate: Humid temperate.
Slope: 1/2 percent to west.
Erosion: None.
Elevation: Approximately 675 feet.
Parent material: None to very thin covering of Peorian loess over loam Wisconsin till of Cary age on the Iroquois lobe.
Sampled by: J. E. Paschke and G. O. Walker, Soil Conservation Service; H. L. Wascher, University of Illinois, October 21, 1957.

Horizon and Lincoln Lab. Number	
Alp 6933	0 to 8 inches. Black (10YR 1/1 moist) silty clay loam; weak fine granular; friable when moist; boundary clear and smooth; pH is 6.2; much fresh organic matter mixed in this layer; roots many; there is a 2-inch plow pan (depth 6 to 8 inches) in this horizon, being firm when moist and having moderate medium angular blocky structure.
A3 6934	8 to 11 inches. Black (10YR 2/1 moist) silty clay loam with streaks of black (10YR 1/1 moist); moderate fine granular; friable when moist; boundary clear and smooth; pH is 6.2; roots common.
B1 6935	11 to 13 inches. Very dark grayish brown (2.5Y 3/2 moist) silty clay loam streaked with black (10YR 2/1 moist); moderate fine subangular blocky; firm when moist; boundary gradual and wavy; thin discontinuous clay skins; roots common; occasional small pebbles and sand grains; some black (10YR 2/1 moist) organic coatings.
B21 6936	13 to 18 inches. Dark grayish brown (2.5Y 4/2 moist) silty clay loam with common fine faint yellowish brown (10YR 5/6 moist) mottles; thin discontinuous black (N 2/ moist) organic and clay skins; moderate fine subangular blocky structure; firm when moist; boundary gradual and smooth; roots common; occasional small pebbles; pH is 6.8.
B22 6937	18 to 23 inches. Dark grayish brown (2.5Y 4/2 moist) silty clay loam with many medium distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; moderate to strong fine to medium subangular blocky structure with ped faces stained with dark gray (2.5Y 3.5/1 moist); firm when moist; boundary gradual and smooth; pH is 7.0; roots few; occasional small pebbles; many fine holes coated black (10YR 2/1 moist).
B23 6938	23 to 28 inches. Grayish brown (2.5Y 5/2 moist) silty clay loam with many medium distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak to moderate prismatic structure breaking to weak to moderate medium blocky; firm when moist; boundary to horizon below is clear and wavy; pH is 7.5; roots few; pebbles common; many fine channels; some organic coating on peds.
C 6939	28 to 44 inches plus. Gray (5Y 5/1 moist) loam with many medium distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; massive; firm when moist; calcareous; roots few; pebbles numerous in this glacial till; few iron-manganese concretions.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas start in the B21 (11 inches) and extend to sampling depth (44 inches).

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Iroquois County, Illinois

SOIL NOS. S57Ill-38-2 **LAB. NOS.** 7331-7338

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-6	A11p	0.2a	0.3a	1.4a	10.9a	13.6a	44.4	29.2	39.8	24.5	Tr.	cl
6-13	A12	0.1a	0.4a	1.3a	10.2a	13.2a	43.5	31.3	38.4	24.3	Tr.	cl
13-17	B1	0.1a	0.3a	1.2a	9.6a	13.1a	44.3	31.4	38.7	24.5	Tr.	cl
17-25	B21	0.1a	0.3a	1.3a	9.9a	13.0a	46.4	29.0	38.9	26.3	-	cl
25-31	B22	0.2a	0.3a	0.9a	6.2a	7.5a	53.3	31.6	30.2	34.2	-	sicl
31-38	B3	0.1a	0.4a	1.9a	14.6a	16.5a	42.7	23.8	43.0	24.6	-	l
38-51	C1	0.1a	0.3a	0.9b	7.2b	16.7b	50.9	23.9	48.4	23.5	-	sil
51-55+	C2	0.1a	0.4a	0.8b	10.1b	17.2b	49.8	21.6	50.1	24.0	-	l

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field-State %	d 15-Bar %
7.2			4.20	0.325	13			-		1.26	17.0	16.8
6.9			2.44	0.204	12			-				16.5
7.2			0.99	0.086	12			-		1.62	13.9	13.8
7.5			0.41	0.046	9			-				12.0
7.6			0.30					-		1.48	13.0	13.4
7.9			0.18					-				8.0
8.0			0.19					12				7.1
8.1			0.17					24		1.56	22.5	3.4

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases me/100g.	5A3a Sum Ext. Cations	MOISTURE AT SATURATION %
←	milliequivalents per 100g. soil				→				
35.9	28.3	10.1	4.6	-	0.4	89	38.8	43.4	
32.8	24.5	8.7	4.1	0.1	0.4	89	33.7	37.8	
25.8	19.1	7.7	3.3	0.1	0.4	89	27.3	30.6	
20.5	14.7	6.9	2.1	0.1	0.3	91	22.0	24.1	
22.8	16.4	8.1	1.2	0.1	0.4	95	25.0	26.2	
13.9	10.9	5.8	1.2	0.1	0.3	93	17.1	18.3	
10.7		5.3	-	-	0.3				
7.9		4.2	-	-	0.2				

a. Few irregular and smooth light brown to black concr. (Fe-Mn?)

b. Few irregular and smooth lt. brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.

c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)

d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil Nos. : 857Ill-38-2
University of Illinois Laboratory Nos.: 18074 through 18081.
Location: Iroquois County, Illinois; 100 feet south and 45 feet west of east quarter corner, SE160, NE40, NE10, NE2½ of Section 16, T26N, R10E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Soybeans.
Climate: Humid temperate.
Slope: 0 percent.
Erosion: None.
Parent material: Medium-textured Wisconsin outwash.
Sampled by: J. B. Fehrenbacher, P. R. Johnson, and J. D. Alexander, University of Illinois, October 29, 1957.

Horizon and Lincoln Lab. Number	
A11p 7331	0 to 6 inches. Black (10YR 2/1 moist) silty clay loam; sand grains visible; moderate medium angular blocky; firm when moist; boundary abrupt and smooth; pH is 7.2; roots common.
A12 7332	6 to 13 inches. Black (10YR 2/1 moist) silty clay loam; sand grains visible; medium to strong granular structure; friable to firm when moist; boundary clear and smooth; pH is 6.8; roots common; few small iron-manganese concretions.
B1 7333	13 to 17 inches. Very dark gray (10YR 3/1.5 moist) silty clay loam; sand grains visible; moderate to strong medium to coarse granular structure; firm when moist; boundary clear and smooth; pH is 6.8; roots common; few small iron-manganese concretions.
B21 7334	17 to 25 inches. Olive gray (5Y 4.5/2 moist) silty clay loam; sand grains visible; with few fine distinct yellowish brown (10YR 5/8 moist) mottles; moderate medium prismatic structure breaking to moderate medium blocky to subangular blocky; firm when moist; boundary clear and smooth; pH is 6.5; occasional small iron-manganese concretions; thin discontinuous olive gray (5Y 5/2 moist) clay skins.
B22 7335	25 to 31 inches. Olive gray (5Y 5/2 moist) silty clay loam; sand grains visible; common fine prominent yellowish brown (10YR 5/8 moist) mottles; moderate to strong medium prismatic structure breaking to strong medium angular blocky; firm when moist; boundary clear and smooth; pH is 7.5; roots common; moderately thick gray (5Y 5/1 moist) continuous clay skins; occasional iron-manganese concretions.
B3 7336	31 to 38 inches. Gray (5Y 5.5/1 moist) silty clay loam with pockets of clay loam; many medium distinct yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak medium prismatic structure breaking to weak medium angular blocky and subangular blocky; firm when moist; boundary gradual and wavy; pH is 8.0; roots few; thin discontinuous gray (5Y 5/1 moist) clay skins; occasional iron-manganese concretions.
C1 7337	38 to 51 inches. Gray (5Y 5/1 moist) mixed sandy loam, silt loam, and clay loam in pockets with many coarse prominent yellowish brown (10YR 5/6 to 5/8 moist) mottles; massive; friable to firm; boundary clear and wavy; pH is 8.0; very few roots, occasional iron-manganese concretions.
C2 7338	51 to 55 inches plus. Olive gray (5Y 5/2 moist) mixed sandy loam, silt loam, and clay loam in pockets with many medium prominent strong brown (7.5YR 5/6 moist) and yellowish brown (10YR 5/8 moist) mottles; massive structures; firm when moist; calcareous; occasional iron-manganese concretions.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas start in B1 (13 inches) and extend to sampling depth (55 inches); they are mostly 1/2 to 2-1/2 inches in diameter and there are about 4 per square foot in horizontal cross section; their color is mostly black (10YR 2/1 moist). No pebbles were observed in the entire profile.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S57I11-50-1 **LAB. NOS.** 6888-6894

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 1B1a VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-8	A1p	0.1	0.6a	0.6a	1.3a	1.8a	65.7	29.9	34.5	33.7	Tr.	sicl
8-13	A12	0.2b	0.6b	0.4b	0.9b	1.5a	64.0	32.4	33.0	33.0	Tr.	sicl
13-19	B21	0.3c	0.4c	0.2b	0.4b	1.4a	63.2	34.1	32.5	32.3	Tr.	sicl
19-26	B22	-	0.2c	0.2c	0.4b	1.9a	68.7	28.6	39.8	31.0	Tr.	sicl
26-38	B3	0.4b	0.6b	0.6b	1.1b	2.7a	68.2	26.4	39.2	32.2	Tr.	sil
38-50	C2	3.7d	3.5d	1.8d	3.3d	6.2d	65.1	16.4	46.8	26.4	4	sil
50-61+	D2	11.1d	10.2d	4.3d	10.4d	20.7d	32.7	10.6	50.6	10.0	25	fsl

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	e Bulk Density g/cc	e WATER CONTENT Field-State %	f 15-Bar %
6.9			2.94	0.229	13			-		1.36	27.4	17.7
7.0			1.57	0.124	13			-				15.8
7.0			0.57	0.059	10			-				15.8
7.1			0.33	0.032	10			-		1.39	17.0	13.1
7.4			0.25					-		1.54	20.1	12.4
7.9			0.14					19				8.1
7.9			0.14					58		1.57	15.5	5.5

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations	MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →									
32.3	25.1	8.0	3.7	-	0.4	90	33.5	37.2	
28.2	20.6	8.0	2.5	-	0.4	92	29.0	31.5	
27.1	17.9	8.8	2.5	0.1	0.4	92	27.2	29.7	
23.0	15.6	7.9	1.2	0.1	0.4	95	24.0	25.2	
21.8	14.9	7.8	1.2	0.1	0.4	95	23.2	24.4	
11.6		5.8	0.4	-	0.2				
6.8		4.0	0.4	-	0.1				

a. Few smooth dark brown to black concr. (Fe-Mn?)
b. Common smooth dark brown to black concr. (Fe-Mn?)
c. Many smooth dark brown to black concr. (Fe-Mn?)
d. Few smooth dark brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
e. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
f. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil Nos. : S57Ill-50-1
Location: LaSalle County, Illinois; 397 feet south of quarter-line fence and 85 feet west into field, SE¼, SE¼, NE¼ of Section 14, T34N, R2E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Corn.
Climate: Humid temperate.
Slope: 0 percent.
Erosion: None.
Elevation: Approximately 620 feet.
Parent material: 40 to 60 inches of Peorian loess over medium-textured outwash.
Sampled by: N. E. Barnes, J. E. Paschke, and D. C. Hallbick, Soil Conservation Service; R. T. Odell, University of Illinois, October 16, 1957.

Horizon and Lincoln Lab. Number	
A1p 6888	0 to 8 inches. Black (10YR 1/1 moist) silty clay loam; weak medium angular blocky structure breaking into weak coarse granular; plow sole in lower part; slightly firm when moist; boundary abrupt and smooth; pH is 8.0; roots common.
A12 6889	8 to 13 inches. Black (10YR 1/1 moist) medium to heavy silty clay loam; moderate fine angular blocky to strong coarse granular structure; slightly firm when moist; boundary clear and smooth; pH is 8.0; roots common.
B21 6890	13 to 19 inches. Grayish brown (2.5Y 5/2 moist) medium to heavy silty clay loam; moderate fine subangular blocky to angular blocky structure; slightly firm when moist; boundary clear and smooth; pH is 7.0; roots common; some black (10YR 1/1 moist) organic coatings.
B22 6891	19 to 26 inches. Grayish brown (2.5Y 5/2 moist) silty clay loam; common fine faint light olive brown (2.5Y 5/6 moist) mottles; moderate medium angular blocky structure; slightly firm when moist; boundary clear and smooth; pH is 7.0; roots common; few small iron-manganese concretions; more clay and less black (10YR 2/1 moist) organic coatings than in horizon above.
B3 6892	26 to 38 inches. Olive gray (5Y 5/2 moist) silty clay loam with many fine distinct light olive brown (2.5Y 5/6 moist) and yellowish brown (10YR 5/8 moist) mottles; moderate fine to medium prismatic structure breaking into moderate medium angular blocky; firm when moist; boundary abrupt and wavy; pH is 7.0; roots common; many small iron-manganese concretions; some dark grayish brown (2.5Y 4/2 moist) clay and organic coatings.
C2 6893	38 to 50 inches. Gray (5Y 5/1 moist) fine loam to silt loam with lenses of loam; many medium distinct light olive brown (2.5Y 5/6 moist) and yellowish brown (10YR 5/8 moist) mottles; massive; friable when moist; calcareous; boundary abrupt and wavy; roots few.
D2 6894	50 to 61 inches plus. Mixed pale yellow (5Y 7/3 moist) 45 percent, yellowish brown (10YR 5/8 moist) 45 percent, and dark gray (N 4/ moist) 10 percent; crushed color of yellowish brown (10YR 5/6 moist); light loam with some fine gravel; massive; friable when moist; calcareous.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas are common in this profile. They are first recognized in the B21 and extend to sampling depth (61 inches). They have black (10YR 2/1 moist) fillings and are mostly 1½ inches to 2 inches in diameter and there are about 3 to 4 per square foot in horizontal cross section. Surface 3 inches was friable, next 5 inches was compact. A 1- to 2-inch plow sole was developed below 8 inches.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S57Ill-50-2 **LAB. NOS.** 6895-6902

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-7	A1p	0.2a	0.6a	0.6b	1.0b	1.0c	61.2	35.4	27.7	35.1	Tr.	sicl
7-13	A12	0.1a	0.5a	0.5b	1.1b	1.2c	60.6	36.0	27.1	35.3	-	sicl
13-19	B21	-	0.3c	0.4c	0.9c	1.1c	61.7	35.6	26.4	36.9	-	sicl
19-23	B22	-	0.1c	0.1c	0.2c	0.5c	65.0	34.1	26.2	39.4	-	sicl
23-31	B23	0.1b	0.2b	0.1c	0.4c	0.9c	66.8	31.5	30.5	37.4	-	sicl
31-37	B3	-	0.1b	0.2c	0.4c	1.5c	70.6	27.2	36.0	36.3	-	sicl
37-44	C	0.1b	0.5b	0.7c	1.9c	2.6c	65.0	29.2	35.6	33.1	Tr.	sicl
44-50+	D	0.8d	1.7d	2.1d	6.6d	4.9d	46.9	37.0	22.0	33.6	Tr.	sicl

8C1a pH 1:1	pH 1:5	pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	e Bulk Density g/cc	WATER CONTENT e Field-State %	f 15-Bar %
5.9			4.56	0.323	14			-		1.12	24.6	18.7
6.3			2.23	0.193	12			-				19.1
6.8			0.90	0.086	10			-				17.0
7.1			0.42	0.039	11			-		1.36	20.8	16.1
7.4			0.28	0.027	10			-				15.1
7.5			0.21					-				12.3
7.6			0.24					-		1.44	25.6	12.5
7.7			0.40					13		1.58	22.9	17.2

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	8D3 Ca/Mg	MOISTURE AT SATURATION %
	← milliequivalents per 100g. soil →							me/100g			
39.6	29.2	7.8	10.0	-	0.7	95	79	37.7	47.7	3.7	
34.4	24.6	8.5	6.3	-	0.6	98	84	33.7	40.0	2.9	
29.0	19.8	8.9	3.8	0.1	0.5		88	29.3	33.1		
27.0	18.2	9.4	1.6	0.1	0.4		95	28.1	29.7		
24.9	17.1	9.4	1.2	0.1	0.6		96	27.2	28.4		
20.6	14.0	7.8	0.8	0.1	0.6		96	22.5	23.3		
18.4	12.6	7.1	0.4	0.1	0.6		98	20.4	20.8		
12.9		6.5	0.4	-	0.4						

a. Many smooth dark brown to black concr. (Fe-Mn?)
b. Common smooth dark brown to black concr. (Fe-Mn?)
c. Few smooth dark brown to black concr. (Fe-Mn?)
d. Few smooth dark brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
e. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
f. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil Nos. : S57Ill-50-2
University of Illinois Laboratory Nos.: 18036 through 18043.
Location: LaSalle County, Illinois; 100 feet east of quarter-line fence on north side of test road, SW160, SE40, SW10 of Section 34, T34N, R3E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Weeds.
Climate: Humid temperate.
Slope: 1/2 percent to west.
Erosion: None.
Elevation: Approximately 610 feet.
Parent material: 30 to 60 inches of Peorian loess over silty clay loam Wisconsin till of Tazewell age.
Sampled by: G. O. Walker and R. H. Jordan, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 16, 1957.

Horizon and Lincoln Lab. Number	
Alp 6895	0 to 7 inches. Black (10YR 1/1 moist) silty clay loam; moderate very fine to fine subangular blocky; firm when moist; boundary clear and smooth; roots common; drying cracks common; pH is 5.8.
A12 6896	7 to 13 inches. Black (10YR 2/1 moist) heavy silty clay loam; moderate fine to medium subangular blocky structure; firm when moist; boundary clear and smooth; pH is 6.0; roots common; drying cracks common.
B21 6897	13 to 19 inches. Very dark gray (10YR 3/1 moist) silty clay loam; common fine faint dark grayish brown (10YR 4/2 moist) mottles; moderate medium subangular blocky; firm when moist; boundary clear and smooth; pH is 6.5; few small iron-manganese concretions; roots few; few black (10YR 2/1 moist) organic coatings.
B22 6898	19 to 23 inches. Mixed dark grayish brown (2.5Y 4/2 moist) and olive gray (5Y 5/2 moist) light silty clay with few fine distinct olive (5Y 5/6 moist) mottles; weak medium prismatic structures breaking to moderate fine subangular blocky to blocky; firm when moist; boundary clear and wavy; pH is 6.5; roots few; few small iron-manganese concretions; root holes common; thin discontinuous clay skins.
B23 6899	23 to 31 inches. Olive gray (5Y 5/2 moist) silty clay loam; few fine prominent yellowish brown (10YR 5/8 moist) mottles; moderate medium prismatic structure breaking to moderate fine to medium blocky; firm when moist; boundary gradual and wavy; pH is 6.5; root holes common; thin discontinuous clay skins.
B3 6900	31 to 37 inches. Olive gray (5Y 5/2 moist) light silty clay loam; many fine to medium prominent yellowish brown (10YR 5/6 to 5/8 moist) mottles; weak coarse blocky structure; firm when moist; boundary gradual and wavy; pH is 7.5; roots few; fine thread-like channels present.
C 6901	37 to 44 inches. Olive gray (5Y 5/2 moist) heavy silt loam; common medium prominent yellowish brown (10YR 5/6 moist) mottles; massive to weak fragmental structure; friable when moist; boundary clear and smooth; pH is 8.0 plus; calcareous; fine thread-like channels present; roots few.
D 6902	44 to 50 inches plus. Gray (5Y 5/1 moist) silty clay loam; many medium prominent dark yellowish brown (10YR 4/4 moist) and yellowish brown (10YR 5/6 moist) mottles; massive to weak very coarse fragmental structure; firm when moist; calcareous; few ped faces with secondary lime; many small till pebbles present.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas are few in this profile, beginning in the B21 and extending to sampling depth (50 inches). They have black (10YR 2/1 moist) fillings and are mostly around 1½ inches to 2 inches in diameter and there are about 2 to 3 per square foot in horizontal cross section.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Livingston County, Illinois

SOIL NOS. S57Ill-53-1 **LAB. NOS.** 6873-6880

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-8	A11	0.5a	0.4a	0.3b	0.7b	0.7b	56.6	40.8	21.8	35.9	-	sic
8-16	A12	0.3c	0.4c	0.4c	0.7b	0.7b	58.2	39.3	21.9	37.4	Tr.	sicl
16-20	B1	0.2c	0.5c	0.5c	0.8c	0.7b	58.6	38.7	22.1	37.6	Tr.	sicl
20-26	B21	0.2c	0.3c	0.3c	0.6c	0.6b	60.7	37.3	22.5	39.1	Tr.	sicl
26-35	B22	0.2d	0.3d	0.3d	0.7d	0.7c	57.7	40.1	21.2	37.6	-	sic
35-41	C	0.2c	0.4c	0.4c	0.6c	0.6c	62.5	35.3	25.9	37.5	Tr.	sicl
41-46	D1	0.3c	0.7c	0.7c	1.7c	1.6c	53.4	41.6	18.9	37.1	Tr.	sic
46 +	D2	1.2e	1.0e	1.0e	2.4e	2.3e	51.6	40.5	16.4	38.9	Tr.	sic

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	f Bulk Density g/cc	WATER CONTENT f Field-State %	g 15-Bar %
5.6			5.88	0.454	13			-				25.0
6.3			2.63	0.227	12			-		1.18	18.5	20.6
6.8			1.26	0.106	12			-				17.4
7.0			0.77	0.067	11			-		1.46	13.6	17.0
7.2			0.61					-				18.0
7.5			0.51					-		1.49	24.2	17.0
7.7			0.44					3				18.0
7.8			0.40					19		1.60	23.1	18.0

5A1a CATION EXCHANGE CAPACITY NH_4Ac :	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations	8D3 Ca/Mg	MOISTURE AT SATURATION %
	← milliequivalents per 100g. soil →										
41.5	25.8	8.0	13.0	-	0.9	84	73	34.7	47.7	3.2	
36.9	24.3	9.3	7.1	-	0.5	92	83	34.1	41.2	2.6	
30.7	20.8	9.4	3.8	0.1	0.5		89	30.8	34.6		
26.6	17.9	8.7	3.3	0.1	0.5		89	27.2	30.5		
30.2	19.6	10.2	1.7	0.1	0.5		95	30.4	32.1		
24.8	16.9	8.9	1.6	0.1	0.4		94	26.3	27.9		
21.3		7.5	0.4	0.1	0.4						
15.8		7.0	0.4	-	0.3						

a. Some organic matter, b. Few smooth brown to black concr. (Fe-Mn?)
c. Common smooth brown to black concr. (Fe-Mn?)
d. Many smooth brown to black concr. (Fe-Mn?)
e. Common smooth brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
f. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
g. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 36:215-235 1944.

Soil type: Drummer silty clay loam
Soil Nos. : S57Ill-53-1
Location: Livingston County, Illinois; 858 feet west of black top road in second low area from corner of Section on north side of dirt road in roadside sod of Andropogan furcatus (Big Bluestem), SE160, SE40, SW10 of Section 21, T27N, R3E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Big Bluestem.
Climate: Humid temperate.
Slope: 1 percent to west.
Erosion: None.
Parent material: 30 to 60 inches of Peorian loess over silty clay loam Wisconsin till of Tazewell age.
Sampled by: J. E. Paschke, D. C. Hallbick, N. E. Barnes, and G. O. Walker, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 14, 1957.

Horizon and Lincoln Lab. Number	
A11 6873	0 to 8 inches. Black (10YR 1/1 moist) silty clay loam; moderate to strong fine subangular blocky breaking to moderate fine granular structure; firm when moist; boundary diffuse and smooth; pH is 6.0; big bluestem roots are abundant.
A12 6874	8 to 16 inches. Black (10YR 1/1 moist) heavy silty clay loam; moderate medium to coarse subangular blocky structure; firm when moist; boundary diffuse and smooth; pH is 6.5; abundant big bluestem roots.
B1 6875	16 to 20 inches. Black (10YR 2/1 moist) silty clay; moderate medium subangular blocky structure breaking to strong fine subangular blocky structure; firm when moist; boundary to horizon below is gradual and smooth; pH is 7.0; few small iron-manganese concretions; thin continuous clay skins on vertical and horizontal surfaces; one small chert and one small shale fragment found.
B21 6876	20 to 26 inches. Yellowish brown (10YR 5/6 moist) silty clay; mottles are many fine to medium distinct dark grayish brown (2.5Y 4/2 moist) to olive brown (2.5Y 4/4 moist); moderate fine to medium subangular blocky structure; firm when moist; boundary gradual and smooth; pH is 7.5; few small iron-manganese concretions; thin continuous dark gray (N 4/ moist) organic and clay skins.
B22 6877	26 to 35 inches. Mixed yellowish brown (10YR 5/8 moist) and grayish brown (2.5Y 5/2 moist) silty clay loam; weak medium to coarse prismatic structure breaking to weak medium blocky; firm when moist; boundary clear and wavy; pH is 8.0; thin discontinuous dark grayish brown (2.5Y 4/2 moist) organic and clay skins; root channels continuous through peds.
C 6878	35 to 41 inches. Mixed dark gray (2.5Y 4/1 moist) and light olive brown (2.5Y 5/8 moist) light silty clay loam grading to silt loam in lower part; weak coarse prismatic to massive; firm when moist; boundary is clear and smooth; pH is 8.0; root channels common; krotovinas filled with very dark gray (2.5Y 3/1 moist) silty clay loam.
D1 6879	41 to 46 inches. Dark yellowish brown (10YR 4/4 moist) silty clay loam; mottles are many medium distinct yellowish brown (10YR 5/8 moist) and gray (N 5/ moist); massive; firm when moist; boundary clear and wavy; weakly calcareous; pH is 8.0 plus; few root channels; very dark gray (N 3/ moist) krotovina fillings.
D2 6880	46 inches plus. Yellowish brown (10YR 5/4 moist) silty clay loam mottled with many fine to medium faint to distinct gray (10YR 5/0 moist) and yellowish brown (10YR 5/8 moist); massive; very firm when moist; calcareous; some krotovinas go deeper--others end in this depth.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas are extensive throughout the profile; they extend vertically and range from 1 inch to 2½ inches in diameter; in the lower B and C horizon there are about 6 per square foot on a horizontal section.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Drummer silty clay loam **LOCATION** Will County, Illinois

SOIL NOS. S57Ill-99-1 **LAB. NOS.** 6903-6909

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	3A1 0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-6	A1p	0.3a	0.5a	0.6a	1.5a	1.4a	59.9	35.8	24.0	38.1	Tr.	sicl
6-9	A12	0.4a	0.5a	0.6a	1.4a	1.5a	60.3	35.3	24.1	38.5	Tr.	sicl
9-16	B1	0.1a	0.3a	0.4a	1.2a	1.7a	60.2	36.1	25.3	37.3	Tr.	sicl
16-20	B21	0.2a	0.3a	0.3a	0.9a	1.0a	61.5	35.8	23.8	39.2	Tr.	sicl
20-25	B22	0.3b	0.5b	0.4b	0.6a	0.7a	62.7	34.8	24.2	39.5	Tr.	sicl
25-34	B23	0.2b	0.4b	0.4b	0.8a	1.2a	66.6	30.4	28.9	39.3	Tr.	sicl
34-50+	C	5.0a	4.1a	3.0a	6.3a	5.2a	56.6	19.8	28.7	36.6	5	sil

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field-State %	d 15-Bar %
7.6			5.36	0.460	12			-		1.16	29.1	20.2
7.6			4.59	0.415	11			-				20.1
7.7			1.40	0.136	10			-		1.28	24.3	19.1
7.7			0.67	0.071	9			-				17.5
7.6			0.40	0.041	10			-				16.8
7.6			0.29					-		1.45	21.4	18.1
8.0			0.49					35		1.76	14.0	9.9

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations me/100g	MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →									
43.1	43.7	6.6	2.5	0.1	0.6	95	51.0	53.5	
42.0	45.0	6.8	2.1	0.1	0.4	96	52.3	54.4	
34.1	30.7	8.2	2.1	-	0.4	95	39.3	41.4	
30.5	24.3	9.2	1.6	-	0.4	95	33.9	35.5	
28.0	21.4	10.3	1.6	0.1	0.4	95	32.2	33.8	
24.4	19.0	10.1	0.8	0.1	0.4	97	29.6	30.4	
9.3		5.5	-	-	0.2				

a. Few smooth dark brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.

b. Many smooth dark brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.

c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)

d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Drummer silty clay loam
Soil No's. : S57Ill-99-1
Location: Will County, Illinois; 58 feet south of center of dirt road and 7 feet east of quarter line, NW160, NE40, NW10 of Section 15, T37N, R9E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Alfalfa and
Climate: Humid temperate.
Slope: 1/2 percent to west.
Erosion: None.
Parent material: Very thin Peorian loess cover on loam textured Wisconsin till of Cary age.
Sampled by: N. E. Barnes, G. O. Walker, and R. H. Jordan, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 17, 1957.

Horizon and Lincoln Lab. Number	
Alp 6903	0 to 6 inches. Black (10YR 1/1 moist) light silty clay loam; weak fine granular structure; friable when moist; boundary abrupt and clear; pH is 8.0; roots common.
A12 6904	6 to 9 inches. Black (10YR 1/1 moist) silty clay loam; moderate medium blocky structure; firm when moist; boundary abrupt and clear; pH is 8.0; this is a plow sole with roots common and few small pebbles.
B1 6905	9 to 16 inches. Very dark brown (10YR 2/1.5 moist) silty clay loam; weak fine subangular blocky structure; firm when moist; boundary diffuse and smooth; pH is 8.0; some black (10YR 2/1 moist) vertical streaks; roots common; few small pebbles.
B21 6906	16 to 20 inches. Black (2.5Y 2/1 moist) silty clay loam; moderate fine subangular blocky structure; firm when moist; boundary clear and smooth; pH is 8.0; few roots; few fine iron-manganese concretions; few small pebbles.
B22 6907	20 to 25 inches. Gray to dark gray (2.5Y 4.5/1 moist) silty clay loam with many fine prominent yellowish brown (10YR 5/6 to 5/4 moist) mottles; strong fine prismatic structure breaking to strong fine blocky; firm when moist; boundary clear and smooth; roots few; few thin black (10YR 2/1 moist) organic coatings; few worm casts.
B23 6908	25 to 34 inches. Gray (5Y 5/1 moist) light silty clay loam with common medium prominent yellowish brown (10YR 5/4 to 5/6 moist) mottles; strong fine prismatic structure with evenly formed 5- and 6-sided prisms; firm when moist; boundary clear and wavy; pH is 8.0; roots few; prisms also are formed in the krotovinas of this horizon; black (10YR 2/1 moist) organic coatings still continue; krotovina color of very dark gray (2.5Y 3.5/1 moist) with few fine faint yellowish brown (10YR 5/4 moist) and light olive brown (2.5Y 5/4 moist) mottles.
C 6909	34 to 50 inches plus. Mixed gray to light gray (2.5Y 6/1 moist) and yellowish brown (10YR 5/6 moist) heavy loam; massive; firm when moist; calcareous; very few roots; numerous pebbles.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. pH in upper part of profile is higher than normal for the type. Krotovinas start in the B21 and extend into the loam till to a depth of 44 to 46 inches; they are mostly 1½ inches to 2 inches in diameter and there are about 2 to 3 per square foot in horizontal cross section. One of the striking things about this profile is the strong development of prismatic structure in the subsoil.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Elliott silt loam SOIL Nos. S48Il1-99-1 LOCATION Will County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481135 - 481139

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-12	A1		49.2	28.4	0.2	1.0	2.7	12.5	6.0		33.8	28.9				tr.		
12-18	A3		51.8	28.0	0.8	1.1	2.1	10.4	5.8		36.0	27.6				1		
18-24	B1		37.4	39.0	0.4	1.1	2.4	13.0	6.7		27.8	24.4				tr.		
24-36	B2		36.9	39.8	0.8	1.3	2.6	12.4	6.2		28.7	22.0				1		
36+	C		47.9	28.8	1.6	1.7	2.7	11.2	6.1		37.0	24.0				2		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N	6A3a Organic Matter H_2O_2 Pct.	Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-12				4.2												6.6
12-18				1.3												5.1
18-24				0.9												5.2
24-36				0.4												6.5
36+				0.1												8.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Elliott silt loam
Soil No.: S48Ill-99-1
Location: Will County, Illinois. SE160 SW40 SE10 Sec. 24 T.33N R.12E; 300 feet west of four lane highway in Wilmington black top road. Slope: 2 percent.
Sampled by and date: Paul T. Veale, 1948.

Horizon and Beltsville Lab. No.	
A1 481135	0 to 12 inches. Very dark gray (10YR 3/1) moist, friable, granular silt loam containing numerous fibrous roots.
A3 481136	12 to 18 inches. Blends into dark grayish brown (10YR 4/2) moist, friable, granular silt loam with numerous roots.
B1 481137	18 to 24 inches. Blends into mottled strong brown and brown (7.5YR 5/6 - 5/2) moist, silty clay loam which has uniform structure 1/4 to 1/2 inch in diameter. Crushes into brown (7.5YR 5/4) moist, color. Darker streaks of organic matter are frequently found on the cleavage faces.
B2 481138	24 to 36 inches. Blends into strongly mottled dark gray and yellowish brown (10YR 4/1 and 5/4) moist, silty clay loam; blocky structure about 3/4 inch in diameter; crushes into a yellowish brown (10YR 5/4) moist, color.
C 481139	36 inches plus. Blends into calcareous structureless silty clay loam till which is mottled with strong brown (7.5YR 5/6) moist, and dark gray (10YR 4/1) moist.

SOIL SURVEY LABORATORY Lincoln, Nebr. October 1961

SOIL TYPE Ellison silt loam **LOCATION** Boone County, Illinois

SOIL NOS. S60Il1-4-1 **LAB. NOS.** 14079-14085

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-7	Ap	1.1	9.4	20.9	19.8	1.6	37.3	9.9	21.3	22.5	-	sl
7-11	A2	1.7	8.7	19.1	20.4	1.6	35.1	13.4	20.0	22.3	Tr.	l/fsl
11-16	B1	2.3	8.8	21.0	23.8	1.8	23.9	18.4	17.4	15.1	14	sl
16-24	B2	3.0	9.2	26.0	39.4	3.0	6.0	13.4	17.3	4.5	7	fsl
24-34	B31	0.9	4.8	28.7	56.3	3.9	2.0	3.4	21.8	1.0	Tr.	fs
34-47	B32	0.3	7.1	47.1	41.6	0.8	1.1	2.0	7.6	0.7	Tr.	s
47-49	B33	2.9	15.8	32.0	22.7	1.3	3.3	22.0	7.0	2.4	9	scl

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	BULK DENSITY 4A1a Field-State g/cc	4A1c 30-Cm. g/cc	4A1h O.D. g/cc	MOISTURE TENSIONS 4B4 Field-State %	4B3 30-Cm. %	4B2 15 ATMOS. %
7.0			1.07	0.091	12	0.9	1.66	1.63	1.67	7.5	15.5	4.3
6.9			0.34	0.042	8	1.1						4.8
5.9			0.28	0.039	7	1.3						6.8
5.2			0.15	0.023		1.1	1.71	1.64	1.70	3.1	11.8	5.1
5.5			0.06			0.6						1.6
5.6			0.04			0.5						1.1
6.5			0.20			1.5						9.4

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	BASE SAT. % NH_4OAc EXCH. 5C1	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	8D3 Ca/Mg	6E1a $CaCO_3$ Equivalent %
← milliequivalents per 100g. soil →											
7.9		2.0	2.0	<0.1	0.1	101	80				0.3
7.8	4.9	2.4	2.2	<0.1	0.1	95	77	7.4	9.6	2.0	
10.3	6.8	1.8	4.7	0.1	0.2	86	65	8.9	13.6	3.8	
8.2	4.8	1.4	4.5	<0.1	0.2	78	59	6.4	10.9	3.4	
2.0	1.2	0.5	1.2	<0.1	<0.1	60	50	1.2	2.4		
1.4	0.9	0.2	2.2	<0.1	<0.1	78	33	1.1	3.3		
13.3	8.1	4.4	3.2	0.1	0.3	97	80	12.9	16.1	1.8	

Concretions, organic matter fragments or other special formations were not evident in the sand fractions.

Soil type: Ellison silt loam
Soil Nos. : S60Ill-4-1
Location: 402 feet north and 27 feet east of the southwest corner of the NE1/4 of Section 26, T44N, R4E, Boone County, Illinois.
Vegetation: Mixed alfalfa and clover.
Parent material: Loamy and sandy outwash material over calcareous sand.
Slope: 1 percent north to northeast.
Physiography: Outwash plain.
Drainage: Well drained.
Collected by: F. J. Carlisle, J. D. Dixon, L. J. Bushue, and B. W. Ray, September 23, 1960.
Described by: B. W. Ray.

Horizon and Lincoln Lab. Number	
Ap 14079	0 to 7 inches. Very dark grayish brown (10YR 3/2) (10YR 5/2 dry) gritty silt loam, approaching loam; massive; friable; abrupt smooth boundary.
A2 14080	7 to 11 inches. Dark brown (10YR 4/3) (10YR 5/3 dry) loam; massive; friable; contains a few tubular channels, including some worm casts, which average 3 to 5 mm. in diameter and contain very dark grayish brown (10YR 3/2) material; clear smooth boundary.
B1 14081	11 to 16 inches. Dark brown (7.5YR 4/4) (7.5YR 5/4 dry) clay loam; weak medium subangular blocky structure; firm; when dry a few patches of blanched silt and sand are evident on ped surfaces; few discontinuous dark brown (7.5YR 3/2) clay films; clear smooth boundary.
B2 14082	16 to 24 inches. Dark brown (7.5YR 4/4) (7.5YR 4/4 dry) sandy clay loam, approaching clay loam; weak medium subangular blocky structure; firm; numerous thin dark reddish brown (5YR 3/4) clay films; clear smooth boundary.
B31 14083	24 to 34 inches. Dark brown (7.5YR 4/4) (7.5YR 5/4 dry) fine and medium sands; single grain; loose; horizon contains one wavy band, 1/4-inch thick, of dark brown (7.5YR 3/2) light sandy loam that is very friable and breaks into irregular-shaped fragments; gradual smooth boundary.
B32 14084	34 to 47 inches. Dark brown (7.5YR 4/4) (10YR 4/4 dry) fine and medium sand; single grain; loose; abrupt smooth boundary.
B33 14085	47 to 51 inches. Dark brown (7.5YR 3/2) (7.5YR 3/2 dry) sandy clay loam to heavy clay loam; very weak coarse angular blocky structure; firm upper 2 inches are relatively free of gravel; lower 2 inches contain numerous gravel 1/4 to 1 inch in diameter; clear smooth boundary. Sample taken at depths of from 47 to 49 inches.
C1 Not sampled	51 to 61 inches. Dark yellowish brown (10YR 4/4) loamy fine sand, with common medium distinct pale brown (10YR 6/3) and few medium distinct dark brown (7.5YR 4/4) mottles; single grain; loose; abrupt smooth boundary.
B33 Not sampled	61 to 63 inches. Dark brown (7.5YR 3/2) coarse sandy clay loam, with common medium distinct pale brown (10YR 6/3) mottles; massive; firm; abrupt smooth boundary.
C2 Not sampled	63 to 80 inches. Dark brown (7.5YR 4/4) loamy fine sand, with many medium distinct pale brown (10YR 6/3) mottles; single grain; loose; clear wavy boundary.
C3 Not sampled	80 to 86 inches plus. Brown (10YR 5/3) sand, containing a small amount of fine gravel with common medium faint dark yellowish brown (10YR 4/4) mottles; single grain; loose; calcareous.

Observations pertain to the very fine sand from the particle size analysis. Quartz remains at about 40 percent throughout while feldspar decreases from about 50 percent in surface horizons to about 25 percent at depth. Few unweathered grains of feldspar are present, and these decrease in amount with increasing depth. Unidentified weathered grains and aggregates increase from 5 percent in the surface to 20 percent at depth. Opaques increase from 5 percent at surface to 15 percent at bottom of the profile. Trace amounts of pleochroic green amphibole (hornblende?), epidote-zoisite, zircon, and garnet are present in all horizons examined, increasing somewhat with depth. Colorless, nonpleochroic pyroxene is present in trace amounts in upper horizons and disappears below the B31 horizon. Plant opal is present in the upper horizon.

SOIL SURVEY LABORATORY Lincoln, Nebr. October 1961

SOIL TYPE Ellison silt loam **LOCATION** McHenry County, Illinois

SOIL NOS. S60Ill-56-1 **LAB. NOS.** 14086-14094

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-8	Ap	0.6	5.1	14.3	17.3	2.9	45.9	13.9	31.3	23.5	-	l
8-11	B1	1.0	4.9	9.5	12.7	2.4	42.2	27.3	25.8	23.4	Tr.	cl/l
11-19	B21	2.4	9.9	18.0	22.1	3.6	18.7	25.3	19.5	10.8	5	scl
19-27	B22	2.4	10.9	23.9	38.6	5.9	5.1	13.2	23.1	2.6	3	fsl
27-33	B31	1.0	8.4	25.0	48.0	9.3	2.5	5.8	29.9	0.9	Tr.	s
33-52	B32	0.6	6.1	23.4	54.5	10.0	2.7	2.7	32.5	1.5	Tr.	fs
33-52	B23	0.4	6.2	24.7	49.6	8.1	2.3	8.7	27.7	1.2	Tr.	ls/lfs
52-67	C1& B	0.4	5.8	22.4	55.8	12.0	1.0	2.6	35.7	0.6	1	fs
67-73+	C2	1.8a	7.4a	26.9a	53.5	6.9	2.2	1.3	27.2	1.0	5	fs

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	BULK DENSITY 4A1a Field-State g/cc	4A1c 30-Cm. g/cc	4A1h O.D. g/cc	MOISTURE TENSIONS 4B4 Field-State %	4B3 30-Cm. %	4B2 15 ATMOS. %
5.5			0.55	0.062	9	1.0						5.0
4.8			0.28	0.038	7	1.7						9.7
4.7			0.16	0.022		1.8	1.76	1.63	1.75	7.2	17.8	9.4
4.8			0.07	0.012		1.1	1.83	1.75	1.82	3.9	13.5	5.3
5.0			0.05			0.7						2.4
5.5			0.04			0.6						1.5
5.5			0.06			0.7						3.6
6.0			0.02			0.4						0.9
7.7			0.02			0.3						0.8

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	BASE SAT. % NH_4OAc EXCH. 5C1	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	8D3 Ca/Mg	6E1a $CaCO_3$ Equivalent %
← milliequivalents per 100g. soil →											
7.6	4.1	1.6	3.7	<0.1	0.2	78	61	5.9	9.6	2.6	
14.4	6.8	3.9	7.5	0.1	0.3	77	60	11.1	18.6	1.7	
14.2	5.8	4.4	7.8	0.1	0.3	75	58	10.6	18.4	1.3	
8.0	3.2	2.4	4.2	<0.1	0.2	72	58	5.8	10.0	1.3	
3.4	1.5	0.9	2.0	<0.1	0.1	74	56	2.5	4.5		
2.1	1.1	0.4	1.0	<0.1	<0.1	71	60	1.5	2.5		
5.0	2.4	1.6	2.2	<0.1	0.1	82	65	4.1	6.3	1.5	
1.3	0.7	0.8	0.5	<0.1	<0.1	62	62	0.8	1.3		
1.0		0.8	0.5	<0.1	<0.1						3.9

a. Trace carbonates. Limestone fragments?

Soil type: Ellison silt loam
Soil Nos. : S60Ill-56-1
Location: 54 yards east and 92 yards south of the northwest corner, Section 6, T44N, R6E, McHenry County, Illinois.
Vegetation and land use: Corn stubble; cultivated field.
Slope and land form: Slope gradient is 1 percent. Site is on the crest of a broad elongated knoll in gently rolling glacial outwash topography; the nearly level crest of the knoll is about 100 yards wide in a north-south direction and about 200 yards long east-west.
Drainage: Well drained.
Parent materials: Stratified glacial outwash materials.
Sampled and described by: F. J. Carlisle, J. D. Dixon, and L. J. Bushue, September 24, 1960.

Horizon and Lincoln Lab. Number	
Ap 14086	0 to 8 inches. Dark grayish brown (10YR 4/2) (10YR 5/2 to 6/2 dry) gritty silt loam; massive; friable; 1- to 3-inch spots of 10YR 4/4 B1 horizon material are incorporated in the plowed layer but are a minor constituent; pH 5.5; abrupt smooth boundary.
B1 14087	8 to 11 inches. Dark yellowish brown (10YR 4/4, 5/4 dry) gritty medium silty clay loam; weak fine and very fine subangular blocky structure; slightly firm; few patches, 1- to 2-mm. across, of blanched silt and fine sand on peds; clay films not evident; pH 5.3; clear smooth boundary.
B21 14088	11 to 19 inches. Brown (7.5YR 4/2 to 4/3) (7.5YR 5/4 dry) gritty medium silty clay loam approaching clay loam; moderate fine subangular blocky structure; firm; patches of clay film 2- to 5-mm. across are evident on ped surfaces; pH 5.2; gradual smooth boundary.
B22 14089	19 to 27 inches. Dark brown (7.5YR 4/4) (7.5YR 4/4 dry) medium clay loam; (the value of the color of the dry soil appears to be slightly higher than that of the moist soil but the difference is not readable); weak medium subangular blocky structure; firm; patches of brown clay films on ped surfaces; few thin, 1 to 3 mm. in width, coatings of black oxides on some ped faces and gravel fragments; pH 5.2; clear smooth boundary.
B31 14090	27 to 33 inches. Dark brown (7.5YR 4/4) (7.5YR 4/4 to 5/4 dry) loamy sand; massive; friable; very thin brown clay films are nearly continuous on sand grains; pH 5.6; clear slightly wavy boundary.
B32 14091 and B23 14092	33 to 52 inches. This layer consists of loamy sand B32 material that contains narrow bands of sandy loam which are designated B23. The two components were sampled separately for laboratory analyses. The proportion of each component varies from 40 to 60 percent in different parts of the profile. Most of the B23 material occurs in horizontal bands 1/2 to 1-1/2 inches thick. The bands thicken to a maximum of 4 inches in a few places where the B23 is dominant in the layer. A coarse network of irregular bands about 1/4-inch thick connects the thicker horizontal bands in the lower part of the layer. Properties of the two components are as follows: B32 Yellowish brown (10YR 5/4) (7.5YR 5/4 dry) loamy sand that is slightly less clayey than the B31 horizon; slightly coherent sand grains lack visible coatings; very friable; pH 5.6. B23 Dark brown (7.5YR 4/4) (7.5YR 4/4 dry) sandy loam; massive; slightly firm in contrast to adjacent material; sand grains appear partially coated with clay; pH 5.8. The transition from this layer to the one below is diffuse.
C1 and B 14093	52 to 67 inches. Brown (10YR 5/3) to pale brown (10YR 6/3) (10YR 6/3 dry) fine and medium sand; single grain; loose; thin bands of brown (7.5YR 4/4 to 5/4) friable loamy sand make up about 30 percent of the layer. The brown bands of B horizon were excluded from the sample collected for laboratory study. Gradual lower boundary.
C2 14094	67 to 73 inches plus. Pale brown (10YR 6/3) (10YR 6/3 dry) medium sand and some fine gravel; single grain; loose; calcareous; contains dark brown noncalcareous bands 1/2-to 1-inch thick that make up 25 percent of the layer.

Notes: Colors are for fully moist soil except where designated. The boundaries between bands and interband material are wavy and abrupt throughout the lower part of the B horizon. Occasional gravel fragments occur throughout the profile but are most common in the C2 horizon. This profile has probably been modified somewhat by accelerated erosion but the effect is thought to be slight. There is more evidence of erosion adjacent to the sampling site than at the sampling site. pH was measured in the field with chlorophenol red indicator.

Observations pertain to the very fine sand from the particle size analysis. Quartz remains at about 40 percent throughout while feldspar decreases from about 50 percent in surface horizons to about 25 percent at depth. Few unweathered grains of feldspar are present, and these decrease in amount with increasing depth. Unidentified weathered grains and aggregates increase from 5 percent in the surface to 20 percent at depth. Opaques increase from 5 percent at surface to 15 percent at bottom of the profile. Trace amounts of pleochroic green amphibole (hornblende?), epidote-zoisite, zircon, and garnet are present in all horizons examined, increasing somewhat with depth. Colorless, nonpleochroic pyroxene is present in trace amounts in the upper horizons and disappears below the B32 horizon. Plant opal is present in the upper horizon.

ICS-421
.0-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Fayette silt loam SOIL Nos. 12[a] LOCATION Carroll County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. D3510 - D3532

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	6A3a Organic Matter H_2O_2	Coarse fragments 3B1: 2A2 > 2	2 – 19	19 – 76
		Pct. of < 2 mm												Pct.	Pct.	Pct. of < 76mm	
0-2			76.8	13.3	0.2	0.6	0.6	1.2	7.3		36.8	48.0		5.0	tr.		
2-4			78.3	12.0	0.3	0.7	0.5	0.9	7.3		37.4	48.8		3.0	tr.		
4-8			79.3	11.4	0.1	0.5	0.4	0.7	7.6		37.9	49.5		1.1	tr.		
8-12			76.1	14.0	0.1	0.4	0.4	0.8	8.2		35.3	49.5		0.6	-		
12-15			74.5	16.7	-	0.3	0.4	0.8	7.3		33.0	49.2		0.3	-		
15-19			71.1	20.1	-	0.3	0.3	0.7	7.5		31.9	47.2		0.4	-		
19-22			65.7	26.9	-	0.1	0.1	0.4	6.8		29.7	43.0		0.3	-		
22-25			62.8	30.1	-	0.1	0.1	0.4	6.5		27.1	42.1		0.3	-		
25-28			62.0	31.5	-	0.1	0.1	0.4	5.9		27.5	40.7		0.2	-		
28-31			62.5	30.5	-	0.1	0.1	0.4	6.4		28.3	40.8		0.2	-		
31-33			63.4	29.4	-	0.1	0.1	0.5	6.5		27.8	42.3		0.2	-		
33-35			63.2	29.4	-	0.2	0.2	0.4	6.5		28.2	41.8		0.2	-		
35-38			64.4	28.3	-	0.1	0.1	0.6	6.5		28.7	42.5		0.3	-		
38-41			65.3	28.6	-	0.1	0.1	0.4	5.5		30.0	41.0		0.2	-		
41-45½			67.5	27.2	-	0.1	0.2	0.4	4.6		30.6	41.7		0.2	-		
45½-49½			68.6	25.9	-	0.2	0.3	0.5	4.5		31.4	42.1		0.2	-		
49½-54			70.2	24.7	-	0.1	0.3	0.4	4.3		32.3	42.4		0.2	-		
54-58			69.4	25.8	-	0.1	0.3	0.5	3.9		33.8	39.8		0.1	tr.		
58-64			70.3	23.4	-	0.2	0.3	0.7	5.1		31.1	44.7		0.1	-		
64-72			74.7	18.9	-	0.2	0.5	1.3	4.4		35.1	44.8		0.1	tr.		
72-81			76.7	18.6	-	0.2	0.7	1.1	2.7		40.0	39.9		0.1	tr.		
81-87			73.0	16.8	0.2	1.5	2.2	2.8	3.5		41.3	36.6		0.2	tr.		
87-99			63.2	13.1	0.9	3.9	5.9	7.9	5.1		35.4	36.7		0.1	1		

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-2	2.9	1.9				10.6							5.0			31	
2-4	1.1	0.9				10.0							4.7			17	
4-8	0.9	tr.				7.1							4.6			11	
8-12	0.9	0.4				6.6							4.6			17	
12-15	1.2	1.3				7.4							4.5			25	
15-19	2.2	2.3				8.2							4.5			35	
19-22	4.4	3.5				9.2							4.6			46	
22-25	6.2	4.0				9.7							4.6			51	
25-28	7.4	4.5				9.1							4.7			57	
28-31	8.1	4.6				8.7							4.7			59	
31-33	8.5	4.5				7.6							4.8			63	
33-35	8.8	4.5				7.0							4.8			66	
35-38	9.0	4.7				6.5							4.9			68	
38-41	9.5	4.7				6.5							5.0			69	
41-45½	9.6	4.7				5.5							5.1			72	
45½-49½	9.8	4.8				4.7							5.2			76	
49½-54	9.8	5.0				4.1							5.2			78	
54-58	10.3	5.1				3.9							5.3			80	
58-64	9.9	5.1				3.6							5.4			81	
64-72	8.1	4.2				2.8							5.6			82	
72-81	8.3	4.3				3.0							5.7			81	
81-87	7.4	3.8				2.9							5.8			79	
87-99	5.5	2.6				2.3							6.0			78	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Part of Project Z-1-2-8.

Soil Type: Fayette silt loam
Soil No.: 12[a]
Location: Carroll County, Illinois. SE 1/4 of SW 1/4 of Sec. 17, T 23 N, R 7 E.
Sampled by and date: H. Wascher, E. P. Whiteside, and R. J. Muckenhirn. September 26, 1944.

Horizon and Beltsville Lab. No.	
Not Sampled	1/2 to 0 inches. Mat of partially decomposed leaves, acorns, and twigs.
D3510	0 to 2 inches. Grayish brown silt loam, fine granular structure; organic matter; many fine roots.
D3511	2 to 4 inches. Light brownish gray to pale brown silt loam; very fine platy in place, breaking to fine to very fine soft granular structure; roots abundant.
D3512	4 to 8 inches. Light yellowish brown silt loam; thin platy structure, breaking to flattened fine granules; friable; moderately vesicular and sprinkled with silica flour; rodent burrows, wormholes, and casts present; abundant hair-like roots.
D3513	8 to 12 inches. Yellowish brown silt loam; fine to medium granular structure; medium platy structure in place but irregularly present; slight sprinklings of silica flour; filled rodent burrow and some worm casts present; roots fairly abundant.
D3514	12 to 15 inches. Yellowish brown silt loam; medium blocky structure; sprinklings of silica flour on exterior of slightly vesicular aggregates; little worm activity; few roots.
D3515	15 to 19 inches. Light yellowish brown silt loam; medium blocky structure; aggregates irregular, somewhat flattened; slightly vesicular and lightly sprinkled with silica flour; roots few to common; worm activity slight.
D3516	19 to 22 inches. Yellowish brown silty clay loam; medium blocky structure; sharply angular; moderately hard; thinly sprinkled with silica flour; and slightly vesicular; fine roots few but partly decomposed roots up to one-half inch in diameter, present; few worms.
D3517	22 to 25 inches. Dark yellowish brown silty clay; aggregates coated with moderate brown and are abundantly sprinkled with silica flour; roots not abundant.
D3518	25 to 28 inches. Dark yellowish brown silty clay; medium blocky structure; firm; coated with silica flour and specked with small dark brown spots; roots up to one-half inch in diameter present.
D3519	28 to 31 inches. Similar to above layer, silica coating seems more abundant; roots have followed the prominent crevices.
D3520	31 to 33 inches. Dark yellowish brown silty clay loam; medium blocky structure. Aggregates are coated with silica, some show thick coatings.
D3521	33 to 35 inches. Same as above layer.
D3522	35 to 38 inches. Dark yellowish brown silty clay loam; coarse blocky structure. Aggregates coated with silica four; dark orange mottlings present; roots few.
D3523	38 to 41 inches. Yellowish brown silty clay loam; medium to coarse blocky structure; dark orange mottlings and silica flour evident along old root channels, fine hair-like roots present.
D3524	41 to 45 1/2 inches. Similar to above; aggregates tend to be larger, slightly vesicular and firm.
D3525	45 1/2 to 49 1/2 inches. Yellowish brown silty clay loam; coarse blocky structure; Aggregates spotted and specked with dark brown; few roots.
D3526	49 1/2 to 54 inches. Yellowish brown silt loam; weakly coarse blocky structure; orange and gray mottling present near root channels.
D3527	54 to 58 inches. Light to strong yellowish brown silt loam; coarse, weak blocky structure.
D3528	58 to 64 inches. Light to moderate yellowish brown silt loam; weak medium to coarse blocky structure; specked with brown and orange on interiors; slightly vesicular.
D3529	64 to 72 inches. Light yellowish brown silt loam. Similar to above but more silty.
D3530	72 to 81 inches. Same as 64-72.
D3531	81 to 87 inches. Yellowish brown silt loam. A flint particle one-fourth inch in diameter was found.
D3532	87 to 99 inches. Similar to above but containing more pebbles.

Notes: a Part of Project Z-1-2-8.

SCS-421
10-64 (Rev 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Fayette silt loam SOIL Nos. 14[a] LOCATION Carroll County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. D3552 - D3573

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	6A1a Organic matter H_2O_2 Pct.	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	Coarse fragments 3B1: 2 – 19 Pct. of < 76mm	Coarse fragments 3B1: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm															
0-6			77.5	11.8	-	0.2	0.2	0.8	9.5		31.5	56.0		1.5	tr.		
6-9½			76.2	15.6	-	0.1	0.1	0.4	7.6		34.1	49.9		0.4	-		
9½-13			73.1	18.9	-	0.2	0.2	0.4	7.2		32.7	48.0		0.4	-		
13-16			70.5	21.6	-	0.1	0.2	0.3	7.3		30.8	47.2		0.4	-		
16-19			67.5	24.5	-	0.1	0.1	0.4	7.4		29.3	45.8		0.3	-		
19-22			64.4	27.6	-	0.1	0.1	0.3	7.5		27.5	44.7		0.3	-		
22-25			62.4	28.9	-	0.1	0.1	0.3	8.2		26.0	44.9		0.3	-		
25-28			59.6	29.4	-	0.3	0.3	0.8	9.6		23.8	45.9		0.2	-		
28-31			60.5	28.6	-	0.1	0.1	0.6	10.1		24.0	46.9		0.2	-		
31-33			63.1	27.9	-	-	0.1	0.2	8.7		24.8	47.1		0.4	-		
33-36			62.9	28.1	-	-	-	0.3	8.7		24.7	47.0		0.4	-		
36-39			63.4	27.1	-	-	-	0.3	9.2		24.7	48.1		0.3	-		
39-42			62.3	28.1	-	-	-	0.3	9.3		24.1	47.6		0.3	-		
42-46			62.6	29.0	-	0.1	-	0.2	8.1		25.2	45.7		0.3	-		
46-50			63.9	28.6	-	-	-	0.2	7.3		26.2	45.0		0.3	-		
50-56			65.3	28.2	-	-	-	0.2	6.3		27.7	44.0		0.4	-		
56-62			67.4	24.7	-	-	-	0.2	7.7		26.1	49.0		0.2	-		
62-68			68.8	24.7	-	-	-	0.2	6.3		27.2	48.0		0.2	tr.		
68-78			71.1	22.5	0.1	0.1	0.1	0.4	5.7		29.0	48.0		0.1	tr.		
78-88			74.9	20.8	0.1	-	-	0.1	4.1		31.5	47.5		0.2	tr.		
88-96			77.5	17.1	0.1	0.2	0.2	0.5	4.4		32.7	49.5		0.2	tr.		
96-108			81.1	14.1	-	0.1	0.1	0.1	4.5		33.5	52.2		0.2	tr.		

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g													
0-6	5.6	1.7				8.6					6.4		46	
6-9½	5.5	1.1				3.2					5.8		70	
9½-13	6.0	1.9				3.5					5.8		69	
13-16	6.4	2.8				4.2					5.6		69	
16-19	6.9	3.6				5.1					5.3		67	
19-22	7.0	4.0				7.2					4.8		60	
22-25	7.9	4.4				7.5					4.8		62	
25-28	8.7	4.7				7.7					4.8		64	
28-31	9.3	4.8				7.0					4.9		67	
31-33	9.2	4.8				6.0					5.0		70	
33-36	9.7	5.2				6.1					5.0		71	

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext Al	pH: 8C1c (1:1) KCl	pH: 8C1a (1.1) H_2O	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g													
36-39	9.1	5.0				6.2					5.1		70	
39-42	9.9	5.6				6.1					5.2		72	
42-46	9.9	5.3				6.1					5.3		71	
46-50	10.3	5.8				5.5					5.2		74	
50-56	10.7	6.2				5.4					5.2		76	
56-62	9.4	5.8				4.5					5.3		77	
62-68	9.3	5.8				4.8					5.4		76	
68-78	11.0	6.8				1.5					7.5		92	
78-88	10.0	6.8				0.6					7.9		97	
88-96	b					-					8.1			
96-108	b					-					8.2			

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl	Vm.	Mi.	Int	Qtz.	Kl	Gibbsite
	7A2 X-ray						7A3	

a Part of Project Z-1-2-8

b Not determined, sample is calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm = Vermiculite, mi = mica, Int = Interstratified layer, Qtz. = quartz, Kl = Kaolinite

Relative amounts blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Soil Type: Fayette silt loam
Soil No.: 14[a]
Location: Carroll County, Illinois. SE 1/4 of SW 1/4 of Sec. 26, T 25 N, R 4 E.
Slope and land form: 5 percent
Sampled by and date: H. Wascher, E. P. Whiteside, and R. J. Muckenhirn. September 28, 1944.

Horizon and Beltsville Lab. No.	
D3552	0 to 6 inches. Brown silt loam; weak fine to medium granular structure; friable; moderately vesicular; numerous worm casts; some material from the horizon below.
D3553	6 to 9 1/2 inches. Yellowish brown to dark yellowish brown silt loam; fine platy in place; breaks to medium granules; moderate sprinkling of silica flour; moderately vesicular; wormholes and casts common; roots up to one-eight inch in diameter common.
D3554	9 1/2 to 13 inches. Yellowish brown silt loam; coarse granular to medium blocky structure; faint platiness in place; moderately vesicular; sprinkled with silica flour; wormholes and casts few; fibrous roots common.
D3555	13 to 16 inches. Yellowish brown silt loam; medium blocky structure; moderately vesicular; sprinkled with silica flour; friable; wormholes and casts few; roots common.
D3556	16 to 19 inches. Yellowish brown to moderate brown, silt clay loam; medium blocky structure; slightly vesicular; sprinkled with silica flour; moderately firm; some coatings and specks of brown; roots up to 1/4 inch in diameter; worm activity not evident.
D3557	19 to 22 inches. Yellowish brown to moderate brown silty clay loam; medium angular blocky structure; sprinkled with silica flour; slightly vesicular; moderately firm; a few filled root channels and worm casts present; roots few.
D3558	22 to 25 inches. Brown to yellowish brown silty clay loam; medium blocky structure; moderately angular; well sprinkled with silica flour; slightly vesicular; occasionally specked with brownish black; roots few.
D3559	25 to 28 inches. Brown silty clay loam; moderate blocky structure; angular; thickly sprinkled with silica flour; slightly vesicular; moderately firm; roots few; worm casts few.
D3560	28 to 31 inches. Brown silty clay loam; medium blocky structure; slightly vesicular; coated with silica flour; moderately firm; fibrous roots tending to follow crevices; coats of dark brown and specks of brownish black on some aggregates.
D3561	31 to 33 inches. Brown silty clay loam; medium blocky structure; slightly vesicular; coated with silica flour; moderately firm; subangular; fine hair-like roots few;
D3562	33 to 36 inches. Brown silty clay loam; medium blocky structure; coated with silica flour; slightly vesicular; moderately firm; few roots in crevices.
D3563	36 to 39 inches. Yellowish brown silty clay loam; coarse blocky structure; slightly vesicular; well-coated with silica flour; slightly firm; many aggregates coated with dark brown and are often in rather large blocks or short columns; roots few.
D3564	39 to 42 inches. Yellowish brown silty clay loam; coarse blocky structure; similar to layer above.
D3565	42 to 46 inches. Yellowish brown light silty clay loam; coarse blocky structure; similar to layer above.
D3566	46 to 50 inches. Yellowish brown silt loam; weak, coarse blocky structure; moderately vesicular; silica coatings and brown coatings present; roots few. Friable.
D3567	50 to 56 inches. Yellowish brown silt loam; weak, coarse blocky structure; similar to layer above.
D3568	56 to 62 inches. Yellowish brown silt loam; weak, coarse blocky structure; friable; slightly vesicular; brown coatings.
D3569	62 to 68 inches. Yellowish brown silt loam; coarse, weak, blocky structure; slightly to moderately vesicular; roots present; brown spots, brown coatings present.
D3570	68 to 78 inches. Yellowish brown silt loam. Same as above.
D3571	78 to 88 inches. Light yellowish brown silt loam. Considerably softer and less clay than in 62-68 inch layer. Some gray silt distributed in this layer; slightly vesicular; occasional spot of brownish black. Very weak coarse blocky structure. (pH at 88 inch - 8.0).
D3572	88 to 96 inches. Light yellowish brown soft silt loam. Contains some carbonates in the lower part.
D3573	96 to 108 inches. Light yellowish brown soft silt loam with occasional dark orange mottlings. Calcareous loess.

Notes: a Part of Project Z-1-2-8.

SOIL SURVEY LABORATORY Lincoln, Nebraska March 1964

SOIL TYPE Fayette silt loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S61-Ill-50-1 **LAB. NOS.** 16549-16557

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	
0-6	A1	-	0.2a	0.2b	0.4b	2.8	81.5	14.9	47.5	37.0	-	
6-9	A21	-	0.1a	0.1a	0.3b	1.9	80.5	17.1	43.7	38.9	-	
9-13	A22	-	0.1a	0.1a	0.3b	2.8	74.0	22.7	40.8	36.2	-	
13-16	B1	-	Tr.a	0.1a	0.2b	1.7	70.7	27.3	38.6	33.9	-	
16-22	B21	-	0.1a	0.1a	0.3a	2.6	65.2	31.7	36.7	31.3	-	
22-32	B22	-	0.1a	0.1a	0.4b	2.2	65.9	31.3	39.0	29.4	-	
32-41	B31	-	Tr.a	Tr.a	1.7b	4.0	66.7	27.6	43.3	28.7	-	
41-50	B32	-	0.1a	0.1a	0.6b	2.2	70.0	27.0	43.6	29.0	-	
50-60+	B32	-	0.1b	0.1b	0.3b	2.2	73.0	24.3	44.3	31.1	-	

pH 1:1 [c]	$CaCO_3$ equivalent %	Ext. Al me/100g	ORGANIC MATTER 6Ala ORGANIC CARBON % [d]	6Bla NITROGEN %	C/N	6Cla Ext. Iron as Fe %	Bulk Density [e] g/cc	WATER CONTENT e Field-State %	f 15-Atm. %
5.7			1.62	0.158	10	0.7	1.31	18.6	8.0
5.7			0.68	0.076	9	0.8	1.35	15.6	7.1
5.7			0.44	0.053	8	1.0			9.5
5.9			0.34	0.045	8	1.2			12.9
5.8			0.27	0.040	7	1.4			15.2
5.8			0.21	0.034		1.5	1.41	14.9	14.9
5.6			0.16			1.5			13.2
5.4			0.14			1.5			11.6
5.5			0.14			1.6	1.43	9.1	11.4

5Ala CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6Hla H	6P2a Na	6Q2a K	5Bla Sum	5C3 Base Sat. % on Sum Cations	5Cl Base Sat. % NH_4OAc	Ratios to Clay 6Bla Water at 15-Atm. / NH_4OAc CEC	Ext. Iron	8D3 Ca/Mg
milliequivalents per 100g. soil											
11.9	7.0	1.6	6.3	Tr.	0.4	15.3	59	76	.80	.047	.54	4.4
10.3	6.2	1.4	5.2	Tr.	0.4	13.2	61	78	.60	.047	.42	4.4
13.4	10.1	2.1	4.0	0.1	0.4	16.7	76	95	.59	.044	.42	4.8
15.7	11.2	3.6	4.6	0.1	0.4	19.9	77	97	.58	.044	.47	3.1
19.6	13.2	5.1	5.8	0.1	0.5	24.7	76	96	.62	.044	.48	2.6
20.1	12.3	6.0	6.0	0.1	0.5	24.9	76	94	.64	.048	.48	2.0
18.0	9.9	5.7	6.4	0.1	0.4	22.5	72	89	.65	.054	.48	1.7
16.9	9.6	6.0	6.4	0.1	0.5	22.6	72	96	.62	.056	.43	1.6
16.4	9.3	5.9	5.2	0.1	0.4	20.9	75	96	.67	.066	.47	1.6

a. > 50% Fe-Mn nodules.
b. 5-25% Fe-Mn nodules.
c. Determined by University of Illinois.
d. 7.7 Kg/M^2 to 60 inches. (Method 6A).
e. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
f. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Fayette silt loam
Soil Nos. : S61Ill-50-1
University of Illinois Laboratory Nos.: 18887 through 18895
Location: LaSalle County, Illinois; 99 feet west of gate, 219 feet south, 34 feet west-northwest to sampling site, NW160, NE40, NE10, NW2½ of Section 11, T34N, R1E.
Classification: Gray-Brown Podzolic.
Natural drainage: Well.
Native vegetation: Forest.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 5 to 6 percent to south.
Erosion: 7 to 14 inches topsoil remaining.
Elevation: 655 feet.
Parent material: Deep loess over 5 feet thick.
Described by: J. E. Paschke and H. R. Sinclair, October 23, 1961.

Horizon and Lincoln Lab. Number	
A1 16549	0 to 6 inches. Very dark grayish brown (10YR 3/2) silt loam; same color crushed; moderate fine and medium granular structure; friable; abundant roots; pH 6.2; clear wavy boundary.
A21 16550	6 to 9 inches. Dark grayish brown (10YR 4/2) silt loam; same color crushed; weak thin platy structure breaking to moderate fine granules; friable; abundant roots; common very dark grayish brown (10YR 3/2) worm channel fillings; pH 5.5; abrupt wavy boundary.
A22 16551	9 to 13 inches. Brown (10YR 4/3 to 5/3) silt loam; weak thin platy structure breaking to moderate very fine and fine subangular blocks; friable; abundant roots; pH 6.0; abrupt smooth boundary.
B1 16552	13 to 16 inches. Brown (10YR 4/3 to 5/3) crushing to 10YR 4/4 heavy silt loam; moderate fine subangular blocky structure; friable; light gray (10YR 7/2) thin silt coatings patchy on peds; silt coatings disappear on wetting; common roots; pH 6.0; clear wavy boundary.
B21 16553	16 to 22 inches. Dark yellowish brown (10YR 4/4) crushing to 10YR 5/4 silty clay loam; moderate very fine and fine subangular blocky structure; firm; light gray (10YR 7/2) thin silt coatings discontinuous on peds; coatings not evident upon wetting; common roots; pH 6.0; gradual wavy boundary.
B22 16554	22 to 32 inches. Dark yellowish brown (10YR 4/4) crushing to 10YR 4/4 to 5/4 heavy silty clay loam; moderate medium subangular blocky structure breaking to moderate fine subangular blocks; firm; dark brown (10YR 4/3) thin clay coatings continuous on all ped surfaces; common roots; pH 6.0; gradual smooth boundary.
B31 16555	32 to 41 inches. Dark yellowish brown (10YR 4/4) crushing to 10YR 4/4 to 5/4 silty clay loam; moderate coarse subangular blocky structure breaking to moderate fine subangular blocks; firm; light gray (10YR 7/2) thin silt coatings discontinuous on all faces, disappear on wetting; also dark yellowish brown (10YR 4/4) thin clay coatings discontinuous on vertical surfaces; common roots; pH 5.6; diffuse wavy boundary.
B32 16556(41 to 50 inches) 16557(50 to 60 inches)	41 to 60 inches plus. Yellowish brown (10YR 5/4) crushing to same color heavy silt loam to light silty clay loam; weak coarse prismatic structure breaking to moderate coarse and medium subangular blocks; coatings the same as in above horizon; common roots; few black (N 2/) iron-manganese concretions; pH 5.6 to 6.0.

Remarks: Six 3-inch soil cores were taken in each of the following horizons: A1, 2 to 5 inches; A2, 8 to 11 inches; B22, 22 to 25 inches; and B32, 48 to 51 inches. No carbonates to a depth of 70 inches. pH determined with Hellige-Truog pH kit in the field.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Fayette silt loam SOIL Nos. 11[a] LOCATION Ogle County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. D3492 - D3509

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	6A3a Organic matter by H_2O_2	Coarse fragments 3B1: 2A2 ≥ 2	Coarse fragments 3B1: 2 – 19	Coarse fragments 3B1: 19 – 76
		Pct. of < 2 mm												Pct.	Pct.	Pct. of < 76mm	
0–2½		9.2	75.2	15.6	0.3	0.8	0.5	1.2	6.4	36.3	38.9	43.3	2.8	5.9	tr.		
2½–5½		8.2	77.7	14.1	0.3	0.8	0.4	0.9	5.8	37.3	40.4	43.7	2.4	2.9	tr.		
5½–9½		9.4	77.8	12.8	0.1	0.7	0.5	1.0	7.1	37.7	40.1	45.4	2.3	0.9	tr.		
9½–13½		7.2	75.8	17.0	0.1	0.4	0.4	0.5	5.8	38.3	37.5	44.4	1.4	0.5	-		
13½–16½		7.3	72.2	20.5	-	0.3	0.3	0.6	6.1	36.3	35.9	42.7	1.2	0.4	-		
16½–20		6.7	68.7	24.6	-	0.2	0.2	0.4	5.9	34.9	33.8	41.0	0.8	0.5	tr.		
20–23½		6.0	66.9	27.1	-	0.2	0.2	0.3	5.3	34.6	32.3	40.0	0.7	0.4	-		
23½–27½		6.1	64.9	29.0	-	0.1	0.2	0.3	5.5	33.6	31.3	39.3	0.6	0.3	-		
27½–32		5.5	63.4	31.1	-	0.1	0.1	0.3	5.0	33.8	29.6	39.0	0.5	0.5	-		
32–36		5.8	63.4	30.8	-	0.1	0.1	0.3	5.3	33.0	30.4	38.4	0.5	0.4	-		
36–40		6.3	64.3	29.4	-	0.1	0.2	0.3	5.7	34.7	29.6	40.6	0.6	0.4	-		
40–44		6.0	66.1	27.9	-	0.1	0.2	0.3	5.4	36.4	29.7	42.0	0.6	0.3	tr.		
44–47		6.0	66.7	27.3	-	0.2	0.3	0.4	5.1	36.6	30.1	41.9	0.9	0.3	tr.		
47–50		5.0	68.6	26.4	-	0.1	0.4	0.4	4.1	35.8	32.8	40.1	0.9	0.1	-		
50–55		4.8	70.0	25.2	-	0.1	0.4	0.4	3.9	37.5	32.5	41.5	0.9	0.1	-		
55–63		5.1	69.2	25.7	-	0.2	0.8	0.8	3.3	35.1	34.1	38.7	1.8	0.2	-		
63–72		9.4	67.2	23.4	-	1.5	1.5	3.1	3.3	35.6	31.6	40.0	6.1	0.1	-		
77½–84		55.7	31.0	13.3	3.9	9.2	15.9	20.3	6.4	15.0	16.0	30.0	40.3	0.1	37		

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	pH	8C1c (1:1) KCl	8C1a (1:1) H_2O	8D3 Ca/Mg	Base saturation: 5C3 Sum cations	Base saturation: 5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
0–2½	10.7	5.0				4.5						6.8		78	
2½–5½	3.3	2.3				8.5						5.4		40	
5½–9½	1.5	1.2				5.7						4.9		32	
9½–13½	3.2	1.7				5.1						5.0		49	
13½–16½	4.7	2.2				5.6						5.0		55	
16½–20	6.0	2.7				6.6						5.0		57	
20–23½	7.3	3.1				6.9						4.9		60	
23½–27½	8.6	3.8				7.4						4.9		63	
27½–32	10.2	4.3				7.5						5.0		66	
32–36	10.6	4.4				7.1						5.0		68	
36–40	10.4	4.4				6.7						5.0		69	
40–44	10.3	4.2				6.1						5.1		70	
44–47	10.4	4.0				6.0						5.2		71	
47–50	10.6	4.1				5.4						5.1		73	
50–55	10.6	4.0				5.5						5.2		73	
55–63	10.5	4.0				4.9						5.2		75	
63–72	9.8	3.7				4.8						5.3		74	
77½–84	5.1	1.8				3.1						5.5		69	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Part of Project Z-1-2-8

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Fayette silt loam
Soil No.: 11[a]
Location: Ogle County, Illinois. NW 1/4 of SW 1/4 of Sec. 24, T 24 N, R 7 E.
Vegetation and land use: Vegetation chiefly oaks, with undergrowth of brush and sparse grass cover. A few small ash trees, cherry, hazel and dogwood.
Slope and land form: 5 percent north.
Sampled by and date: H. Wascher, E. P. Whiteside, and R. J. Muckenhirn, September 25, 1944.
Described by: R. J. Muckenhirn

Horizon and Beltsville Lab. No.	
Not Sampled	One-half inch of partially decomposed leaves, twigs, acorns and grass.
D3492	0 to 2 1/2 inches. Brownish gray silt loam; fine granular structure; contains much partly decomposed organic matter; many fine roots.
D3493	2 1/2 to 5 1/2 inches. Light brownish gray to brownish gray silt loam. Fine granular structure; friable; roots abundant but predominantly less than one-fourth inch in diameter.
D3494	5 1/2 to 9 1/2 inches. Light brownish gray to light yellowish brown silt loam; thin platy in place, breaks to fine granular structure; friable; wormholes and worm casts fairly abundant; roots up to one inch in diameter moderately abundant.
D3495	9 1/2 to 13 1/2 inches. Moderate yellowish brown silt loam; medium platy in place; breaking to flattened coarse granules, irregularly coated with silica flour; friable; wormholes and casts abundant; roots common but predominantly of one-eighth inch in diameter or smaller.
D3496	13 1/2 to 16 1/2 inches. Moderate yellowish brown "heavy" silt loam of irregular fine blocky structure; moderately coated with silica flour; few pores and occasional dark specks; wormholes and casts not abundant; roots few up to one-half inch in diameter. Friable.
D3497	16 1/2 to 20 inches. Moderate yellowish brown silty clay loam of medium blocky structure; moderately firm; slightly vesicular; irregularly coated with silica flour; wormholes are very few in number; few roots.
D3498	20 to 23 1/2 inches. Dark yellowish brown silty clay of medium blocky structure; compact and moderately firm; abundantly sprinkled with silica flour, very slightly vesicular and compact; worm activity not evident, roots very few.
D3499	23 1/2 to 27 1/2 inches. Dark yellowish brown to moderate brown silty clay of medium blocky structure; very hard, compact; thickly sprinkled with silica flour; very slightly vesicular; roots few.
D3500	27 1/2 to 32 inches. Moderate brown silty clay of medium blocky structure; similar to layer above.
D3501	32 to 36 inches. Moderate brown silty clay, similar to layer above.
D3502	36 to 40 inches. Dark yellowish brown silty clay. Similar to layer above.
D3503	40 to 44 inches. Moderate yellowish brown silty clay loam of medium-to-coarse blocky structure; slightly vesicular; firm; occasional specks of reddish brown mottlings on interior of aggregates.
D3504	44 to 47 inches. Light to moderate yellowish brown silty clay loam of coarse blocky structure; dark brown coatings, slightly vesicular; firm; roots very few; silica flour present in moderate coatings; slight specks of mottlings of dark brown or yellowish brown fairly numerous on interior of aggregates.
D3505	47 to 50 inches. Light yellowish brown silty clay loam; coarse blocky structure; moderately vesicular and occasionally splotched with weak brown.
D3506	50 to 55 inches. Light yellowish brown heavy silt loam; coarse blocky structure; lightly mottled with dark yellowish brown, moderate coatings of silica flour, slightly vesicular with some pores up to one-half mm in diameter; occasional splotches of weak brown on the surface; roots practically absent, little evidence of worm activity.
D3507	55 to 63 inches. Same as above.
D3508	63 to 72 inches. Light yellowish brown silt loam with occasional sand grains.
Not Sampled	72 to 77 1/2 inches. Mixture of above and next sample.
D3509	77 1/2 to 84 inches. Moderate brown gravelly sandy loam; noncalcareous; glacial pebbles from one-fourth to one and one-half inch in diameter present.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Fayette silt loam SOIL Nos. 855Ill-75-1 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551777 - 551785

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap		84.8	12.6	-	0.2	0.2	0.4	1.8		36.4	50.3				-		
8-13	A2		83.1	14.1	-	0.1	0.2	0.4	2.1		36.1	49.3				-		
13-17	A3		76.5	22.1	-	-	0.1	0.1	1.2		37.0	40.7				-		
17-24	B21		66.3	32.2	-	-	-	0.1	1.4		34.7	33.0				-		
24-32	B22		65.0	33.9	-	-	-	0.1	1.0		36.8	29.2				-		
32-40	B23		68.5	30.2	-	-	-	0.1	1.2		38.6	31.1				-		
40-49	B3		70.3	28.2	-	-	-	0.1	1.4		37.0	34.7				-		
49-57	C		71.7	27.3	-	-	0.1	0.1	0.8		38.6	33.9				-		
57-73			74.4	24.7	-	-	-	0.1	0.8		41.9	33.3				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	1.07															7.2
8-13	0.57															6.4
13-17	0.34															4.6
17-24	0.34															4.7
24-32	0.27															4.8
32-40	0.21															4.9
40-49	0.17															5.0
49-57	0.17															5.1
57-73	0.15															5.3

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-8	9.8	0.8	0.1	0.3		1.6	12.6								88	
8-13	6.2	0.7	0.1	0.2		3.2	10.4								69	
13-17	5.7	1.8	0.1	0.3		7.2	15.1								52	
17-24	8.7	4.4	0.1	0.4		9.3	22.9								59	
24-32	10.7	5.7	0.1	0.4		8.7	25.6								66	
32-40	9.7	5.4	0.2	0.4		8.1	23.8								66	
40-49	9.6	6.2	0.2	0.4		7.3	23.7								69	
49-57	9.8	5.1	0.3	0.4		6.6	22.2								70	
57-73	9.5	5.0	0.3	0.3		5.7	20.8								72	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Fayette silt loam
Soil No.: S55Ill-75-1
Location: Pike County, Illinois. T4S - R6W - Sec. 24 - NE160 - NW40 - SW corner 125 feet E. of center of gr. rd. - 9 feet N. of wire fence.
Vegetation and land use: Rotation pasture
Slope and land form: 7 percent.
Erosion: None
Drainage: Well drained
Permeability: Moderate
Parent Material: Peorian loess 100 inches.
Physiography: Top of rounded ridge of deep loess over cherty limestone.
Sampled by and date: Herman L. Wascher, George O. Walker, and Charles E. Downey. October 17, 1955.

Horizon and Beltsville Lab. No.	
Ap 551777	0 to 8 inches. Dark grayish brown (10YR 4/2) silt loam, weak, fine to medium crumb structure, friable. Numerous wormholes.
A2 551778	8 to 13 inches. Brown (10YR 5/3), silt loam, weak, fine, platy structure, friable. Numerous wormholes.
A3 551779	13 to 17 inches. Dark brown (7.5YR 3.5/4.5) slightly coated with light brownish gray (10YR 6/2), silt loam, weak, fine, subangular blocky structure, friable, numerous wormholes.
B21 551780	17 to 24 inches. Same color as A3 horizon except it is more highly coated, silty clay loam, weak columns in place which breaks to a strong, medium, subangular blocky structure, firm.
B22 551781	24 to 32 inches. Dark brown (7.5YR 4/4) slightly coated with light brownish gray (10YR 6/2) and brown (7.5YR 4.5/3.5) clay skins, silt loam, weak columns in place which break to a strong, coarse, subangular blocky structure. Firm.
B23 551782	32 to 40 inches. Yellowish brown (10YR 5/4) coated with light brownish gray (10YR 6/2) and brown (7.5YR 4.5/3.5) distinct clay skins, silty clay loam, moderate columns in place which break to large peds of strong, coarse, subangular blocky to irregular blocky structure. Firm.
B3 551783	40 to 49 inches. Yellowish brown (10YR 5/4) coated with light brownish gray (10YR 6/2) and dark brown (7.5YR 4/4) clay skins, light silty clay loam, vesicular, moderate, coarse, subangular blocky structure. Firm.
C 551784	49 to 57 inches. Yellowish brown (10YR 5/4) coated with light brownish gray (10YR 6/2) and mottled with a few, fine, prominent strong brown (7.5YR 5/6) mottles, heavy silt loam, weak, moderate to coarse subangular blocky structure. Manganese concretions.

Notes: The D horizon was not observed in the pit, however, cherty limestone was observed in the road ditch. Colors refer to moist soil.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Fayette silt loam SOIL Nos. S55Il1-75-10 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551858 - 551866

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm													Pct.	Pct. of < 76mm		
0-7	A1		81.6	16.2	-	0.1	0.1	0.3	1.7		37.3	46.1				-		
7-12	A2		81.1	14.7	-	0.1	0.1	0.3	3.7		33.3	51.7				-		
12-17	B1		73.9	23.8	-	-	-	0.2	2.1		31.3	44.8				-		
17-23	B21		66.5	32.3	-	-	-	0.0	1.2		31.7	36.0				-		
23-31	B22a		64.6	33.6	-	-	-	0.1	1.7		33.2	33.1				-		
31-39	B22b		67.5	30.3	-	-	0.1	0.2	1.9		34.8	34.7				-		
39-48	B23		69.3	28.6	-	-	-	0.1	2.0		34.8	36.5				-		
48-68	B3		72.1	26.8	-	-	-	0.1	1.0		37.1	36.0				-		
68-78	C		73.5	23.9	-	0.3	0.6	1.0	0.7		47.1	27.5				-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Bulk density			4D1	Water content				4C1	pH		
					Carbonate as $CaCO_3$	Ext. iron as Fe		4A1e ⅓ bar	4A1h Oven dry	COLE		4B1c ⅓ bar	4B2 15 bar	WRD		8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		KCl	H_2O
0-7	1.93																6.6
7-12	0.50																6.0
12-17	0.34																5.4
17-23	0.29																4.9
23-31	0.27																4.9
31-39	0.22																5.0
39-48	0.14																4.8
48-68	0.16																5.0
68-78	0.14																5.3

Depth (In.)	Extractable bases 5B1a					6H1a	CEC		6G1d				8D3	Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	Ext. acidity	5A3a Sum cations		Ext. Al	CEC Sum	Ratios to clay: Ext. iron	15-bar water	Ca/Mg	5C3 Sum cations	5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
0-7	12.2	2.0	0.1	0.7		3.8	18.8							80	
7-12	5.1	1.6	0.1	0.3		3.6	10.7							66	
12-17	7.1	3.2	0.1	0.4		5.6	16.4							66	
17-23	9.7	5.1	0.1	0.6		8.9	24.4							64	
23-31	10.4	5.8	0.1	0.6		9.4	26.3							64	
31-39	9.2	6.0	0.2	0.5		9.1	25.0							64	
39-48	8.0	5.9	0.2	0.5		8.9	23.5							62	
48-68	8.8	5.9	0.2	0.4		7.5	22.8							67	
68-78	8.6	5.3	0.3	0.3		5.9	20.4							71	

Depth (In.)	Clay Fraction Analysis 7Alb-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Fayette silt loam
Soil No.: S55Ill-75-10
Location: Pike County, Illinois. T4S - R6W - Sec. 7 - SW160 - SE 40 - SW 10 - 35 rds. N. of sec. line, 22 yds. E. of center of gravel road, about 24 yds. S. of woods.
Vegetation and land use: Hardwood trees - Hackberry, Hickory, Elm, etc.
Slope and land form: 9 percent.
Erosion: Slight
Drainage: Well
Permeability: Moderate
Parent Material: 98 inches of Peorian loess over cherty limestone.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. November 8, 1955.

Horizon and Beltsville Lab. No.	
A1 551858	0 to 7 inches. Very dark grayish brown to dark brown (10YR 3/2 to 4/3), silt loam, moderate, fine, crumb structure. Friable.
A2 551859	7 to 12 inches. Dark brown to yellowish brown (10YR 3.5/3 to 5/4), silt loam coated with common, fine, distinct light gray (dry) (10YR 7/2), weak, medium to coarse, crumb structure. Friable.
B1 551860	12 to 17 inches. Dark brown (7.5YR 4/4), light silty clay loam coated with light brownish gray (dry) (10YR 6/2), moderate to strong, fine to medium, subangular blocky structure. Friable.
B21 551861	17 to 23 inches. Dark brown (7.5YR 4/4), silty clay loam coated with light brownish gray (dry) (10YR 6/2), strong, medium, subangular blocky structure. Firm.
B22a 551862	23 to 31 inches. Dark brown (7.5YR 4/4), silty clay loam coated with light brownish gray (dry) (10YR 6/2) and reddish brown (5YR 4/3) clay skins, strong, coarse, subangular blocky structure. Firm.
B22b 551863	31 to 39 inches. Same as B22a layer.
B23 551864	39 to 48 inches. Dark brown (7.5YR 4/4), silty clay loam coated with light brownish gray (dry) (10YR 6/2) and reddish brown (5YR 4/3) clay skins, moderate, coarse, subangular blocky structure. Hard when dry.
B3 551865	48 to 68 inches. Dark brown (7.5YR 4/4), light silty clay loam, coated with light brownish gray (dry) (10YR 6/2) and reddish brown (5YR 4/4) clay skins, weak, coarse subangular, blocky structure. Hard when dry.
C 551866	68 to 78 inches. Dark brown (7.5YR 4/4), silt loam coated with reddish brown (5YR 4/4) and white (10YR 8/1) dry.
D Not Sampled	98 inches plus. Boring - cherty limestone.

Notes: Colors refer to moist soil unless indicated otherwise.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Frankfort silty clay loam SOIL Nos. 851I11-99-1 LOCATION Will County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 511095 - 511098

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	Ap	17.6	48.1	34.3	1.0	2.0	3.2	7.5	3.9	15.0	33.1	23.1	13.7			Tr.		
6-12	B1	17.2	42.8	40.0	0.8	2.0	3.1	7.5	3.8	12.3	30.5	20.3	13.4			2		
12-22	B2	7.6	33.2	59.2	0.4	1.0	1.2	3.0	2.0	6.0	27.2	9.8	5.6			Tr.		
22+	C	10.5	46.6	42.9	1.8	1.6	1.4	3.2	2.5	10.9	35.7	15.4	8.0			2		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-6	2.42															5.8
6-12	1.62															6.0
12-22	0.86															6.6
22+	0.30															8.0

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al	Ratios to clay CEC Sum	Ratios to clay Ext. Iron	Ratios to clay 15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g													

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Frankfort silty clay loam.
Soil No.: S51Il1-99-1
Location: Will County, Illinois. T. 35 N., R. 12 E., Sec. 29, SE 1/4, SW 40, SW 10.
Vegetation and land use: Prairie - timber.
Slope and land form: 3 percent to S.
Sampled by and date: P. T. Veale and B. W. Ray. October 22, 1951.

Horizon and Beltsville Lab. No.	
Ap 511095	0 to 6 inches. Broken 10YR 5/2, same crushed, very weak subangular to granular silty clay loam.
B1 511096	6 to 12 inches. 10YR 5/2 spotted with 10YR 6/3, subangular blocky 1/4 inch to 3/4 inch silty clay.
B2 511097	12 to 22 inches. Broken 10YR 5/1 with some organic coatings, 10YR 6/3 crushed, strong angular blocky 1/4 inch to 3/4 inch clay.
C 511098	22 inches plus. Broken 10YR 7/1, angular blocky 1/2 inch to 1-1/2 inch silty clay.

Notes: Core samples also taken across paved road from sampling site.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Grantsburg silt loam SOIL Nos. 849Il1-76-1 LOCATION Pope County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 5098 - 50104

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm													Pct.	Pct. of < 76mm	
1-6½	A2		84.6	13.0	-	0.3	0.3	0.9	0.9		46.6				-		
12-17	B11		71.1	26.4	-	0.4	0.4	0.8	0.9		43.7				-		
20-24	B13		75.1	21.2	0.2	1.0	0.6	0.8	1.1		46.7				-		
24-27	B21		66.2	31.3	0.1	0.5	0.4	0.7	0.8		40.7				-		
27-33	B22		65.8	32.1	-	0.2	0.3	0.7	0.9		39.9				-		
38-45	B23		73.3	25.0	-	0.1	0.1	0.6	0.9		43.4				-		
52-61	B31		78.6	18.0	0.1	0.1	0.2	1.6	1.4		41.3				-		

Depth (in.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density			4D1	Water content				4C1	pH		
								4A1e	4A1h			4B1c	4B2			8C1c	8C1a	
								⅓ bar	Oven dry	COLE		⅓ bar	15 bar		WRD	(1:1)	(1:1)	
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in	KCl	H_2O	
1-6½	0.72																4.2	
12-17	0.24																4.7	
20-24	0.14																4.6	
24-27	0.17																4.6	
27-33	0.10																4.5	
38-45	0.05																4.6	
52-61	0.03																5.2	

Depth (in.)	Extractable bases 5B1a					6H1a Ext. acidity	CEC		6G1d Ext. Al		Ratios to clay			8D3 Ca/Mg		Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum		5A3a Sum cations				CEC Sum	Ext. iron	15-bar water			5C3 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.
1-6½	0.5	0.3	0.2	0.3		8.7	10.2									14	
12-17	1.2	3.0	0.1	0.3		12.1	16.7									28	
20-24	1.0	3.2	0.1	0.3		11.8	16.4									28	
24-27	2.6	6.6	0.1	0.4		14.0	23.7									41	
27-33	3.5	7.8	0.2	0.3		13.3	25.1									47	
38-45	4.1	7.4	0.5	0.3		9.2	21.5									57	
52-61	4.2	5.5	0.7	0.2		4.6	15.2									70	

Depth (in.)	Clay Fraction Analysis 7A1b-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Grantsburg silt loam
Soil No.: S49Ill-76-1
Location: Pope County, Illinois. T. 13S., R. 5E., Sec. 4, NW 1/4, NW 40, NE 10.
Vegetation and land use: Oak-hickory deciduous cover (forest) with undergrowth of small trees and shrubs.
Slope and land form: 7-1/2 percent.
Sampled by and date: J. B. Fehrenbacher, J. E. Giesaking, W. S. Ligon, R. T. Odell, Guy D. Smith, T. T. Veale, Herman L. Wascher, and E. P. Whiteside. November 4, 1949.

Horizon and Beltsville Lab. No.	
A1 Not Sampled	0 to 1 inch. (10YR 3/2) friable silt loam, fine to medium crumb.
A2 5098	1 to 6-1/2 inches. (10YR 5/3) friable silt loam, weakly developed coarse crumb, abundant roots, infrequent wormholes with occasional hole filled with A1 material.
A3 Not Sampled	6-1/2 to 12 inches. (7.5YR 5/6) friable heavy silt loam, weakly developed fine to coarse crumb, abundant roots, numerous fine wormholes. Horizon boundaries gradational.
B11 5099	12 to 17 inches. (7.5YR 5/6) slightly firm light silty clay loam, weakly developed fine granular arranged into weak subangular blocky. Abundant roots, root and fine worm channels. Horizon boundaries gradational.
B12 Not Sampled	17 to 20 inches. (8YR 5/6) slightly firm very heavy silt loam or light silty clay loam, moderately developed subangular blocky aggregates, occasional black iron-manganese concretion, frequent roots and root channels. Horizon boundaries gradational.
B13 50100	20 to 24 inches. (9YR 5/4) friable heavy silt loam, weakly developed medium subangular blocky, occasional black iron-manganese concretions. Frequent roots and root channels, upper boundary gradational, lower boundary sharp. and (10YR 7/1) (40-50).
B21 50101	24 to 27 inches. (10YR 5/3) (50-60 percent), latter occuring both as pockets and coatings slightly compact light silty clay loam, well developed subangular blocky aggregates heavily gray coated (10YR 7/1) occasional small iron-manganese concretions, frequent roots and channels, upper boundary sharp, lower boundary gradational.
B22 50102	27 to 33 inches. (9YR 5/4) (60 percent) mottled (7.5YR 5/8) (20 percent) and (10YR 7/1) (20 percent), compact silty clay loam, well developed medium to coarse subangular blocky aggregates, some coated (10YR 8/1) and others coated waxy (10YR 4/4), occasional to frequent roots, upper boundary sharp, lower gradational.
	33 to 38 inches. Same as horizon above.
B23 50103	38 to 45 inches. Colors similar to layer above, compact heavy silt loam, weakly developed coarse subangular blocky with gray coatings less abundant and waxy material restricted to fine wormholes and root channels, occasional root and occasional vertical gray channel (old root channels?) 1-1 1/2 inches wide with strong brown (7.5YR 5/6) streaks. Horizons gradational.
	45 to 52 inches. Same as horizon above.
B31 50104	52 to 61 inches. Dominantly (10YR 5/4) mottled with (10YR 6/2) and (10YR 6/8), compact silt loam, very coarse blocky to nearly massive, cleavage faces coated (10YR 4/4), black iron-manganese concretions occasional fine wormhole and root channel filled with waxy (10YR 4/4) material, gray channels from above continue into this layer. Horizon boundaries gradational.
B32 Not Sampled	61 to 71 inches. Similar to above except slightly lighter texture and more massive appearing. Very few roots.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hagener loamy sand SOIL Nos. 850Ill-51-5 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 501319 - 501323

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-14	A1		9.1	6.6	0.7	11.0	36.6	32.4	3.6		5.3	18.6				1		
14-26	A3		9.4	6.3	0.6	11.1	37.1	31.8	3.5		5.3	18.2				1		
26-34	C1		8.4	5.7	1.1	11.9	38.6	31.3	3.0		5.4	16.5				1		
34-80	C2		3.1	3.8	1.5	20.8	53.1	16.8	0.9		2.4	5.3				4		
80-110	C3		3.7	4.2	3.1	21.5	46.2	20.4	0.9		3.0	5.7				4		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-14	0.42															6.0
14-26	0.19															5.8
26-34	0.12															5.8
34-80	0.01															5.8
80-110	0.03															6.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8O3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-14	4.1	0.3	0.1	0.2		3.5									57	
14-26	2.6	0.3	0.1	0.1		2.7									53	
26-34	2.5	0.3	0.1	0.1		2.4									56	
34-80	1.7	0.2	0.1	0.1		1.2									64	
80-110	2.0	0.4	0.1	0.1		1.2									68	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hagener loamy sand.
Soil No.: S50Ill-51-5
Location: Lawrence County, Illinois. NW 1/4 SW40 Sec. 10, T.3N R.11W.
Vegetation and land use: Plowed for wheat.
Slope and land form: 1-1/2 to 2 percent.
Erosion: None
Drainage: Very good.
Parent Material: Sandy water-laid and wind reworked sediments.
Sampled by and date: W. R. Oschwald, E. G. Knox, R. H. Ruse, and J. B. Fehrenbacher. August 7, 1950.

Horizon and Beltsville Lab. No.	
A1 501319	0 to 16 inches. Dark reddish brown (5YR 2.5/2) heavy loamy sand.
A3 501320	16 to 26 inches. Dark reddish brown (5YR 3/2) to dark brown (7.5YR 3/2) loamy sand to sand.
C1 501321	26 to 34 inches. Dark reddish brown (5YR 3/4) medium sand.
C2 501322	34 to 80 inches. Dark brown (7.5YR 4/4) and brown (10YR 4/3) medium sand.
C3 501323	80 to 110 inches. Dark brown (7.5YR 4/4) medium sand very faint hint of iron accumulation.
Not Sampled	110+ inches. Gravel or loamy gravel.

Notes: Colors determined on moist samples in the field.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Herrick silt loam **LOCATION** Macoupin County, Illinois

SOIL NOS. S60Il1-59-1 **LAB. NOS.** 14322-14331

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-8	Ap	0.2a	1.1	1.9	3.5	1.9	74.2	17.2	37.8	39.9	-	
8-10	A12	0.4b	1.4b	1.9	3.2	1.8	69.7	21.6	35.1	37.8	-	
10-15	A2	0.4c	1.3c	2.0	3.1	1.7	70.0	21.5	33.5	39.6	-	
15-19	B1	0.5c	1.2b	1.8	3.0	1.7	66.4	25.4	35.2	34.3	-	
19-24	B21	1.4c	1.6c	1.6a	2.6a	1.6a	61.5	29.7	30.2	34.1	Tr.	
24-30	B22	0.8c	1.8c	1.5a	2.2a	1.4a	56.6	35.7	27.9	31.1	Tr.	
30-41	B23	0.1c	0.8c	0.9b	1.5b	1.1b	59.4	36.2	25.8	35.4	Tr.	
41-48	B31	0.3c	0.9c	0.9b	1.5b	1.2b	64.0	31.2	29.0	36.9	Tr.	
48-56	B32	0.4c	0.7c	0.9b	1.4a	1.3a	67.1	28.2	30.3	38.8	-	
56-63	C1	0.3a	0.9a	1.6	2.4	1.7	70.9	22.2	38.6	35.1	-	

8C1a pH 1:1	6E1c Carbonate as $CaCO_3$ %	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	4A1a g/cc	30-Cm. 4B3 % W.	4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
5.7		1.74	0.134	13	0.6						8.6
5.7		1.53	0.123	12	0.6						10.2
5.7		1.24	0.101	12	0.6	6.2	1.50	24.0	1.37	1.47	10.9
5.9		0.92	0.080	12	0.8						12.5
6.0		0.70	0.068	10	1.4						15.0
6.3		0.46			1.6						16.4
6.4		0.28			1.7	11.6	1.76	24.3	1.51	1.77	16.9
6.5	-	0.18			2.1						15.0
6.4		0.14			2.2						14.1
6.5	-	0.10			0.7	19.1	1.60	25.6	1.52	1.70	10.1

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC %	on Sum Cations 5C1 %	Ratios to Clay 8D1 NH_4OAc CEC	Ext. Iron	Water at 15 Atm.	8D3 Ca/Mg
← milliequivalents per 100g. soil →						→		5C3				
16.8	13.3	2.7	5.7	0.1	0.3	22.1	98	74	.98	.035	.50	4.9
19.5	13.9	3.7	6.2	0.1	0.3	24.2	92	74	.90	.028	.47	3.8
19.3	13.5	3.7	5.7	0.1	0.4	23.4	92	76	.90	.028	.51	3.6
20.0	13.7	5.0	5.3	0.1	0.4	24.5	96	78	.79	.031	.49	2.7
23.8	16.0	7.0	5.3	0.1	0.5	28.9	99	82	.80	.047	.50	2.3
25.8	17.7	8.5	4.8	0.2	0.5	31.7	104	85	.72	.045	.46	2.1
26.3	18.4	9.3	3.9	0.2	0.5	32.3	108	88	.73	.047	.47	2.0
22.9	15.5	8.1	3.6	0.3	0.4	27.9	106	87	.73	.067	.48	1.9
19.6	13.4	6.9	3.6	0.3	0.4	24.6	107	85	.70	.078	.50	1.9
15.0	9.8	5.1	2.2	0.2	0.3	17.6	103	88	.68	.032	.45	1.9

a. Few Fe-Mn nodules.
b. Common Fe-Mn nodules.
c. Many Fe-Mn nodules.

Soil type: Herrick silt loam
Soil Nos. : S60Ill-59-1
Location: Macoupin County, Illinois; T10N, R6W, Section 36, NE160, NE40, NE10, 540 feet south and 655 feet west of northeast corner of NE10 in center of "T" road junction (route 108 and road to south).
Parent material: Loess. Drainage: Imperfect, somethwat poorly.
Classification: Brunizem-Planosol intergrade. Slope: 1/2 percent to southwest. Erosion: None.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Corn, near soybeans sown to wheat.
Described by: F. J. Carlisle, J. B. Fehrenbacher, C. E. Downey, G. O. Walker, D. B. Phillips, and J. F. Steinkamp, October 18, 1960.

Horizon and Lincoln Lab.No.	
Ap 14322	0 to 8 inches. Very dark gray (10YR 3/1) to very dark brown (10YR 2/2) silt loam; dry colors dark gray (10YR 4/1) with common spots 1- to 2-mm. across of gray to light gray (10YR 6/1); cloddy (massive) to very weak medium granular structure; friable; considerable gray (10YR 6/1 dry) silt flecks; many grayish brown (10YR 5/2 moist) segregated silt patches 1- to 2-mm. across; few fine pores, quite compact; few to common very dark grayish brown (10YR 3/2 moist) iron concretions; pH 6.0; abrupt smooth boundary.
A12 14323	8 to 10 inches. Black (10YR 2/1) silt loam; dark gray (10YR 4/1 dry) with many blanched silt grains on ped surfaces; moderate fine subangular blocky structure arranged in weak medium to thick plates due to plow sole; friable; common gray (10YR 6/1 dry) grainy silt coats; few fine pores throughout; common fine very dark grayish brown (10YR 3/2) iron concretions; pH 5.7; clear smooth boundary.
A2 14324	10 to 15 inches. Black (10YR 2/1) to very dark gray (10YR 3/1) silt loam with 25 percent of area having color of dark grayish brown (10YR 4/2); dry colors are faintly variegated dark gray (10YR 4/1) and dark grayish brown (10YR 4/2); moderate fine subangular blocky structure arranged very weakly in medium plates; friable; many blanched grayish brown (10YR 5/2 wet) or gray (10YR 6/1 dry) silt grains on ped surfaces; many fine pores throughout peds; common fine very dark grayish brown (10YR 3/2) concretions; pH 5.7; clear smooth boundary.
B1 14325	15 to 19 inches. Black (10YR 2/1) to very dark gray (10YR 3/1) silty clay loam with very dark grayish brown (10YR 3/2) ped interiors; few fine distinct yellowish brown (10YR 5/8) mottles; dry colors of ped surfaces dark gray (10YR 4/1) and dark grayish brown (10YR 4/2) in fine faint pattern; moderate to strong fine and medium subangular blocky and blocky structure; firm to friable; few very dark gray (10YR 3/1) clay films; common grayish brown (10YR 5/2 moist) or gray (10YR 6/1 dry) silt grains; many fine pores; many 10YR 3/2 and 10YR 2/2 iron concretions; pH 6.0; clear smooth boundary.
B21 14326	19 to 24 inches. Mixed very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 4/4) heavy silty clay loam; few fine faint yellowish brown (10YR 5/8) mottles; dry colors of ped surfaces dark gray (10YR 4/1) mottled with grayish brown (10YR 5/2) and brown (10YR 5/3) in a fine faint pattern; moderate medium prismatic structure breaking to weak medium and fine blocks; firm; thick clay films of very dark gray (10YR 3/1) on most peds; some scattered patches of blanched silt grains; many fine pores in clay films and inside peds; some root tracks in clay films; fine structure easily penetrated by roots; many medium very dark brown (10YR 2/2) and very dark grayish brown (10YR 3/2) iron concretions; pH 6.2; gradual smooth boundary.
B22 14327	24 to 30 inches. Light olive brown (2.5Y 5/4) heavy silty clay loam with common fine prominent yellowish brown (10YR 5/8) and few fine distinct olive (5Y 5/3) mottles; strong medium prismatic structure breaking to moderate medium and coarse blocks; firm; thick clay films of very dark gray (10YR 3/1) and black (10YR 2/1) on prisms and all block faces; few to many fine pores and many root tracks in clay films; many very dark grayish brown (10YR 3/2) iron concretions; pH 6.4; gradual smooth boundary.
B23 14328	30 to 41 inches. Mixed olive gray (5Y 5/2) and olive (5Y 5/3) heavy silty clay loam with many medium prominent yellowish brown (10YR 5/8) mottles; strong medium and coarse prismatic structure which breaks to medium coarse blocks; peds almost cubical; firm to very firm; moderately thick dark gray (10YR 4/1) and very dark gray (10YR 3/1) clay films on prism faces and on vertical and horizontal block faces; many root tracks in clay films; many fine pores in peds lined with 10YR 4/1 and 10YR 3/1; many very dark brown (10YR 2/2) and very dark grayish brown (10YR 3/2) iron concretions; pH 6.5; gradual smooth boundary.
B31 14329	41 to 48 inches. Mixed olive gray (5Y 5/2) and olive (5Y 5/3) silty clay loam with many coarse prominent strong brown (7.5YR 5/8) and many medium prominent yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure; firm; moderately thick dark gray (10YR 4/1) and few very dark gray (10YR 3/1) clay films on prisms, not many on horizontal faces; many fine pores and root tracks in clay films; many fine pores inside peds lined with dark gray (10YR 4/1) and very dark gray (10YR 3/1); many very dark grayish brown (10YR 3/2) iron concretions; many corn roots; pH 6.5; gradual smooth boundary.
B32 14330	48 to 56 inches. Light olive gray (5Y 6/2) light silty clay loam with many medium and coarse strong brown (7.5YR 5/8) and yellowish brown (10YR 5/6) mottles; moderate coarse and very coarse prismatic structure; firm; moderately thick dark gray (10YR 4/1) clay films on prisms; many fine and medium pores and root tracks on clay films; numerous pores inside peds; many very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) iron concretions; some corn roots; pH 6.6; gradual smooth boundary.
C1 14331	56 to 63 inches. Mixed gray (10YR 6/1) and light brownish gray (10YR 6/2) silt loam with some pebbles with many medium distinct yellowish brown (10YR 5/4 and 5/8) mottles; massive with few vertical cleavage planes; friable; few very dark gray (10YR 3/1) clay films on cleavage planes; few very dark gray (10YR 3/1) krotovinas 1 to 2 inches in diameter spaced 1 foot apart; common fine pores and some medium and coarse pores; numerous 10YR 3/2 and 10YR 2/2 iron concretions; pH 6.8; clear smooth boundary.
IIC2 Not sampled	63 inches plus. Very dark grayish brown (10YR 3/2) and grayish brown (2.5Y 5/2) gritty silt loam to clay loam, with common fine distinct brown (10YR 4/3) mottles; varved mixed loess and till appears to be water-worked; massive; firm to friable; many very dark grayish brown (10YR 3/2) iron concretions; some fine tubular pores; pH 6.0.

Remarks: In the B22 and B23 horizons the main prisms are 7 to 8 inches in diameter and are loosely packed at this moisture (1/3- to 15-atmospheres) and have 1/2- to 2-mm. cracks between them; occasional pebbles occur throughout profile.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1964

SOIL TYPE Herrick silt loam **LOCATION** Montgomery County, Illinois

SOIL NOS. S60Il1-68-2 **LAB. NOS.** 14312-14321

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.2a	1.1a	1.9a	2.7	1.7	75.0	17.4	36.7	41.3	-	
7-10	A12	0.2b	1.1b	1.6a	2.5	1.6	71.6	21.4	34.7	39.7	-	
10-15	A2	0.4b	1.4b	1.7a	2.6	1.6	70.2	22.1	33.7	39.3	-	
15-18	B11	0.7b	1.3b	1.6a	2.2a	1.4	68.2	24.6	30.1	40.5	-	
18-22	B12	0.8b	1.1b	1.1a	1.7a	1.2a	65.3	28.8	30.2	37.1	-	
22-29	B21	0.2b	0.5b	0.7b	0.9a	0.9a	57.4	39.4	23.9	34.8	-	
29-40	B22	0.5b	1.0b	0.6b	0.9c	0.8c	58.8	37.4	23.6	36.4	-	
40-47	B23	0.2b	0.6b	0.5b	0.7c	0.8c	67.5	29.7	27.5	41.1	-	
47-54	B3	0.2b	0.8b	0.6b	0.8a	0.7a	71.9	25.0	33.3	39.7	-	
54-65	C1	0.2a	0.9	1.2	1.9	1.5	74.2	20.1	37.6	39.0	-	

8C1a pH 1:1	6G1a Al KCl-Ext. me/100g	6E1c Carbonate as $CaCO_3$ %	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density Field-Moist 4B4 % W.	4A1a g/cc	30-Cm. 4B3 % W.	4A1c g/cc	O.D. 4A1h g/cc	4B2 15-Bar Water %
6.3			1.58	0.118	13	0.5						8.3
5.7	-		1.57	0.118	13	0.6						9.8
5.4	-		1.18	0.093	13	0.8	6.7	1.46	25.2	1.36	1.46	9.6
5.5	-		0.92	0.076	12	0.7						11.7
5.6	Tr.		0.73	0.068	11	1.0						13.8
5.4	0.1		0.57	0.056	10	1.2						18.4
5.7	Tr.		0.35			1.5	13.4	1.66	27.2	1.44	1.70	18.3
6.6		-	0.21			1.5						15.2
6.2			0.18			1.5						12.2
6.3			0.12			1.0	18.7	1.58	25.8	1.50	1.63	9.6

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6G2b Mg	6H1a H	6P2a Na	6Q2a K	Sum	Base Sat. on NH_4OAc CEC % 5C1	on Sum Cations % 5C8	Ratios to Clay NH_4OAc CEC	Ext. Iron	8D1 Water at 15 Atm.	8D3 Ca/Mg
←	milliequivalents per 100g. soil					→						
16.9	13.8	3.0	4.0	0.1	0.2	21.1	101	81	.97	.029	.48	4.6
17.6	12.3	3.5	6.5	0.1	0.2	22.6	91	71	.82	.028	.46	3.5
16.2	10.1	3.9	6.7	0.1	0.2	21.0	88	68	.73	.036	.43	2.6
17.9	10.6	4.7	7.0	0.2	0.3	22.8	88	69	.73	.028	.48	2.2
20.3	12.0	6.3	6.7	0.3	0.4	25.7	94	74	.70	.035	.48	1.9
27.6	16.7	9.6	7.2	0.5	0.5	34.5	99	79	.70	.030	.47	1.7
26.9	17.0	10.1	6.8	0.6	0.5	35.0	105	80	.72	.040	.49	1.7
22.5	14.2	8.4	4.6	0.5	0.4	28.1	104	84	.76	.050	.51	1.7
18.0	11.3	6.6	3.8	0.4	0.3	22.4	103	83	.72	.060	.49	1.7
15.0	9.4	5.3	2.6	0.4	0.2	17.9	102	85	.75	.050	.48	1.8

a. Few Fe-Mn nodules.
b. Many Fe-Mn nodules.
c. Common Fe-Mn nodules.

Soil type: Herrick silt loam
Soil Nos. : S60Ill-68-2
Location: Montgomery County, Illinois; T10N, R5W, Section 10, NW160, NE40, NE10, 510 feet south of center of road and 253 feet west of northeast corner of NE10.
Parent material: Loess. Drainage: Somewhat poorly.
Classification: Brunizem intergrading to Planosol. Slope: 1/2 percent to north. Erosion: None.
Physiography: Loess covered Illinoian till plain. Vegetative cover: Soybeans, field sown to wheat.
Described by: G. O. Walker, C. E. Downey, J. B. Fehrenbacher, F. J. Carlisle, V. G. Link, J. F. Steinkamp, and D. B. Phillips, October 18, 1960.

Horizon and Lincoln Lab.No.

Ap 14312 — 0 to 7 inches. Black (10YR 2/1) to very dark gray (10YR 3/1) silt loam with a few small areas of grayish brown (10YR 5/2) segregated silt grains; dry color dark gray (10YR 4/1); weak medium granular structure; friable; few fine pores; pH 6.8; abrupt smooth boundary.

A12 14313 — 7 to 10 inches. Black (10YR 2/1) silt loam with some small (¼ to 2-mm.) flecks of very dark gray (10YR 3/1); dark gray (10YR 4/1 dry) with common concentrations of blanched silt in patches less than 1-mm. across; scattered blanched silt grains on most surfaces; moderate fine subangular blocky structure with weak medium to coarse plates which is probably a plow sole effect; friable when moist; common fine tubular pores; pH 6.5; clear smooth boundary.

A2 14314 — 10 to 15 inches. Very dark gray (10YR 3/1) and dark grayish brown (10YR 4/2) silt loam; colors are in equal proportions; dry colors dark gray (10YR 4/1) and gray (10YR 5/1) in a fine faint pattern; the 5/1 color represents a relatively high concentration of very small (less than 1-mm.) patches of blanched silt; moderate fine subangular blocky structure with weak medium plates or faint horizontal lineation; friable when moist; few very dark gray (10YR 3/1) clay films; some grainy silt coatings grayish brown (10YR 5/2) moist and light gray (10YR 6/1 to 7/1) when dry; many fine pores; common fine very dark grayish brown (10YR 3/2) iron concretions; pH 5.6; clear smooth boundary.

B11 14315 — 15 to 18 inches. Very dark grayish brown (10YR 3/2) to dark grayish brown (10YR 4/2) light silty clay loam with a few fine faint yellowish brown (10YR 5/6) mottles; dry colors gray (10YR 5/1) with fine faint mottles of grayish brown (10YR 5/2) and dark gray (10YR 4/1); moderate fine subangular blocky and angular blocky structure; friable when moist; some very dark gray (10YR 3/1) coatings on each ped, also thick grayish brown (10YR 5/2) grainy silt coats; blanched silt grains are abundant on surfaces and least numerous on the dark gray (10YR 4/1) areas; few coarse pores and many fine pores; very dark grayish brown (10YR 3/2) iron concretions are common; pH 5.6; clear smooth boundary.

B12 14316 — 18 to 22 inches. Dark yellowish brown (10YR 4/4) to olive brown (2.5Y 4/4) silty clay loam with common fine distinct yellowish brown (10YR 5/6) mottles; dry colors gray (10YR 5/1) and grayish brown (10YR 5/2) in about equal proportions in fine faint pattern; moderate to strong, fine to medium subangular blocky and some angular blocky structure; firm to friable when moist; some very dark gray (10YR 3/1) coatings on peds and thick grayish brown (10YR 5/2) silt coats; common to many fine pores throughout peds; very dark grayish brown (10YR 3/2) iron concretions common; root tracks common but less evident than on prism faces in B2; pH 5.8; clear smooth boundary.

B21 14317 — 22 to 29 inches. Grayish brown (2.5Y 5/2) to light olive brown (2.5Y 5/4) heavy silty clay loam; many fine prominent yellowish brown (10YR 5/6) mottles; dry colors dark gray (10YR 4/1) but range to very dark gray (10YR 3/1) where clay films are thickest and to gray (10YR 5/1) where blanched silt grains are most numerous; strong medium to fine prismatic breaking to strong to moderate coarse to medium blocky structure; firm when moist; thick black (10YR 2/1) and very dark gray (10YR 3/1) clay films; common fine pores and many root tracks in clay films; many fine tubular pores lined with very dark gray (10YR 3/1) clay films; common to many 10YR 2/2 and 10YR 3/2 iron concretions; pH 5.8; gradual smooth boundary.

B22 14318 — 29 to 40 inches. Olive gray (5Y 5/2) and olive (5Y 5/3) heavy silty clay loam with many fine prominent yellowish brown (10YR 5/6 and 5/4) mottles; dry colors same as in horizon above; moderate to strong, medium prismatic breaking to moderate to weak, medium to coarse, blocky structure; firm when moist; thick black and very dark gray (10YR 2/1 and 3/1) clay films; common fine pores and many root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) clay films; this horizon appears darker than horizon below because of more structural faces and clay films; many medium very dark brown (10YR 2/2) iron concretions; pH 6.0; gradual smooth boundary.

B23 14319 — 40 to 47 inches. Olive gray (5Y 5/2) silty clay loam with many fine prominent yellowish brown (10YR 5/4 and 5/6) mottles; also a few coarse prominent strong brown (7.5YR 5/8) mottles; moderate coarse prismatic structure; firm when moist; thick black (10YR 2/1) and very dark gray (10YR 3/1) clay films; common fine pores and many root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) clay films; common medium very dark brown (10YR 2/2) and very dark grayish brown (10YR 3/2) iron concretions; black (10YR 2/1) krotovinas of silty clay loam 1 to 3 inches in diameter, spaced 6 to 14 inches apart; also some krotovinas of 1/4- to 3/4-inch diameter spaced 2 to 3 inches apart; pH 6.2; gradual smooth boundary.

B3 14320 — 47 to 54 inches. Olive gray (5Y 5/2) silty clay loam with many medium prominent yellowish brown (10YR 5/6) and common coarse prominent strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure with irregular planes; firm when moist; moderately thick very dark gray (10YR 3/1) clay films on structural faces; many fine pores and root tracks in clay films; many fine pores lined with very dark gray (10YR 3/1) clay films inside the ped; common fine very dark grayish brown (10YR 3/2) iron concretions; krotovinas the same as in horizon above; pH 6.3; gradual smooth boundary.

C1 14321 — 54 to 65 inches. Olive gray (5Y 5/2) silt loam with some grit and a few pebbles; many medium prominent yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) and common coarse prominent dark yellowish brown (10YR 4/4) mottles; weak very coarse prismatic structure; friable to firm when moist; very dark gray (10YR 3/1) clay films on prism faces and cleavage planes; common to many fine and medium pores lined with very dark gray (10YR 3/1) clay films; krotovinas the same as in horizon above; pH 6.3; clear wavy boundary.

I and IIC2 Not sampled — 65 to 75 inches. Gray (10YR 5/1) loam with some pebbles; many coarse distinct yellowish brown (10YR 5/4) and common medium prominent strong brown (7.5YR 5/8) mottles; massive with an occasional cleavage plane; firm when moist; very dark gray (10YR 3/1) clay films on occasional cleavage planes; many fine and coarse tubular pores and worm channels lined with black and very dark gray (10YR 2/1 and 3/1) clay films; common fine very dark grayish brown (10YR 3/2) iron concretions; krotovinas same as in horizons above. pH 6.5.

Remarks: The B23, B31 and C1 horizons were sampled to exclude the larger krotovinas. The B21 and B22 had visible cracks 1/2- to 3-mm. wide, loosely packed between larger prisms at this moisture content (<1/3-, >15-bar).

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. S62Ill-2-1 LOCATION Alexander County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 16973-16983 March 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1: Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			2A2 Coarse fragments: > 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-6	Ap	4.0	84.7	11.3	Tr.a	0.1a	0.1a	0.4b	3.4	54.1	30.6	57.9	0.6			1		
6-8	A2	3.4	82.9	13.7	Tr.a	0.1a	0.1a	0.4a	2.8b	48.4	34.5	51.5	0.6			Tr.		
8-13	B1	3.5	78.9	17.6	Tr.a	0.1a	0.1a	0.5a	2.8b	43.6	35.3	46.7	0.7			Tr.		
13-21	B21	3.4	78.5	18.1	Tr.a	0.1a	0.1a	0.4a	2.8b	43.5	35.0	46.6	0.6			Tr.		
21-29	B22	3.6	77.8	18.6	0.2a	0.8a	0.4a	0.4a	1.8c	44.1	33.7	46.1	1.8			Tr.		
29-34	A'2-B'2	4.1	80.3	15.6	0.2a	1.0a	0.4a	0.4a	2.1c	46.4	33.9	48.7	2.0			-		
34-43	B'2	2.9	74.3	22.8	Tr.a	0.4a	0.3a	0.3a	1.9c	39.7	34.6	41.8	1.0			-		
43-55	B'31	2.6	76.9	20.5	Tr.a	0.4a	0.2a	0.3a	1.7c	41.6	35.3	43.5	0.9			Tr.		
55-68	B'32	2.4	77.1	20.5	Tr.a	0.2a	0.2a	0.3a	1.7c	42.1	35.0	44.0	0.7			-		
68-82	B'33	2.2	75.1	22.7	Tr.a	0.2a	0.1a	0.2a	1.7b	40.0	35.1	41.8	0.5			-		
82-88	B'33	2.2	74.8	23.0	Tr.a	0.2a	0.1a	0.2c	1.7b	40.9	33.9	42.7	0.5			-		

Depth (In.)	6A1a Organic carbon d	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$		Bulk density: 4A1a Field-State	4A1c 30-Cm.	4A1b Air-Dry	4D1 COLE	Water Content: 4B4 Field-State	4B3 30-Cm	4B1b 1/3-Bar	4B2 15-Bar	4C1 1/3-minus 15-Bar In./in.	pH		8C1a (1:1)
	Pct.	Pct.			Pct.		g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	Pct.				
0-6	1.20	0.105	11				1.28	1.23	1.27	0.010	13.5	25.5	25.3	5.5	0.24			5.7
6-8	0.55	0.070	8				1.40	1.37	1.41	0.010	17.3	26.1	20.1	6.0	0.19			4.9
8-13	0.25	0.039	6				1.46	1.43	1.48	0.010	20.5	21.3	22.9	7.7	0.22			4.6
13-21	0.12						1.48	1.46	1.52	0.014	21.7	25.8	23.6	8.4	0.22			4.5
21-29	0.10						1.52	1.49	1.54	0.010	22.2	24.6	23.4	8.6	0.22			4.6
29-34	0.07						1.54	1.52	1.56	0.010	22.7	23.2	23.2	7.2	0.24			4.6
34-43	0.06						1.59	1.56	1.63	0.014	21.3	20.8	25.2	10.4	0.23			4.7
43-55	0.06						1.56	1.49	1.59	0.020	22.6	27.7	25.6	9.7	0.24			4.8
55-68	0.06												26.5	9.6				4.9
68-82	0.06						1.55	1.45	1.60	0.032	23.0	29.3	29.0	11.5	0.25			5.2
82-88	0.06													11.7				5.2

Depth (In.)	Extractable bases 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap.: 5A3a Sum Cations	5A1a NH_4OAc	6G1b KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g										Pct.	Pct.
0-6	5.9	0.9	Tr.	0.2	7.0	4.9	11.9	8.3	-		59	84
6-8	3.2	1.0	Tr.	0.1	4.3	7.5	11.8	8.1	0.5	3.2	36	53
8-13	2.8	1.4	0.1	0.2	4.5	9.4	13.9	9.7	2.0	2.0	32	46
13-21	1.9	1.5	0.1	0.2	3.7	10.1	13.8	10.1	3.8	1.3	27	37
21-29	1.9	1.6	0.1	0.2	3.8	10.4	14.2	10.5	3.7	1.2	27	36
29-34	1.4	1.6	0.2	0.2	3.4	8.7	12.1	9.0	2.9	0.9	28	38
34-43	2.9	3.4	0.5	0.3	7.1	10.9	18.0	13.6	3.4	0.8	39	52
43-55	3.2	3.5	0.6	0.2	7.5	8.5	16.0	12.4	1.7	0.9	47	60
55-68	4.3	4.2	0.8	0.2	9.5	6.4	15.9	12.4	0.6	1.0	60	77
68-82	6.2	5.4	1.1	0.3	13.0	6.6	19.6	14.9	0.4	1.1	66	87
82-88	6.5	5.5	1.2	0.3	13.5	6.7	20.2	15.6	0.3	1.2	67	86

Depth (In.)	Ratios to Clay: NH_4OAc CEC		8D1 15-Bar Water		
0-6	0.73		0.49		
6-8	0.59		0.44		
8-13	0.55		0.44		
13-21	0.56		0.46		
21-29	0.56		0.46		
29-34	0.58		0.46		
34-43	0.60		0.46		
43-55	0.60		0.47		
55-68	0.60		0.47		
68-82	0.66		0.51		
82-88	0.68		0.51		

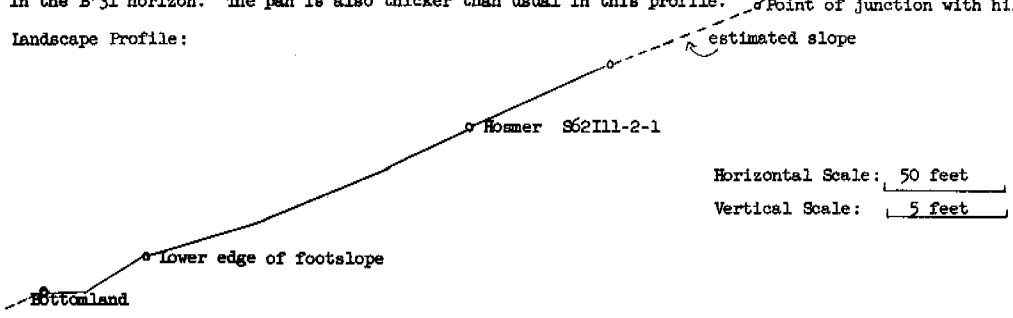
a. > 50% Fe-Mn nodules.
b. 5-25% Fe-Mn nodules.
c. 25-50% Fe-Mn nodules.
d. 4.5 Kg/M² to 60 inches. (Method 6A)

Soil Type: Hosmer silt loam
Soil Nos.: S62Ill-2-1
Location: Alexander County, Illinois, T14S, R2W, Sec. 21, SW 160, NE 40, SE 10, about 100 feet southeast of woods line.
Parent Material: Deep loess.
Physiography: Upland colluvial or valley-phase slope.
Slope: 19 percent.
Drainage Class: Moderately well.
Vegetative Cover: Grass (pasture).
Erosion: Moderate.
Sampled by: R. B. Grossman and G. S. Holmgren, May 22, 1962.
Described by: G. O. Walker, J. B. Fehrenbacher and W. D. Parks.

Horizon and Lincoln Lab. No.	
Ap 16973	0 to 6 inches. Dark grayish brown (10YR 4/2) silt loam; weak thin and medium platy structure breaking to weak fine crumb structure; friable; many roots; pH 5.6.
A2 16974	6 to 8 inches. Brown (10YR 5/3) and yellowish brown (10YR 5/4) silt loam; weak medium platy structure; friable; few dark brown (7.5YR 4/2) worm casts and many roots; pH 5.2; clear smooth boundary.
B1 16975	8 to 13 inches. Dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; many roots; pH 5.2; clear smooth boundary.
B21 16976	13 to 21 inches. Dark yellowish brown (10YR 4/4) heavy silt loam to light silty clay loam; moderate medium subangular blocky structure; firm; peds coated with light brownish gray (10YR 6/2) silt; pH 5.3; clear smooth boundary.
B22 16977	21 to 29 inches. Yellowish brown (10YR 5/4) silty clay loam with many coarse distinct grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; firm; few very dark brown (10YR 2/2) Fe and Mn concretions and peds coated with thin light brownish gray (10YR 6/2) silt; pH 5.4; clear smooth boundary.
A'2-B'2 16978	29 to 34 inches. Light brownish gray (10YR 6/2) heavy silt loam to light silty clay loam with common medium prominent dark brown (7.5YR 4/4) and few fine distinct yellowish brown (10YR 5/6) mottles; weak medium and coarse subangular and angular blocky structure; firm; moderately fragile, many medium prominent black (10YR 2/1) Fe and Mn concretions and some black coatings from concretions and few very thin brown (10YR 4/3) clay films on the peds; pH 5.3; clear smooth boundary.
B'2 16979	34 to 43 inches. Dark yellowish brown (10YR 4/4) light silty clay loam with many coarse distinct light brownish gray (10YR 6/2) and few medium prominent dark brown (7.5YR 4/4) and few medium prominent strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure breaking to weak medium angular blocky structure; firm; moderately fragile; common medium prominent black (10YR 2/1) Fe and Mn concretions, and occasional tongues of A'2 silty material; pH 5.0; gradual wavy boundary.
B'31 16980	43 to 55 inches. Dark yellowish brown (10YR 4/4) heavy silt loam to light silty clay loam with common medium distinct light brownish gray (10YR 6/2) and many medium prominent dark reddish brown (5YR 3/4) mottles; weak coarse prismatic structure breaking to weak coarse angular blocky structure; firm; strongly fragile; common fine prominent black (10YR 2/1) Fe and Mn concretions; occasional roots and few holes filled with dark yellowish brown (10YR 4/4) silt; pH 5.4; gradual and arbitrary boundary.
B'32 16981	55 to 68 inches. Dark yellowish brown (10YR 4/4) heavy silt loam to light silty clay loam with few medium prominent dark reddish brown (5YR 3/3) and common medium distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure breaking to weak medium angular blocky structure; firm; fragile; thin discontinuous dark brown (7.5YR 4/4) clay films on peds; common medium black (10YR 2/1) Fe and Mn concretions; pH 5.8; gradual arbitrary boundary.
B'33 16982	68 to 82 inches. Dark yellowish brown (10YR 4/4) heavy silt loam to light silty clay loam with few fine distinct light brownish gray (10YR 6/2) mottles; weak medium and coarse angular blocky structure; firm; fragile; thin discontinuous dark brown (7.5YR 4/4) clay films and occasional thick film of Fe and Mn coating which reacts much more rapidly than clean surfaces when 6 percent hydrogen-peroxide is applied; many medium prominent black (10YR 2/1) Fe and Mn concretions and few discontinuous small pores in the peds; pH 6.0; arbitrary boundary.
16983	82 to 88 inches. Same as horizon above.

Remarks: This solum is very thick and the fragipan is strongly expressed. The fragipan is very brittle or fragile in the B'31 horizon. The pan is also thicker than usual in this profile.

Landscape Profile:



SOIL SURVEY LABORATORY Lincoln, Nebr. 1/23/58

SOIL TYPE Hosmer silt loam **LOCATION** Gallatin County, Illinois

SOIL NOS. S56Ill-30-2 **LAB. NOS.** 5533-5541

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-8	Ap	0.2a	0.3a	0.2a	0.5a	0.6a	85.7	12.5	39.6	47.0	1	sil
8-13	A2	-	0.1a	0.1a	0.2a	0.3a	81.8	17.5	33.9	48.3	-	sil
13-23	B1	-	-	-	0.1a	0.3a	71.5	28.1	28.0	43.9	-	sicl
23-30	B21	-	-	-	0.1a	0.4a	74.4	25.1	31.6	43.3	-	sil
30-34	A2B2m	-	-	0.1a	0.3a	0.5a	79.3	19.8	35.2	44.8	-	sil
34-45	B21m	-	0.1a	0.1a	0.3a	0.4a	79.1	20.0	33.5	46.2	Tr.	sil
45-61	B22m	0.1	0.3b	0.5b	1.2b	0.9b	78.6	18.4	36.5	43.7	Tr.	sil
61-79	B3m	0.5	1.5b	2.4b	5.9b	4.4b	69.0	16.3	42.8	34.0	Tr.	sil
79+	D	0.8	1.7b	2.4b	5.9b	4.7b	65.6	18.9	39.5	34.2	Tr.	sil

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C'N	EST% SALT (BUREAU CUP)	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM mg./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field-State %	4B2 15-Bar %
5.7			1.14	.108	11					1.31	21.8	5.0
5.5			0.39	.044	9					1.32	10.5	6.3
5.2			0.30	.036	8							10.9
5.0			0.13	.023						1.40	12.8	10.2
4.8			0.10							1.42	12.9	8.9
4.9			0.08							1.49	16.9	10.4
5.2			0.06									9.1
6.0			0.06							1.52	17.6	7.5
5.8			0.05					-		1.61	16.2	7.9

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations me/100g		8D3 Ca/Mg
← milliequivalents per 100g. soil →											
7.1	2.1	1.3	4.0	-	0.8	59	51	4.2	8.2		1.6
7.3	2.4	1.7	2.4	-	0.5	63	66	4.6	7.0		1.4
12.7	3.8	3.8	6.2	-	0.8	66	58	8.4	14.6		1.0
12.0	2.2	3.3	7.8	0.1	0.6	52	44	6.2	14.0		0.7
10.4	1.3	2.8	11.2	0.1	0.4	44	29	4.6	15.8		0.5
13.3	1.8	4.6	10.0	0.2	0.4	53	41	7.0	17.0		0.4
12.5	3.1	5.8	6.1	0.4	0.2	76	61	9.5	15.6		0.5
9.9	3.4	4.7	4.5	0.4	0.2	88	66	8.7	13.2		0.7
10.4	3.6	5.2	3.7	0.4	0.2	90	72	9.4	13.1		0.7

a. Common smooth and irregular light and dark brown concr. (Fe-Mn?)

b. Few smooth dark brown concr. (Mn-Fe?)

c. Determined by University of Illinois. Core Method - Uhland, R. E. Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-state" moisture)

X-ray analyses on the B horizon showed the clay to be dominently montmorillonite with lesser amounts of illite and some kadlinite.

Soil type: Hosmer silt loam
Soil Nos. : S56Ill-30-2
Location: Gallatin County, Illinois; 85 feet west of center of T road south; 27 feet south of right-of-way of east-west road, Illinois Highway 141; NE¼60, NE¼0, NE¼0 of Section 24, T7S, R8E.
Vegetation: Bluegrass, goldenrod, and ragweed.
Drainage: Moderately well drained.
Erosion: Slight.
Relief: 2 percent slope.
Sampled by: J. K. Ableiter, O. C. Rogers, R. T. Odell, A. Beavers, and G. O. Walker, October 31, 1956.

Horizon and Lincoln Lab. Number	
Ap 5533	0 to 8 inches. Brown (10YR 5/3 to 4/3 moist) silt loam; very weak fine and medium granular structure; friable when moist; numerous small roots and small worm casts; abrupt smooth boundary.
A2 5534	8 to 13 inches. Brown to strong brown (7.5YR 5/4 to 5/6 moist) silt loam; very weak thick platy to weak fine subangular blocky structure; friable when moist; contains numerous dark brown small worm casts; abrupt smooth boundary.
B1 5535	13 to 23 inches. Dark brown to brown (7.5YR 4/4 to 5/4 moist) silt loam; a few ped faces have thin coating of brown (10YR 5/3 moist); moderate fine and medium subangular blocky structure; friable when moist; clear wavy boundary.
B21 5536	23 to 30 inches. Strong brown (7.5YR 5/6 moist) silt loam to light silty clay loam; clay skins of dark brown to brown (7.5YR 4/4 to 5/4 moist) are common; a few thin coatings, root channels, and crack fillings of light gray (10YR 7/2 moist); strong coarse and very coarse subangular blocky structure; very weak medium prismatic structure; firm when moist; clear wavy boundary.
A2B2m 5537	30 to 34 inches. Strong brown (7.5YR 5/6 moist) heavy silt loam; numerous cracks both vertical and horizontal, streaks, and coatings of pale brown (10YR 6/3 moist); the pale brown color is about 25 percent of horizon; a few thin coatings and streaks of very dark brown (10YR 2/2 moist); weak medium and coarse prismatic, breaking to weak to moderate coarse and very coarse angular blocky structure; firm when moist; the strong brown material is brittle when dry and represents the upper part of the fragipan; clear wavy boundary.
B21m 5538	34 to 45 inches. Strong brown (7.5YR 5/6 moist) heavy silt loam; pale brown (10YR 6/3 moist) coating and vertical crack filling, the cracks being up to 1/8-inch diameter; dark brown (7.5YR 4/4 moist) clay skins are few and thin; massive to very weak coarse blocky structure; firm when moist; gradual wavy boundary.
B22m 5539	45 to 61 inches. Brown (7.5YR 4/4 to 5/4 moist) silt loam; cracks filled with pale brown (10YR 6/3 moist) and gray (10YR 6/1 dry); number of cracks decreases with depth; a few dark brown (7.5YR 4/4 to 4/2 moist) clay skins; very dark brown (10YR 2/2 moist) streaks and thin coatings are common; massive to very weak very coarse prismatic structure; firm when moist; diffuse wavy boundary.
B3m 5540	61 to 79 inches. Brown (7.5YR 4/4 to 5/4 moist) silt loam; streaks and crack filling of pale brown (10YR 6/3 moist); cracks are up to 1/4-inch diameter and decrease in number with depth; this horizon represents a mixture of loess and till with a noticeable increase, with depth, in very fine sand; a few small pebbles present; massive to very weak very coarse prismatic structure; firm when moist.
D 5541	79 inches plus. Reddish brown (5YR 4/4 moist) silt loam; a few streaks of light brownish gray (10YR 6/2 moist) about 12 inches apart; material is largely weathered till; massive; firm.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. S62T11-44-2 LOCATION Johnson County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 16963-16972 March 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	4E1c Moved Clay		2A2 Coarse fragments: > 2	2 – 19	19 – 76
		Pct. of < 2 mm												Pct.		Pct.	Pct. of < 76mm	
0-5	Ap	1.4	84.8	13.8	Tr.a	0.1a	0.1a	0.1a	1.1b	44.4	40.4	45.6	0.3			-		
5-8	A2	1.2	83.9	14.9	Tr.a	0.1a	Tr.a	0.1a	1.0b	42.5	41.4	43.5	0.2			-		
8-13	B1	1.3	79.7	19.0	Tr.a	0.2a	0.1a	0.2a	0.8a	38.2	41.5	39.1	0.5	0.3		Tr.		
13-23	B2	1.9	75.9	22.2	Tr.a	0.3a	0.3a	0.5a	0.8a	34.1	41.8	35.2	1.1	0.4		-		
23-29	B'2-A'2	2.6	75.3	22.1	0.1a	0.4a	0.4a	0.7a	1.0a	33.4	41.9	34.8	1.6	1.0		-		
29-41	B'21	2.0	68.7	29.3	Tr.a	0.3a	0.2a	0.5a	1.0a	30.8	37.9	32.1	1.0	9.2		-		
41-54	B'22	1.7	74.9	23.4	-	0.1a	0.1a	0.4a	1.1a	37.5	37.4	38.9	0.6	7.0		-		
54-64	B'3	1.2	80.6	18.2	-	Tr.a	-	0.1a	1.1a	39.7	40.9	40.9	0.1	3.7		-		
64-75	C	1.1	83.8	15.1	-	-	-	Tr.a	1.1b	40.1	43.7	41.2	Tr.	2.9		-		
75-85	C	0.8	84.6	14.6	-	-	-	Tr.a	0.8c	39.8	44.8	40.6	Tr.	2.1				

Depth (In.)	6A1a Organic carbon d	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$		Bulk density: 4A1a Field-State	4A1c 30-Cm.	4A1b Air-Dry	4D1 COLE	Water Content: 4B4 Field-State	4B3 30-Cm.	4B1b 1/3-Bar	4B2 15-Bar	4C1 1/3-min-15-Bar In/In.		pH:	8C1a (1:1)
	Pct.	Pct.			Pct.		g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	Pct.				
0-5	0.95	0.099	10				1.38	1.32	1.35	0.007	10.4	23.3	20.1	5.7	0.19			5.2
5-8	0.69	0.081	9				1.38	1.34	1.37	0.007	13.5	21.0	21.0	5.4	0.21			5.3
8-13	0.29	0.043	7				1.40	1.38	1.42	0.010	18.3	26.9	22.5	7.2	0.21			5.4
13-23	0.12						1.44	1.41	1.46	0.014	21.9	26.8	24.8	8.9	0.22			5.1
23-29	0.08												25.9	10.3				4.9
29-41	0.04						1.52	1.46	1.61	0.032	24.2	28.6	27.7	13.8	0.20			4.7
41-54	0.04						1.50	1.45	1.56	0.024	25.6	26.0	29.7	12.2	0.25			4.8
54-64	0.03						1.51	1.42	1.54	0.028	25.8	31.0	28.8	9.8	0.27			5.7
64-75	0.06						1.52	1.43	1.54	0.024	26.1	31.0	28.1	8.8	0.28			6.4
75-85	0.06												27.3	8.3				6.6

Depth (In.)	Extractable bases: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap.: 5A3a Sum Cations	5A1a NH_4OAc	6G1b KCl-Ext. Al						8D3 Ca/Mg		Base saturation: 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-5	3.5	0.7	Tr.	0.2	4.4	6.6	11.0	7.5	Tr.								40	59
5-8	3.2	0.6	Tr.	0.1	3.9	6.8	10.7	7.2	0.1								36	54
8-13	4.3	1.0	Tr.	0.2	5.5	4.7	10.2	7.9	-						4.3		54	70
13-23	4.8	2.0	0.1	0.2	7.1	5.7	12.8	10.3	0.4						2.4		55	69
23-29	4.0	2.8	0.2	0.3	7.3	8.0	15.3	12.6	1.6						1.4		48	58
29-41	5.6	4.6	0.4	0.4	11.0	11.7	22.7	18.2	3.0						1.2		48	60
41-54	7.2	5.5	0.5	0.3	13.5	6.0	19.5	16.8	0.7						1.3		69	80
54-64	7.7	4.8	0.5	0.2	13.2	2.4	15.6	13.6	-						1.6		85	97
64-75	7.3	4.2	0.4	0.2	12.1	1.2	13.3	12.2							1.7		91	99
75-85	7.2	3.8	0.4	0.2	11.6	1.2	12.8	11.6							1.9		91	100

Depth (In.)	Ratios to Clay: NH_4OAc CEC		8D1 15-Bar Water		
0-5	0.54		0.41		
5-8	0.48		0.36		
8-13	0.42		0.38		
13-23	0.46		0.40		
23-29	0.57		0.47		
29-41	0.62		0.47		
41-54	0.72		0.52		
54-64	0.75		0.54		
64-75	0.81		0.58		
75-85	0.79		0.57		

a. > 50% Fe-Mn nodules.
b. 25-50% Fe-Mn nodules.
c. 5-25% Fe-Mn nodules.
d. 3.8 Kg/M² to 60 inches. (Method 6A)

Soil Type: Hosmer silt loam
Soil Nos.: S62Ill-44-2
Location: Johnson County, Illinois, T13S, R2E, Sec. 32, NE 160, SE 40, starting at the only tree near barnyard 128 steps west along fence and 49 steps north between the heads of two small gullies or draws.
Parent Material: Deep loess over limestone.
Physiography: Upland sideslope.
Drainage Class: Moderately well.
Slope: 5 percent.
Vegetative Cover: Meadow (grass and legumes).
Sampled by: R. B. Grossman and G. S. Holmgren, May 24, 1962.
Described by: G. O. Walker, J. B. Fehrenbacher, C. C. Miles and W. D. Parks.

Horizon and Lincoln Lab. No.

Ap 16963 — 0 to 5 inches. Dark grayish brown (10YR 4/2) silt loam; weak fine crumb structure; friable; many roots; pH 6.0; abrupt smooth boundary.

A2 16964 — 5 to 8 inches. Brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silt loam; weak medium platy structure; friable; many roots; pH 5.4; abrupt smooth boundary.

B1 16965 — 8 to 13 inches. Brown (10YR 4/3) and dark yellowish brown (10YR 4/4) heavy silt loam to light silty clay loam; weak fine and medium subangular blocky structure; slightly firm; few brown (10YR 4/3) worm casts and few very dark gray (10YR 3/1) Fe and Mn concretions; pH 5.4; abrupt smooth boundary.

B2 16966 — 13 to 23 inches. Dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) light silty clay loam with common medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; firm; thin pale brown (10YR 6/3) coatings, few black (10YR 2/1) stains from Fe and Mn concretions; pH 5.2; clear smooth boundary.

B'2-A'2 16967 — 23 to 29 inches. Mottled dark yellowish brown (10YR 4/4) and light gray (10YR 7/2) heavy silt loam to light silty clay loam; moderate fine subangular and angular blocky structure; firm; peds when moist are coated with thin strong brown (7.5YR 5/6) clay films and when dry are coated with pinkish white (7.5YR 8/2) silt; few black (10YR 2/1) Fe and Mn concretions; pH 4.9; clear wavy boundary.

B'21 16968 — 29 to 41 inches. Dark yellowish brown (10YR 4/4) silty clay loam with common medium and coarse faint yellowish brown (10YR 5/6) and many medium distinct light brownish gray (10YR 6/2) mottles; moderate medium angular blocky structure; firm; strongly fragile; thin to medium pale brown (10YR 6/3) clay films on surface of peds; scattered black (10YR 2/1) Fe and Mn concretions; pH 4.6; abrupt smooth boundary.

B'22 16969 — 41 to 54 inches. Dark yellowish brown (10YR 4/4) and brown (10YR 4/3) light silty clay loam with common medium distinct light gray (10YR 7/2) and light brownish gray (10YR 6/2) and common medium faint yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure breaking to weak medium angular blocky structure; firm; thin pale brown (10YR 6/3) clay films on surface of peds, many very dark grayish brown (10YR 3/2) Fe and Mn smears; pH 4.8; clear smooth boundary.

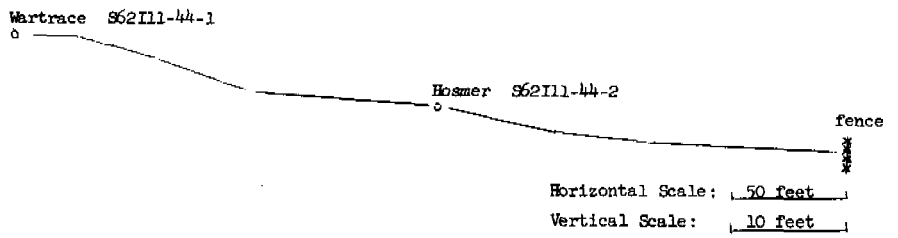
B'3 16970 — 54 to 64 inches. Dark yellowish brown (10YR 4/4) heavy silt loam with common medium distinct light gray (10YR 7/2) and few fine faint yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure; firm; thin dark brown (7.5YR 4/4) clay films on the surface of the peds, few very dark grayish brown (10YR 3/2) Fe and Mn stains; pH 6.5; gradual smooth boundary.

C 16971 — 64 to 75 inches. Dark yellowish brown (10YR 4/4) silt loam with common medium distinct light gray (10YR 7/2) and common fine distinct strong brown (7.5YR 5/6) mottles; very weak coarse prismatic structure to massive; slightly firm; few worm channels filled with dark brown (7.5YR 4/4) silt and few very dark grayish brown (10YR 3/2) Fe and Mn concretions; pH 7.0; arbitrary boundary.

16972 — 75 to 85 inches. Same as above horizon.

Remarks: Gray streaks 1/2 to 1 inch thick occur throughout the fragipan part of the profile. These streaks in general are vertical. They are 6 to 12 inches apart in the pit wall. Some lie in all directions. They are somewhat heavier in texture than the surrounding soil. The C horizon is highly compacted and slightly fragile.

Landscape Profile:



SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. 850Il1-51-3 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland and Lincoln, Nebraska[a] LAB. Nos. 501309-501311, 13 and 5542-5544

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	A1		86.0	11.7	0.1	0.2	0.4	0.7	0.9		46.8	40.5				-		
9-15	A2		78.1	20.6	-	0.1	0.2	0.4	0.6		46.6	32.3				-		
15-23	B1		72.2	26.4	-	0.1	0.2	0.4	0.7		40.8	32.4				-		
23-26	B2m2	b	71.4	26.4	0.1	0.4	0.3	0.5	0.9		38.5	34.1				-		
26-35	B2m2	b	75.0	23.3	0.1	0.3	0.2	0.4	0.7		40.1	35.8				-		
35-50	B3m1		76.8	20.6	0.1	0.3	0.4	0.7	1.1		43.6	34.8				-		
50-65	C	b	67.3	18.6	0.6	1.3	2.0	4.1	6.1		35.9	39.8				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9	0.63																5.4
9-15	0.25																4.6
15-23	0.12																4.6
23-26	0.21											29.5	11.3				4.8
26-35	0.09											30.3	10.6				4.9
35-50	0.03																4.6
50-65	0.07											24.8	7.5				5.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	5A1a NH_4OAc	6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-9	2.0	1.1	Tr.	0.3		6.4	9.8							35	
9-15	2.4	1.8	Tr.	0.4		9.0	13.6							34	
15-23	3.1	3.9	0.1	0.3		12.3	19.7							38	
23-26	3.2	4.4	0.1	0.3		10.1	18.1	14.8					0.7	44	54
26-35	2.7	4.6	0.1	0.3		10.1	17.8	14.8					0.6	43	52
35-50	4.8	5.9	0.2	1.2		7.0	19.1							64	
50-65	4.4	5.6	0.2	0.2		3.3	13.7	11.1					0.8	76	94

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X ray						7A3	
	c							

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Site resampled in 1956. The 23-26, 26-35 and 50-65 inch depths were analyzed by the Soil Survey Laboratory at Lincoln, Neb., and the numbers 5542, 5543 and 5544 refer to the respective depths.

b. Many, irregular light brown concretions (iron-manganese?) occur throughout the sand fractions.

c. X-ray analyses on the B horizon showed the clay to be dominantly montmorillonite with lesser amounts of illite and some kaolinite.

Soil Type: Hosmer silt loam
Soil No.: S50Il1-51-3
Location: Lawrence County, Illinois. T3N-R12W, Sec. 2, NW 160, NW 40, SW 10 acres.
Vegetation and land use: Hardwood forest, and Canadian bluegrass.
Slope and land form: 4 percent to southeast, upland site.
Drainage: Moderately well drained.
Erosion: None
Parent Material: Loess.
Sampled by and date: J. B. Fehrenbacher and A. A. Klingebiel. June 8, 1950.

Horizon and Beltsville and Lincoln Lab No.	
Ap 501309	0 to 9 inches. Brown (10YR 5/3) to dark grayish brown (10YR 4/2) friable silt loam with weak fine crumb structure. Abrupt, smooth boundary; pH 5.4; bulk density 1.31.
A2 501310	9 to 15 inches. Yellowish brown to light yellowish brown (10YR 5.5/4) friable silt loam with weak, medium platy structure; clear, smooth boundary; pH 4.6; bulk density 1.37.
B1 501311	15 to 23 inches. Strong brown (7.5YR 5/6) to yellowish brown (10YR 5/6) firm, fine silt loam with strong, medium subangular blocky structure; clear, smooth boundary; pH 4.6; bulk density 1.39.
B2m1 LSL 5542[a]	23 to 26 inches. Yellowish brown (10YR 5/6) with pale brown (10YR 6/3) coatings and seams, firm, coarse silty clay loam; coatings are (10YR 7/2) dry; clear, smooth boundary; pH of 23-35 inches depth 4.7; bulk density 1.49 (23-35 inch depth). Some iron concretions present.
B2m2 LSL 5543[a]	26 to 35 inches. Yellowish brown (10YR 5/4) with brown (7.5YR 4/4) clay skins and many medium, faint, pale brown (10YR 6/3) mottlings. Firm, coarse, silty clay loam with strong, medium to coarse blocky to subangular blocky structure; some iron concretions present; gradual, smooth boundary; pH and bulk density of 23 - 35 inch depth 4.7 and 1.49 resp.
B3m1 501313	35 to 50 inches. Yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) with brown (7.5YR 4/4) clay skins and many medium, faint, pale brown (10YR 6/3) mottlings. Very firm silt loam with weak, very coarse blocky to massive structure; some iron concretions present and also some polygonal cracks filled with light brownish gray (10YR 6/2) clay present; gradual, smooth boundary; pH 4.6; bulk density 1.55.
C LSL 5544[a]	50 to 65 inches Yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) with many, medium, faint pale brown (10YR 6/3) mottlings; firm silt loam and nearly structureless; some polygonal cracks filled with light brownish gray (10YR 6/2) clay present but less well developed than in horizon above; some iron concretions present; gradual, wavy boundary to silt below 65 inches; all colors moist except where noted.

Notes: a Site resampled in 1956. The 23-26, 26-35, and 50-65 inch depths were analyzed by the Soil Survey Laboratory at Lincoln, Nebraska, and the numbers 5542, 5543, and 5544 refer to the respective depths.

b Date of revised description: October 1956, in connection with Alford-Hosmer correlation study in Indiana and Illinois. The other horizons had been sampled in 1950 as stated.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. 859Ill-59-1 LOCATION Macoupin County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 12294-12304 January 1965

Depth (In.)	Horizon	1B1a Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand (Pct. of < 2 mm) Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Silt Int. II (0.2-0.02)	3A1 Size class and particle diameter (mm) (2-0.1)			Coarse fragments 2A2 >2 (Pct.)	Coarse fragments 2A2 2-19 (Pct. of < 76mm)	Coarse fragments 2A2 19-76 (Pct. of < 76mm)
0-4	A1	2.4	82.5	15.1	0.3a	0.3a	0.3a	0.6a	0.9a	32.4	50.1	33.6	1.5			-	-	
4-8	A2	1.9	83.3	14.8	-	0.2a	0.3a	0.5a	0.9a	33.3	50.0	34.4	1.0			-	-	
8-11	B1	1.8	81.5	16.7	0.1a	0.2a	0.3a	0.4a	0.8a	30.4	51.1	31.4	1.0			-	-	
11-17	B21	1.6	77.0	21.4	-	0.1b	0.2b	0.4c	0.9c	29.3	47.7	30.4	0.7			-	-	
17-22	B22	1.3	71.9	26.8	-	0.1b	0.2b	0.4c	0.6c	25.7	46.2	26.5	0.7			-	-	
22-26	B23& A'2	1.2	71.8	27.0	-	0.1b	0.2b	0.4c	0.5c	24.9	46.9	25.6	0.7			-	-	
26-29	A'2& B21	1.2	68.8	30.0	-	0.1b	0.1b	0.4c	0.6c	27.8	41.0	28.6	0.6			-	-	
29-39	B'22	1.4	65.0	33.6	-	0.1b	0.2c	0.4c	0.7c	26.1	38.9	27.0	0.7			-	-	
39-50	B'23	1.4	71.9	26.7	-	0.1b	0.2b	0.4c	0.7c	29.6	42.3	30.5	0.7			-	-	
50-62	B'31m	2.5	75.4	22.1	-	0.2b	0.4a	0.8a	1.1a	35.1	40.3	36.6	1.4			-	-	
62-70+	IIB'32m	8.4	72.3	19.3	0.1a	1.2a	1.8a	3.3a	2.0a	36.9	35.4	40.4	6.4			-	-	

Depth (In.)	6A1a Organic carbon (Pct.)	6B1a Nitrogen (Pct.)	C/N		Carbonate as $CaCO_3$ (Pct.)	6C1a Ext. Iron as Fe (Pct.)	Bulk density 4A1a Field State (g/cc)	Bulk density 4A1c 30-Cm. (g/cc)	Bulk density 4A1h Oven-Dry (g/cc)	4D1 Extensibility in. per horizon	Water content 4B4 Field State (Pct.)	Water content 4B3 30-Cm. (Pct.)		Water content 4B2 15-Bar Sieved (Pct.)		pH 8C1a (1:1) H_2O
0-4	2.57	0.181	14			0.7								7.7		5.5
4-8	0.84	0.074	11			0.7	1.36	1.35	1.38	0.03	8.5	23.7		5.2		4.6
8-11	0.35	0.040	9			0.8	1.43	1.42	1.45	0.02	8.5	22.8		6.2		4.7
11-17	0.31	0.039	8			1.0	1.46	1.44	1.48	0.06	10.6	20.2		8.2		4.6
17-22	0.33	0.034	10			1.3	1.50	1.45	1.52	0.08	10.6	20.4		11.2		4.6
22-26	0.26	0.030	9			1.4	1.59	1.47	1.59	0.11	7.4	24.8		13.3		4.6
26-29	0.21					1.4								13.6		4.5
29-39	0.17					1.4	1.63	1.44e	1.64	0.42	8.6	25.5e		16.0		4.6
39-50	0.12					1.2	1.65	1.47e	1.64	0.38	6.6	25.2e		13.3		4.7
50-62	0.16					1.2	1.60	1.47	1.58	0.29	4.6	24.7		11.3		5.1
62-70+	0.10					1.0	1.67	1.56e	1.66	0.16	3.7	21.2e		9.0		5.5

Depth (In.)	Extractable bases 5B1a 6N2b Ca (meq/100 g)	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap. 5A3a Sum Cations	5A1a NH_4OAc	6G2a KCl Ext. Al	8D3 Ca/Mg	Base saturation 5C3 Sum Cations	5C1 NH_4OAc
											Pct.	Pct.
0-4	6.8	2.1	Tr.	0.3	9.2	8.5	17.7	12.4	-	3.2	52	74
4-8	1.0	0.6	Tr.	0.3	1.9	9.2	11.1	7.0	2		17	27
8-11	0.8	1.1	Tr.	0.2	2.1	7.8	9.9	6.9	3		21	30
11-17	1.6	2.4	Tr.	0.2	4.2	8.5	12.7	9.5	3	0.7	33	44
17-22	3.3	4.4	0.1	0.2	8.0	11.0	19.0	14.4	4	0.8	42	56
22-26	4.3	5.0	0.1	0.3	9.7	10.5	20.2	15.6	4	0.9	48	62
26-39	5.7	6.0	0.1	0.4	12.2	11.1	23.3	18.0	4	1.0	52	68
29-29	6.5	7.7	0.2	0.4	14.8	12.6	27.4	21.5	4	0.8	54	69
39-50	6.6	7.7	0.3	0.3	14.9	8.6	23.5	18.8	2	0.8	63	79
50-62	6.8	7.3	0.3	0.3	14.7	5.6	20.3	16.1	1	0.9	72	91
62-70+	6.3	6.3	0.4	0.2	13.2	4.2	17.4	13.6	Tr.	1.0	76	97

Depth (In.)	Ratios to Clay 8D1 NH_4OAc CEC	Ext. Iron	15-Bar Water
0-4	0.82	0.05	0.51
4-8	0.47	0.05	0.35
8-11	0.41	0.05	0.37
11-17	0.44	0.05	0.38
17-22	0.54	0.05	0.42
22-26	0.58	0.05	0.49
26-29	0.60	0.05	0.45
29-39	0.64	0.04	0.48
39-50	0.70	0.04	0.50
50-62	0.73	0.05	0.51
62-70+	0.70	0.05	0.47

a. 5-25% Fe-Mn nodules.
b. > 50% Fe-Mn nodules.
c. 25-50% Fe-Mn nodules.
d. 8.5 Kg/M^2 to 60 inches.
e. Desorbed at 1/3-Bar instead of adsorbed to 30-Cm.

Soil type: Hosmer silt loam
Soil Nos.: S59Ill-59-1
Location: Macoupin County, Illinois; T11N, R7W, Sec. 3, SW160, NW40, NW10, SW2, 224 yards north and 47 yards east (from road center) of southwest corner of NW40.
Vegetation: Woodland, mostly white and black oaks, with 3- to 8-inch d.b.h. predominant in numbers but with 12- to 18-inch d.b.h. fairly common. Ground cover includes sparse grass in small clumps.
Slope, land form, and parent material: Very gently convex slope of 3 percent gradient to northwest; near edge of a broad, gently sloping ridge top in the dissected, loess-mantled Illinoian drift plain. Local relief between the ridges and adjacent streams about 40 to 50 feet; slope breaks to about 25 percent gradient about 20 yards east of sampling site. Loess about 5 feet thick overlying medium textured Illinoian drift or drift-derived material.
Described and sampled by: F. J. Carlisle, R. B. Grossman, J. B. Fehrenbacher, C. E. Downey, and G. O. Walker, October 28, 1959.

Horizon and Lincoln Lab. No.	
O1	Recent leaf fall about 3 inches thick.
A1 12294	0 to 4 inches. 10YR 3/2 silt loam; moderate medium and fine granular structure; very friable; slightly sticky when wet; many fine fibrous roots; pH 6.0; abrupt boundary.
A2 12295	4 to 8 inches. 10YR 4/3 to 4/2 silt loam; massive but breaks to very weak thin plates; friable; slightly sticky when wet; common fine and common medium tubular pores; many roots; pH 4.8; clear boundary.
B1 12296	8 to 11 inches. 10YR 4/4 to 4/3 medium silt loam; very weak subangular blocky; friable; common fine and medium tubular pores; numerous faint patches of blanched silt about 1-mm. across; many roots; includes small spots of material like A2; pH 4.8; clear boundary.
B21 12297	11 to 17 inches. 7.5YR 4/4 heavy silt loam or light silty clay loam; weak fine and medium subangular blocky; friable; few thin patches of clay films 1- to 2-mm. across in some ped interiors; thin discontinuous blanched silt coatings on peds are 10YR 6/3, moist; very porous with many medium and fine tubular pores and some very irregular pores suggesting aggregation of very fine granules; roots common; pH 5.0; clear boundary.
B22 12298	17 to 22 inches. 7.5YR 4/4 light silty clay loam; compound moderate medium, approaching coarse, and fine subangular blocky; friable; very thin discontinuous blanched silt patches, 10YR 4/4 to 5/4 moist, gray dry, occur predominantly on larger ped surfaces; thin patches of brown clay films occur mostly in ped interiors; intraped porosity is variable with some peds having common medium and fine tubular pores and other few medium and fine pores; roots common; pH 5.2; clear boundary.
B23 and A'2 12299	22 to 26 inches. 10YR 5/4 silty clay loam, est. 32 percent clay; moderate fine and medium subangular blocky; slightly firm; blanched silt coats on peds 10YR 6/3 moist, 10YR 8/2 dry; form continuous network in lower part of horizon but are discontinuous in upper part; few thin 7.5YR 4/4 clay films; intraped tubular pores quite variable in size and number from ped to ped but horizons 6 and 7 seem to have fewer than horizons above and below; interped pore space appears to be maximum in horizons 6 and 7 and is distinctly higher than in horizons below; pH 5.2; abrupt wavy boundary.
A'2 and B'21 12300	26 to 29 inches. 7.5YR 4/4 silty clay loam, est. 30 percent clay; compound strong medium and fine angular blocky; firm; few fine distinct 10YR 6/2 mottles; 2.5Y 6/2 moist, 8/2 to 9/2 dry, blanched silt forms a continuous network throughout horizon as coatings about 1-mm. or less in thickness on medium blocky peds; distinct 10YR 4/2 to 7.5YR 4/4 clay films on ped faces not coated with blanched silt and in ped interiors; conspicuous number of roots about 1-cm. oriented horizontally in horizon; pH 5.0; abrupt irregular boundary.
B'22 12301	29 to 39 inches. Faintly variegated 10YR 4/2 to 3/3 to 7.5YR 3/4 medium silty clay loam, est. 33 percent clay; compound moderate medium prismatic and medium to fine angular blocky; very firm at moisture content well below field capacity; distinct continuous clay films on ped surfaces; interiors 10YR 5/4 with common fine distinct 10YR 6/2 mottles; blanched silt patches 1-mm. thick and about 1-cm. across are common prism faces and occur in small spots about 2-mm. across in ped interiors; common fine tubular pores in ped interiors but few open through vertical clay films; roots few but more than in B'23; pH 4.7; gradual boundary.
B'23 12302	39 to 50 inches. 10YR 5/6 light silty clay loam slightly more clayey than B'3lm; many fine distinct 10YR 6/2 mottles; compound moderate coarse prismatic and moderate medium to coarse angular blocky; very firm, not brittle, at moisture content well below field capacity; distinct 7.5YR 4/4 clay films are continuous on surfaces of peds; 10YR 7/1 blanched silt patches 1-mm. thick and about 5-mm. across evident on many surfaces; common fine tubular pores in ped interiors but sparse to few opening through vertical clay film surfaces; pH 4.8; gradual boundary.
B'3lm 12303	50 to 62 inches. Distinctly mottled 10YR 6/2 and 10YR 5/6 to 5/8 (about 50/50) light silty clay loam, est. 28 percent clay; weak very coarse blocky or prismatic; very firm to extremely firm; distinct and nearly continuous 7.5YR 3/4 to 4/4 clay films on structural units; common fine tubular pores lined with brown clay films and/or black oxide accumulation; black oxide in filamentous (dendritic) pattern on prism faces; some fine roots present in interped pore spaces only; prominent white spots 2- to 3-mm. across and having appearance of partially melted fine sugar occur in small groups, probably organic; pH 5.6; clear boundary.
IIB'32m 12304	62 to 70 inches plus. 10YR 3.5/4 slightly gritty silty loam with many fine faint 10YR 4/2 mottles; massive with numerous very fine horizontal pores apparently lined with clay films suggesting very weak thin platy; extremely firm and brittle at moisture content well below field capacity but definitely moist; occasional roughly planar surfaces with patchy dark brown clay films and fine black oxide coating; common fine and occasional medium tubular pores lined with brown clay films and/or dark oxides; some medium tubular pores have a 10YR 5/2 (blanched?) zone 1- to 2-mm. thick around them; few fine roots occur only on clay-coated planes and in occasional clay and oxide-lined medium tubular pores; pH 6.0.

Remarks: Horizons 6 and 7 form a distinct grayish layer in the profile. Colors are of fully moist soil unless indicated otherwise. pH is by Hellige-Truog field pH kit. Description of pores in this profile and profile S59Ill-68-2, Hosmer silt loam, follows Johnson, W. M., et al. 1960 Soil Science 89:319. Blanched silt in this profile and profile S59Ill-68-2, Hosmer silt loam, refers to silt grains that lack black or colored coatings. When moist the larger grains appear transparent or translucent; when dry, translucent or opaque. Grains appear to lack any coating with appearance determined by nature of the mineral. Since most of the grains seem to be quartz or feldspar, color is gray or white. If blanched silt layer is very thin, it transmits light from the underlying material when fully moist and appears some shade of brown; when dry the blanched silt appears light gray or white.

SCS 421
10 64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. S59Ill-68-2 LOCATION Montgomery County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 12283-12293 January 1965

Depth (In.)	Horizon	1B1a Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (<0.002)	Size class and particle diameter (mm) Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt (0.05-0.02)	Silt: Int. III (0.02-0.002)	3A1 Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 2A2: >2	2-19	19-76
		Pct. of <2 mm														Pct.	Pct. of <76mm	
0-1	A1	2.5	82.5	15.0	-	0.4a	0.4a	0.7a	1.0b	31.3	51.2	32.6	1.5			-	-	
1-6	A2	2.2	82.4	15.4	-	0.3a	0.4a	0.7a	0.8b	30.3	52.1	31.4	1.4			-	-	
6-11	B1	2.0	77.9	20.1	0.1a	0.3c	0.3c	0.6c	0.7b	28.9	49.0	29.9	1.3			-	-	
11-17	B21	1.5	71.0	27.5	-	0.2c	0.2c	0.4c	0.7b	24.4	46.6	25.3	0.8			-	-	
17-23	B22	1.2	66.2	32.6	-	0.1c	0.2c	0.4c	0.5c	22.6	43.6	23.3	0.7			-	-	
23-28	B23&A'2	1.2	65.7	33.1	0.1a	0.2c	0.1c	0.3c	0.5c	21.4	44.3	22.1	0.7			-	-	
28-33	A'2&B'21	1.2	64.8	34.0	0.1a	0.2c	0.2c	0.4c	0.3c	22.8	42.0	23.3	0.9			-	-	
33-41	B'22	1.4	61.8	36.8	-	0.1c	0.2c	0.4c	0.7c	20.5	41.3	21.4	0.7			-	-	
41-50	B'31m	1.4	69.5	29.1	-	0.1c	0.2c	0.5c	0.6c	23.6	45.9	24.5	0.8			-	-	
50-60	B'32m	2.7	73.7	23.6	0.1c	0.3b	0.5b	0.9b	0.9b	28.4	45.3	29.7	1.8			-	-	
60-68+	IIB'33m	15.5	67.5	17.0	0.2a	2.5a	4.1a	6.0	2.7	31.5	36.0	36.8	12.8			-	-	

Depth (In.)	6A1a Organic carbon [d]	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. Iron as Fe	Bulk density 4A1a Field-State	Bulk density 4A1c 30-Cm.	Bulk density 4A1h Oven-Dry	4D1 Extensibility in. per horizon	Water Content 4B4 Field-State	Water Content 4B3 30-Cm.	Water Content 4B1b 1/3-Bar Pieces	Water Content 4B2 15-Bar Sieved	Water Content 4C1 1/3- to 15-Bar in. per horizon	pH		8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	Pct.				
0-1	4.88	0.274	18			0.7								9.3				6.2
1-6	1.22	0.087	14			0.8	1.36	1.34	1.37	0.04	10.0	23.7	23.0	6.5	1.1			4.7
6-11	0.44	0.049	9			0.9	1.39	1.36	1.40	0.05	9.4	23.4	21.8	7.9	1.0			4.8
11-17	0.33	0.043	8			1.3	1.46	1.42	1.49	0.10	12.2	21.1	24.1	11.2	1.1			4.6
17-23	0.33	0.040	8			1.4	1.55	1.45e	1.56	0.14	8.5	22.9e	25.2	13.4	1.0			4.5
23-28	0.27	0.034	8			1.4								14.9				4.4
28-33	0.28					1.3								15.1				4.3
33-41	0.26					1.1	1.63	1.40e	1.65	0.42	9.2	25.9e	27.8	16.9	1.2			4.2
41-50	0.21					1.1	1.61	1.40	1.62	0.44	6.4	29.8	29.9	14.0	2.0			4.4
50-60	0.17					1.1	1.56	1.38e	1.56	0.42	5.5	27.5e	27.4	11.6	2.2			4.6
60-68+	0.14					1.0	1.70	1.60e	1.69	0.14	2.2	20.6e	23.7	8.0	2.0			5.0

Depth (In.)	Extractable bases 6H2b Ca	6G2b Mg	6P2a Na	5B1a 6G2a K	Sum	6H1a Ext. Acidity	Cat. Exch Cap. 5A3a Sum Cations	5A1a NH_4OAc	6G2a KCl Ext. Al	8D3 Ca/Mg	Base saturation 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g										Pct.	
0-1	15.4	2.6	Tr.	0.4	18.4	8.6	27.0	19.4	-	5.9	68	95
1-6	1.9	1.4	Tr.	0.3	3.6	10.2	13.8	8.9	2	1.4	26	40
6-11	1.6	1.6	Tr.	0.3	3.5	9.5	13.0	9.2	3	1.0	27	38
11-17	1.2	3.6	Tr.	0.3	5.1	12.8	17.9	13.4	6	0.3	28	38
17-23	1.2	5.2	0.1	0.3	6.8	16.8	23.6	18.0	8	0.2	29	38
23-28	1.6	6.5	0.1	0.4	8.6	18.2	26.8	20.3	9	0.2	32	42
28-33	2.7	7.2	0.1	0.4	10.4	17.5	27.9	21.4	8	0.4	37	48
33-41	3.2	9.2	0.3	0.5	13.2	17.3	30.5	24.7	9	0.3	43	53
41-50	3.2	8.3	0.4	0.4	12.3	14.0	26.3	19.8	5	0.4	47	59
50-60	3.6	7.6	0.5	0.4	12.1	10.0	22.1	16.3	3	0.5	55	74
60-68+	3.4	5.4	0.5	0.2	9.5	5.8	15.3	11.7	1	0.6	62	81

Depth (In.)	Ratios to Clay [g] NH_4OAc CEC	Ext. Iron	15-Bar Water		
0-1	1.29	0.05	0.62		
1-6	0.58	0.05	0.42		
6-11	0.46	0.04	0.39		
11-17	0.49	0.05	0.41		
17-23	0.55	0.04	0.41		
23-28	0.61	0.04	0.45		
28-33	0.63	0.04	0.44		
33-41	0.67	0.03	0.46		
41-50	0.68	0.04	0.48		
50-60	0.69	0.05	0.49		
60-68+	0.69	0.06	0.47		

a. 25-50% Fe-Mn nodules.
b. 5-25% Fe-Mn nodules.
c. > 50% Fe-Mn nodules.
d. 9.0 Kg/M² to 60 inches.
e. Desorbed at 1/3-Bar instead of adsorbed to 30-Cm.

Soil type: Hosmer silt loam
Soil Nos. : S59Ill-68-2
Location: Montgomery County, Illinois; T9N, R5W, Sec. 13, southwest corner, 490 feet east and 122 feet north.
Vegetation: Woodland, many 12- to 18-inch d.b.h. oaks and thick understory of small oaks, hickory, and blackberry.
Slope, land form and parent material: Very gently convex 3 percent slope to northwest; near edge of nearly level ridge top in the dissected loess-mantled Illinoian drift plain with 50-foot relief between ridge tops and adjacent stream; about 20 feet to northwest the slope grades to a side slope of 18 percent gradient; parent material is loess about 5 feet thick overlying medium textured Illinoian drift or drift-derived material.
Described and sampled by: F. J. Carlisle, R. B. Grossman, J. B. Fehrenbacher, C. E. Downey, and G. O. Walker, October 27, 1959.

Horizon and Lincoln Lab.No.	
O1	About 2 inches thick. A loose layer consisting of fine twigs, old leaf midribs and recent fallen leaves.
O2	About 1/4- to 1/2-inch thick. Very dark brown to black; soft, loose, heterogeneous, and somewhat fibrous material with some fine granules (decomposing plant remains and numerous fecal pellets).
A1 12283	0 to 1 inch. 10YR 3/1 to 3/2 silt loam; moderate fine and medium granular; very friable; mixed with A2 material in places; thickness ranges from 1 to 2 inches within several feet; many fine roots; clear boundary.
A2 12284	1 to 6 inches. 10YR 4/2 to 4/3 silt loam; massive, grading to weak subangular blocky in lower part; friable; less sticky and clayey than B1; many fine and few medium tubular pores; krotovinas 1 to 2 inches in diameter, largely A1 material, common; abundant roots; pH 5.8; clear boundary.
B1 12285	6 to 11 inches. 10YR 4/3 silt loam; weak fine and medium subangular blocky; many ped surfaces 10YR 3/3; friable; few fine patches of dark brown clay films; common to many fine tubular pores; roots abundant; pH 4.8; clear boundary.
B21 12286	11 to 17 inches. 10YR 4/4 light silty clay loam; weak to moderate medium subangular blocky; friable; distinct fine patches of dark brown clay films on ped surfaces and in ped interiors; scattered blanched silt grains on natural surfaces are visible with hand lens but distinct patches of blanched silt not evident; many fine tubular pores; roots common throughout layer; clear boundary.
B22 12287	17 to 23 inches. 10YR 4/4 light silty clay loam; compound of fine angular within moderate medium subangular blocks; friable to slightly firm; thin patches (1- to 3-mm. across) of brown clay films on most ped faces and in ped interiors; patches (1- to 3-mm. across) of blanched silt evident on surfaces of medium subangular blocky peds at low moisture contents, but faint when fully moist, 10YR 5/3 where thickest (<1-mm.); common fine to very fine and few medium tubular pores; roots common; pH 4.6; clear boundary.
B23 and A'2 12288	23 to 28 inches. 10YR 4/4 light silty clay loam, strong medium, fine subangular blocky and angular blocky; firm; blanched silt coatings (<1-mm. thick) on peds appear to form a continuous network although most individual peds not completely coated; fully moist blanched coatings are 10YR 5/3 where thin to 2.5Y 5/2 where thick, dry coatings 10YR 7/2 to 7/3; fine distinct patches of brown clay films (1- to 2-mm. across) evident in most ped interiors and on some ped faces; many ped interiors have fine blanched silt patches (1- to 2-mm. across); intraped tubular pores few to common; interped porosity appears higher than in horizons immediately above and below; roots common; pH 4.5; clear boundary.
A'2 and B'21 12289	28 to 33 inches. Mottled (fine faint pattern) 10YR 4/4 and 5/2 light silty clay loam; strong fine and medium blocky with blocks being compounded into moderate medium prisms in places--mostly in lower part of horizon; blocky peds firm with relatively dense interiors; friable and very porous areas (5- to 10-mm. across) which constitute about 15 percent of horizon are 10YR 5/2 and 5/3 moist, white dry, in fine faint pattern; 2.5Y 6/2 moist, 8/1 dry, blanched silt forms continuous network throughout horizon as coatings up to 1- or 2-mm. thick on surfaces of peds; all natural surfaces not coated with blanched silt have distinct clay films predominantly 10YR 4/3 to 3/4; firm and relatively dense peds seem to contain more clay than friable porous areas; interped porosity much higher than in any lower horizon; intraped porosity very variable; from few to common tubular pores in firm peds to common medium and many fine pores in friable areas; roots common and conspicuous proportion of roots >3-mm. are oriented horizontally; pH 4.4; clear irregular boundary.
B'22 12290	33 to 41 inches. Variegated pattern 10YR 4/2, 4/4, and 5/2 medium silty clay loam; strong medium and fine angular blocky compounded with medium prisms; firm; distinct continuous clay films on ped surfaces; many ped interiors mottled 10YR 5/2 and 7.5YR 4/4, some fine blocky peds appear clay-rich throughout and have same interior colors as on ped surfaces; patches of blanched silt up to 1-mm. thick and 1- to 2-cm. across are common on ped surfaces; thin blanched silt patches (1- to 2-mm. across) occur within some peds; fine tubular pores common in mottled ped interiors but tubular pores opening on clay film-coated vertical surfaces are rare and only few tubular pores open on horizontal ped surfaces; pH 4.5; clear boundary.
B'31m 12291	41 to 50 inches. Mottled (about 50/50 in a fine distinct pattern) 2.5Y 6/1 to 5/2 and 10YR 4/4 to 5/4 light silty clay loam; compound weak medium blocky and weak medium prismatic; prisms have uneven faces; very firm; distinct 10YR 4/3 to 3/4 clay films nearly continuous on ped faces and lining many common fine and few medium tubular pores; visible pores opening through clay films few, especially on vertical surfaces; spots of blanched silt (1- to 5-mm. across) are evident on ped surfaces and in ped interiors; roots few but not confined to interped spaces; pH 4.8; clear boundary.
B'32m 12292	50 to 60 inches. Mottled (about 50/50 in a fine distinct pattern) 10YR 5/2 and 4/4 to 5/4 heavy silt loam; weak coarse and very coarse prismatic with prisms delineated by 1/4-inch thick silty clay loam planes which contain much gray silt and numerous brown clay films in continuous sheets and filamentous pattern; very firm to extremely firm at moisture content well below field capacity; also common very fine faint very dark brown and strong brown mottles; common fine and few medium tubular pores; when moist, distinct white spots (1- to 2-mm. across) and having very fine grainy and shiny (sugary) surfaces that occur in small groups, probably organic; roots observed only in planes between prisms; pH 4.5; clear boundary.
IIB'33m 12293	60 to 68 inches plus. 10YR 4/4 gritty silt loam with common medium distinct 10YR 4/2 to 5/2 mottles; massive with 1/4- to 3/4-inch thick vertical planes 4 to 10 inches apart; extremely firm and very difficult to dig with spade at field moisture well below field capacity; grayish brown mottles commonly associated with fine to medium tubular pores lined with dark brown clay films and/or very dark oxide accumulations; vertical planes, much less firm than adjacent mass, consist of 10YR 5/2 to 5/3 silt loam and dark brown clay films with many blanched silt patches; common fine and few medium tubular pores; very weak very thin platy, suggested by faint horizontal lineation due partly to some fine and very fine horizontal pores and associated numerous specks of blanched silt <1-mm. across; fine roots common in vertical planes only; some roughly spherical voids filled with dark brown clay; pH 5.0.

Remarks: pH is by Hellige-Truog field pH kit. See remarks in description of profile S59Ill-59-1, Hosmer silt loam, concerning description of pores and blanched silt.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. 849Ill-77-1 LOCATION Pulaski County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 5092 - 5097

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm															
0-2	A1 a																
2-11	A2	2.0	82.6	15.4	0.1	0.2	0.2	0.3	1.2	42.8	39.8	44.2	0.8		-		
11-17	A3/B1 a																
17-22	B2	1.6	74.0	24.4	-	0.2	0.2	0.3	0.9	35.8	38.2	36.9	0.7		-		
22-27	B2	1.5	72.7	25.8	-	0.2	0.1	0.3	0.9	35.6	37.1	36.6	0.6		-		
27-31	B2	1.8	72.2	26.0	-	0.2	0.2	0.4	1.0	34.9	37.3	36.1	0.8		-		
31-35	B2 a																
35-39	B2	1.3	74.6	24.1	-	-	0.1	0.3	0.9	38.3	36.3	39.4	0.4		-		
39-44	B2 a																
44-52	C1	2.3	75.3	22.4	-	0.2	0.2	0.6	1.3	38.4	36.9	40.1	1.0		-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density 4A1e ⅓ bar	Bulk density 4A1h Oven dry	4D1 COLE	Water content	Water content 4B1c ⅓ bar	Water content 4B2 15 bar		4C1 WRD	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
0-2																
2-11	0.68															4.9
11-17																
17-22	0.22															4.6
22-27	0.15															4.6
27-31	0.12															4.6
31-35																
35-39	0.07															4.5
39-44																
44-52	0.05															4.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g														
0-2															
2-11	1.5	1.6	0.1	0.3		7.8	11.4							31	
11-17															
17-22	2.1	3.9	0.1	0.4		10.8	17.3							37	
22-27	2.8	4.6	0.1	0.3		12.1	19.9							39	
27-31	3.4	4.7	0.1	0.3		12.6	21.1							40	
31-35															
35-39	4.3	5.4	0.3	0.3		10.5	20.8							50	
39-44															
44-52	5.9	6.5	0.6	0.3		8.0	21.3							62	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a No analyses on these horizons.

Soil Type: Hosmer silt loam
Soil No.: S49Ill-77-1
Location: Pulaski County, Illinois. T. 15S., R. 1 E., Sec. 16, NE 1/4, NE 40, SW 10, along S side of gravel road (Lafayette type gravel) in 10 ft. road cut, 105 ft. ESE of center of private road going S along W side of wood.
Vegetation and land use: Oak-hickory deciduous forest cover with undergrowth of dogwood and other small trees and shrubs.
Slope and land form: 8 1/2 percent to E.
Sampled by and date: J. B. Fehrenbacher, W. S. Ligon, R. T. Odell, G. D. Smith, P. T. Veale, H. L. Wascher and E. P. Whiteside. November 3, 1949.

Horizon and Beltsville Lab. No.	
A1	0 to 2 inches. Very dark grayish brown (10YR 3/2) friable silt loam, 1/16 to 1/8 inch crumb, many rotting leaves, roots up to 1/4 inch.
A2 5092	2 to 11 inches. Dark yellowish brown (10YR 4/4) friable silt loam 1/16 to 1/2 inch irregular crumbs or fragments, moderate amounts of worm channels and roots up to 1/4 inch.
A3 or B1	11 to 17 inches. Yellowish brown (10YR 5/4) friable silt loam, 1/4 to 1/2 inch irregular fragments.
B2 5093	17 to 22 inches. Yellowish brown (10YR 5/6) very slightly plastic heavy silt loam to light silty clay loam, 1/4 to 1/2 inch slightly rounded to blocky lightly coated light yellowish brown (10YR 6/4), few roots up to 1/8 inch and moderately numerous worm channels.
B2 5094	22 to 27 inches. Horizon same as above.
B2 5095	27 to 31 inches. Yellowish brown (10YR 5/6) and pale brown (10YR 6/3), moderately compact heavy silt loam, 1/4 to 1/2 inch irregular aggregates, easily crushed, moderately heavy coated dry very pale brown (10YR 8/3), few iron-manganese concretions, brown (7.5YR 4/2), few roots and small worm channels.
B2	31 to 35 inches. Yellowish brown (10YR 5/8) and light yellowish brown (10YR 6/4) more compact than gray layer above, silty clay loam or light silty clay loam, 1/2 to 1-1/2 inch angular to rounded firm aggregates, coated dry very pale brown (10YR 8/3), thick on smaller aggregates but nearly absent on larger, occasional iron-manganese concretion, dark yellowish brown (10YR 4/4), few roots and few worm channels, occasional channel filled with gray silty material.
B2 5096	35 to 39 inches. Same as horizon above.
B2	39 to 44 inches. Same as horizon above.
C1 5097	44 to 52 inches. (10YR 5/8) and (10YR 8/2) compact heavy silt loam, irregular fragments, few iron-manganese concretions (10YR 3/2), few roots in cracks or along aggregate faces, more worm channels than in layer above, gray silica flour fills some cracks and wormholes.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. S49Ill-91-1 LOCATION Union County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 5085 - 5091

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-2	A1	2.4	83.6	14.0	0.1	0.3	0.2	0.5	1.3	42.3	41.3	44.0	1.1			-		
6-10½	A22	1.8	80.4	17.8	-	0.1	0.2	0.3	1.2	38.2	42.2	39.6	0.6			-		
15½-23	B21t	2.1	70.9	27.0	-	0.2	0.2	0.5	1.2	31.8	39.1	33.3	0.9			-		
23-27	A'2	2.6	72.1	25.3	-	0.4	0.4	0.7	1.1	31.7	40.4	33.2	1.5			-		
27-35	B'21x	2.9	73.7	23.4	-	0.4	0.4	0.7	1.4	33.5	40.2	35.2	1.5			-		
42-50	B3x	3.1	71.8	25.1	-	0.4	0.4	0.8	1.5	33.1	38.7	35.0	1.6			-		
50-60	C	2.0	78.3	19.7	-	0.1	0.2	0.5	1.2	36.7	41.6	38.2	0.8			-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density:	4A1e ⅓ bar	4A1h Oven dry	4D1	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1	pH: 8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	COLE	Pct.	Pct.	Pct.		WRD in/in		KCl	H_2O
0-2	2.72																	6.5
6-10½	0.35																	4.6
15½-23	0.35																	4.4
23-27	0.15																	4.6
27-35	0.12																	4.5
42-50	0.08																	4.6
50-60	0.08																	4.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-2	10.0	2.3	0.1	0.8		5.4	18.7							4.3		71	
6-10½	0.6	0.7	0.1	0.4		8.8	10.6									17	
15½-23	2.2	2.9	0.1	0.3		13.6	19.1							0.8		29	
23-27	1.6	2.6	0.1	0.3		13.9	18.5							0.6		25	
27-35	1.8	3.0	0.3	0.3		13.5	18.9							0.6		29	
42-50	3.3	5.7	0.8	0.3		11.2	21.3							0.6		48	
50-60	4.0	5.4	0.8	0.3		8.2	18.7							0.7		56	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hosmer silt loam
Soil No.: S49Ill-91-1
Location: Union County, Illinois. T. 11 S., R. 1 E., Sec. 34, SE 1/4, NE 40, SE 10, approximately 400 ft. N. and 150 ft. W. of SE corner.
Vegetation and land use: Cut-over deciduous hardwoods, mostly oak.
Slope and land form: 6 percent, facing north.
Sampled by and date: J. B. Fehrenbacher, J. E. Gieseking, W. S. Ligon, R. T. Odell, G. D. Smith, P. T. Veale, H. L. Wascher, and E. P. Whiteside. November 2, 1949.

Horizon and Beltsville Lab. No.	
A1 5085	0 to 2 inches. Very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) silt loam; moderate, medium, granular structure; friable; clear, smooth boundary.
A21	2 to 6 inches. Brown (10YR 4/3) silt loam, somewhat mixed with very dark grayish brown (10YR 3/2); moderate, medium, granular structure; friable; clear, smooth boundary.
A22 5086	6 to 10-1/2 inches. Yellowish brown (10YR 5/4) to light yellowish brown (10YR 6/4) silt loam, somewhat mixed with dark grayish brown (10YR 4/2) material; weak, coarse, platy, breaking to moderate medium, granular structure; friable; clear, smooth boundary.
B1	10-1/2 to 15-1/2 inches. Dark brown (7.5YR 4/4), heavy silt loam; moderate, medium and fine, subangular blocky structure; firm; peds have thin coats of yellowish brown (10YR 5/6) or brownish yellow (10YR 6/6); clear, smooth boundary.
B21t 5087	15-1/2 to 23 inches. Dark brown (7.5YR 4/4), light silty clay loam; strong, medium, subangular blocky structure; firm; peds have thin coats of yellowish brown (10YR 5/6) or brownish yellow (10YR 6/6); clear, smooth boundary.
A'2 5088	23 to 27 inches. Strong brown (7.5YR 5/6) silt loam; common, medium mottles of yellowish brown (10YR 5/6) or brownish yellow (10YR 6/6); moderate, fine, subangular blocky structure; friable, firm in place; peds coated with light brownish gray (10YR 6/2) clear smooth boundary.
B'21x 5089	27 to 35 inches. Yellowish brown (10YR 5/4) silt loam; few, fine mottles of strong brown (7.5YR 5/6); medium, prismatic, breaking to moderate, fine, subangular blocky structure; friable, firm in place, brittle when moist; clay skins evident; prisms are coated with light brownish gray (10YR 6/2); common, medium, iron-manganese concretions; clear, smooth boundary.
B'22x	35 to 42 inches. Dark yellowish brown (10YR 4/4) silt loam; few fine mottles of yellowish red (5YR 4/8); weak, medium, blocky structure; very firm, brittle when moist; exteriors of peds are light brownish gray (10YR 6/2); common, thin, patchy clay skins; few, fine iron-manganese concretions; clear, smooth boundary.
B'3x 5090	42 to 50 inches. Dark yellowish brown (10YR 4/4) silt loam; few, fine mottles of yellowish brown (10YR 5/6); weak, coarse, blocky structure; very firm, brittle when moist; exteriors of peds light brownish gray (10YR 6/2); common, thin, patchy clay skins; common, fine iron-manganese concretions; clear, smooth boundary.
C 5091	50 to 60 inches. Dark yellowish brown (10YR 4/4) silt loam; many, medium, mottles of light brownish gray (10YR 6/2) and a few, fine mottles of yellowish brown (10YR 5/6); massive; very firm.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Rosmer silt loam SOIL Nos. S51I11-100-1 LOCATION Williamson County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 511068 - 511075

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	A1		82.5	14.4	-	0.3	0.4	0.7	1.7		42.6	42.0				tr.		
5-11	A2		78.2	19.4	-	0.2	0.3	0.5	1.4		42.5	37.3				-		
11-18	B11		74.5	22.7	0.1	0.4	0.4	0.6	1.3		41.5	34.7				-		
18-23	B12		74.8	22.2	0.2	0.5	0.4	0.6	1.3		43.0	33.5				-		
23-26	Bx		70.0	27.2	0.1	0.5	0.3	0.6	1.3		40.3	31.3				-		
29-35	B21		70.5	27.2	0.1	0.4	0.2	0.4	1.2		39.6	32.3				-		
36-43	B22		72.2	25.4	-	0.1	0.2	0.6	1.5		40.2	33.8				-		
43-48	B3		75.2	23.3	-	0.1	0.1	0.3	1.0		42.5	33.9				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5	0.62																4.8
5-11	0.21																4.9
11-18	0.14																4.8
18-23	0.06																4.7
23-26	0.05																4.6
29-35	0.04																4.6
36-43	0.01																4.6
43-48	0.01																4.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5	1.0	1.1	0.2	0.3		8.3	10.9									24	
5-11																	
11-18	2.2	2.5	0.2	0.3		9.1	14.3									36	
18-23																	
23-26	3.4	4.5	0.3	0.3		11.8	20.3									42	
29-35																	
36-43	4.7	5.9	0.5	0.2		10.4	21.7									52	
43-48																	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hosmer silt loam.
Soil No.: S51Ill-100-1
Location: Williamson County, Illinois. T. 10S., R. 1E., Sec. 28, SW 1/4 SW 40, NW 10 - 270 feet E. of NW Cor. of NW 10 on south side of private road. Aerial photo BHK-2H-20 8-5-51.
Vegetation and land use: Bluegrass and weeds.
Slope and land form: 2-3 percent.
Sampled by and date: Herman L. Wascher and J. B. Fehrenbacher. October 18, 1951.

Horizon and Beltsville Lab. No.	
A1 511068	0 to 5 inches. Dark yellowish brown (10YR 4.5/4) silt loam, soft crumb structure.
A2 511069	5 to 11 inches. Brown (7.5YR 5/4) silt loam, soft crumb structure.
B11 511070	11 to 18 inches. Strong brown (7.5YR 5/6) heavy silt loam to light silty clay loam, soft subangular blocky structure.
B12 511071	18 to 23 inches. Strong brown (7.5YR 5.5/6) very light silty clay loam, fragmental to subangular blocky structure.
Bx 511072	23 to 26 inches. Yellowish brown (10YR 5/4) with strong brown (7.5YR 5/6) iron mottlings, silt loam, fragmental to blocky structure with moderately thick pale brown (10YR 6/3) coatings.
B21 511073	29 to 35 inches. Yellowish brown (10YR 5/4) and brown (7.5YR 4/4) with thick pale brown (10YR 6/3) coatings, moderately heavy silty clay loam, coarse blocky structure in prismatic form in upper part.
B22 511074	36 to 43 inches. Brown to yellowish brown (10YR 5/3 to 5/4) and brown (7.5YR 4/4) with moderately thick pale brown (10YR 6/3) coatings, coarse blocky structure; medium silty clay loam.
B3 511075	43 to 48 inches. Light brownish gray to brown (10YR 6/2 to 5/3) and brown (7.5YR 4/4), iron concretions of dark brown (7.5YR 3/2), faint pale brown (10YR 6/3) coatings, coarse blocky to massive structure. Light silty clay loam.

Notes: Broken moist colors.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hosmer silt loam SOIL Nos. 851I11-100-2 LOCATION Williamson County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 511076 - 511082

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-8	Ap	4.5	80.7	14.8	0.1	0.3	0.6	1.8	1.7	38.1	42.6	40.8	2.8			-		
8-15	A2	2.0	79.9	18.1	-	0.1	0.3	0.5	1.1	31.9	48.0	33.3	0.9			-		
15-25	B11	1.8	75.8	22.4	-	0.2	0.3	0.5	0.8	29.4	46.4	30.5	1.0			-		
25-28	B12	1.4	68.2	30.4	-	0.2	0.2	0.4	0.6	25.4	42.8	26.2	0.8			-		
28-36	B2	1.3	67.0	31.7	-	0.1	0.2	0.4	0.6	26.0	41.0	26.9	0.7			-		
36-48	B3	1.0	72.5	26.5	-	-	0.1	0.3	0.6	28.6	43.9	29.4	0.4			-		
48-56	C1	1.0	76.0	23.0	-	-	0.1	0.3	0.6	31.7	44.3	32.5	0.4			-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density 4A1e ⅓ bar	Bulk density 4A1h Oven dry	4D1 COLE	Water content 4B1c ⅓ bar	Water content 4B2 15 bar		4C1 WRD	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.	in/in		
0-8	0.71														6.5
8-15	0.31														5.0
15-25	0.05														4.7
25-28	0.04														4.6
28-36	0.04														4.6
36-48	0.01														4.6
48-56	0.01														4.7

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay CEC Sum	Ratios to clay Ext. iron	Ratios to clay 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-8	6.8	1.6	0.2	0.1		4.5	13.2										66	
8-15																		
15-25	2.6	1.7	0.2	0.2		10.2	14.9										32	
25-28																		
28-36	3.7	4.5	0.5	0.3		15.0	24.0										38	
36-48																		
48-56	5.8	5.3	0.6	0.3		8.3	20.4										59	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hosmer silt loam
Soil No.: S51Ill-100-2
Location: Williamson County, Illinois. T9S, R2E, Sec. 19, NW 1/4, NE40, NW10 - On ridge 1/8 mile wide between draws, in cut on north side of R.R. See Aerial photo BRK-2H-175, 8-5-51.
Vegetation and land use: Bluegrass and weeds.
Slope and land form: 4 - 5 percent to north.
Sampled by and date: J. B. Fehrenbacher, October 17, 1951.

Horizon and Beltsville Lab. No.	
Ap 511076	0 to 8 inches. Brown (10YR 4/3) silt loam, fine crumb structure.
A2 511077	8 to 15 inches. Brown to yellowish brown (10YR 5/3 to 5/4) silt loam, crumb to weak platy structure.
B11 511078	15 to 25 inches. Yellowish brown (10YR 5/6) light silty clay loam, blocky to subangular blocky structure.
B12 511079	25 to 28 inches. Yellowish brown (10YR 5/4) mottled with dark yellowish brown (10YR 4/4) and pale brown (10YR 6/3) with moderately heavy light gray (10YR 7/2) coatings, subangular blocky structure.
B2 511080	28 to 36 inches. Brown (7.5YR 5/4) mottled with pale brown (10YR 6/3) and yellowish brown (10YR 5/8) heavy silty clay loam, medium to coarse blocky structure with tendency to prismatic form in upper part.
B3 511081	36 to 48 inches. Yellowish brown (10YR 5/4) mottled with pale brown and gray (10YR 6/3 and 3/1) silty clay loam, coarse blocky structure.
C1 511082	48 to 56 inches. Dark yellowish brown (10YR 4.5/4) mottled with pale brown (10YR 6/3) heavy silt loam, massive structure.
C2 Not Sampled	56 to 70 inches. Reddish brown (5YR 4/4) streaked with light brownish gray (10YR 6/2) silt loam, probably Farmdale loess.

Notes: Surface Ap seemed thicker than normal, may have been some piling up. Broken moist colors. 56 inch Peorian loess. 14 inch Farmdale loess on Illinoian till.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Lemont sandy loam SOIL Nos. 854Ill-52-1 LOCATION Lee County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 54908 - 54917

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	Coarse fragments 3B1: 2 – 19 Pct. of < 76mm	Coarse fragments 3B1: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	A1		20.5	4.4	0.3	3.9	22.1	43.0	5.8		10.1	33.9				-		
4-7	A21		20.5	4.2	-	3.1	22.6	43.2	6.4		10.8	34.4				-		
7-14	A22		21.5	3.7	-	3.3	22.4	42.9	6.2		10.9	35.1				-		
14-19	A23		28.1	4.2	-	3.1	20.0	38.7	5.9		14.9	35.3				-		
19-26	B1		34.3	9.2	-	2.8	16.6	31.9	5.2		17.8	35.9				-		
26-34	B21		35.1	12.2	0.1	2.7	15.5	29.2	5.2		19.1	34.1				-		
34-39	B22		26.0	11.7	-	3.7	18.8	33.8	6.0		13.3	33.4				-		
39-46	C1		11.7	5.9	0.2	5.3	24.8	44.4	7.7		5.8	33.0				-		
46-51	C2		3.4	8.5	0.1	4.3	30.1	47.8	5.8		1.4	25.3				-		
51-58	C3		2.6	2.5	-	3.8	31.5	52.1	7.5		0.7	28.8				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-4	1.64															4.8
4-7	0.53															4.9
7-14	0.16															5.2
14-19	0.18															5.4
19-26	0.15															5.1
26-34	0.09															4.8
34-39	0.11															5.0
39-46	0.07															5.1
46-51	0.08															5.0
51-58	0.06															5.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g														
0-4	1.0	0.4	tr.	tr.		7.2	8.6							16	
4-7	0.4	0.3	tr.	tr.		5.5	6.2							11	
7-14	0.5	0.1	tr.	0.1		2.3	3.0							23	
14-19	0.5	0.2	tr.	tr.		1.7	2.4							29	
19-26	1.3	0.6	tr.	tr.		3.6	5.5							34	
26-34	1.4	1.1	0.1	tr.		5.3	7.9							33	
34-39	1.4	1.1	0.1	tr.		4.7	7.3							36	
39-46	0.9	0.5	tr.	tr.		2.5	3.9							36	
46-51	1.4	0.2	0.1	tr.		3.6	5.3							32	
51-58	1.5	0.8	tr.	tr.		1.1	3.4							68	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, **Chl.** = chlorite, **Vm.** = Vermiculite, **mi** = mica, **Int.** = Interstratified layer, **Qtz.** = quartz, **Kl.** = Kaolinite

Relative amounts: blank = not determined, dash = not detected, **tr.** = **trace**, **x** = small, **xx** = moderate, **xxx** = abundant, **xxxx** = dominant.

Soil Type: Lamont sandy loam.
Soil No.: S54Ill-52-1
Location: Lee County, Illinois. T.19 N., R.9 E., Sec. 35, NW 1/4, SW 40, center of 40 about 32 rods east and 6 rods north of private road gate into timber pasture on north slope of sandy ridge.
Vegetation and land use: Bluegrass, tickle grass, and a few weeds were the immediate ground cover. A few oak trees lie just to north, east, and west but not over sampling site or to the south.
Slope and land form: 9 - 10 percent.
Sampled by and date: H. L. Wascher, J. D. Alexander, E. J. Pedersen, and L. J. Bartelli. October 26, 1954

Horizon and Beltsville Lab. No.	
A1 54908	0 to 4 inches. Very dark brown (10YR 2/2) very dark brown (7.5YR 2/2) rubbed sandy loam, fine crumb to weak granular.
A21 54909	4 to 7 inches. Dark brown (7.5YR 3.5/2) fine sandy loam to loamy fine sand, single grain, presence of channels or balls of dark colored material from A1.
A22 54910	7 to 14 inches. Brown (7.5YR 4.5/4.5), loamy fine sand, single grain.
A23 54911	14 to 19 inches. Brown (7.5YR 4.5/4), loamy fine sand, single grain, very slightly cemented.
B1 54912	19 to 26 inches. Brown (7.5YR 4.5/4) (60 percent) reddish brown (5YR 3.5/4) (40 percent), light loam, breaks into 1/4 - 1/2 inch irregular fragments, slightly cemented.
B21 54913	26 to 34 inches. Brown to dark brown (7.5YR 4/4), loam to light clay loam, 1/2 inch irregular subangular blocky, fibrous roots and in this horizon, wavy distinct boundary to B1, 3-4 inch wave.
B22 54914	34 to 39 inches. Brown (7.5YR 4.5/5), clay loam, breaks into 3/4 inch irregular angular fragments.
C1 54915	39 to 46 inches. Dark yellowish brown (9YR 4/4), loamy sand, single grain.
C2 54916	46 to 51 inches. Dark reddish brown (6YR 3/5), sandy clay loam, irregular angular fragments, slightly cemented iron banded layer.
C3 54917	51 to 58 inches. Yellowish brown (10YR 5/4) stained or mottled with brown to dark brown (7.5YR 4/4), loose sand, single grain, irregular boundary with layer above, some iron concretions of 1/8 - 1/4 inch in size.
C4 Not Sampled	58 inches plus. Another iron cemented horizon similar to C2 above.

Notes: All colors from moist samples.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Muren silty clay loam SOIL Nos. S62Ill-2-2 LOCATION Alexander County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 16935-16943 March 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2-0.05)	Total: Silt (0.05-0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: (0.05-0.02)	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	4E1c Moved Clay		2A2 Coarse fragments: > 2	2 - 19	19 - 76
		Pct. of < 2 mm												Pct.		Pct.	Pct. of < 76mm	
0-4	Ap	2.3	76.1	21.6	-	0.2a	0.1a	0.3a	1.7b	42.5	33.6	44.4	0.6			Tr.		
4-9	B21	2.1	72.5	25.4	-	0.2a	0.1a	0.3a	1.5b	38.9	33.6	40.6	0.6	5.8		-		
9-16	B22	1.8	74.8	23.4	-	Tr.a	0.1a	0.2a	1.5b	40.3	34.5	42.0	0.3	3.4		-		
16-25	B23	2.0	75.0	23.0	-	Tr.a	0.1a	0.2a	1.7b	41.9	33.1	43.7	0.3	3.5		-		
25-34	B31	2.2	76.8	21.0	0.1a	0.1a	0.1a	0.2a	1.7b	43.3	33.5	45.2	0.5	2.1		-		
34-44	B32	2.2	79.4	18.4	0.1a	0.1a	0.1a	0.2a	1.7b	44.6	34.8	46.4	0.5	1.6		-		
44-50	B33	1.9	80.5	17.6	-	Tr.a	0.1a	0.2a	1.6b	46.3	34.2	48.0	0.3	1.3		-		
50-61	C1	2.1	82.5	15.4	-	0.1c	Tr.c	0.2c	1.8c	46.4	36.1	48.3	0.3	1.2		-		
61-72+	C2	1.7	83.6	14.7	-	0.1c	Tr.c	0.2c	1.4c	45.7	37.9	47.2	0.3	1.1		-		

Depth (In.)	6A1a Organic carbon d	6B1a Nitrogen	C/N	Carbonate as $CaCO_3$		Bulk density: 4A1a Field-State	4A1c 30-Cm.	4A1b Air-Dry	4D1 COLE	Water Content: 4B4 Field-State	4B3 30-Cm	4B1b 1/3-Bar	4B2 15-Bar	4C1 1/3-mm-15-Bar Bar in./in.		pH: 8C1a (1:1)
	Pct.	Pct.		Pct.		g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	Pct.			
0-4	1.02	0.100	10			1.52	1.44	1.52	0.017	9.0	27.8	22.6	9.5	0.19		4.8
4-9	0.20					1.53	1.45	1.55	0.020	14.2	26.8	24.2	10.8	0.19		4.6
9-16	0.10					1.53	1.47	1.59	0.028	20.4	28.3	24.6	11.1	0.20		4.7
16-25	0.06					1.50	1.42	1.56	0.032	24.0	30.1	25.3	11.3	0.20		4.4
25-34	0.03											28.0	10.0			4.7
34-44	0.03					1.48	1.37	1.50	0.032	21.6	33.7	28.7	10.4	0.25		5.1
44-50	0.03												10.2			5.6
50-61	0.02					1.49	1.39	1.50	0.024	21.0	33.0	26.9	8.6	0.25		6.0
61-72+	0.02											27.2	7.9			6.7

Depth (In.)	Extractable bases: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	5B1a Sum	6H1a Ext. Acidity	Cat. Exch Cap.: 5A3a Sum Cations	5A1a NH_4OAc	6G1b KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations	5C1 NH_4OAc
	meq/100 g										Pct.	Pct.
0-4	5.8	3.8	0.1	0.2	9.9	9.7	19.6	14.7	0.9	1.5	50	67
4-9	3.7	4.1	0.2	0.3	8.3	12.1	20.4	15.6	3.5	0.9	41	53
9-16	4.0	4.4	0.4	0.3	9.1	11.2	20.3	15.9	3.5	0.9	45	57
16-25	5.1	4.8	0.5	0.3	10.7	10.0	20.7	16.5	2.4	1.1	52	65
25-34	6.3	5.5	0.7	0.3	12.8	7.9	20.7	16.4	1.0	1.1	62	78
34-44	7.1	5.8	0.8	0.2	13.9	4.5	18.4	15.2	0.3	1.2	76	91
44-50	7.5	5.8	0.8	0.2	14.3	2.9	17.2	14.4	0.1	1.3	83	99
50-61	7.1	5.3	0.7	0.2	13.3	2.6	15.9	13.3		1.3	84	100
61-72+	7.0	4.9	0.7	0.2	12.8	2.6	15.4	12.7		1.4	83	101

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC		15-Bar Water		
0-4	0.68		0.44		
4-9	0.61		0.42		
9-16	0.68		0.47		
16-25	0.72		0.49		
25-34	0.78		0.48		
34-44	0.83		0.56		
44-50	0.82		0.58		
50-61	0.86		0.56		
61-72+	0.86		0.54		

a. > 50% Fe-Mn nodules.
b. 25-50% Fe-Mn nodules.
c. 5-25% Fe-Mn nodules, 5-25% mica flakes.
d. 2.6 Kg/M^2 to 60 inches. (Method 6A)

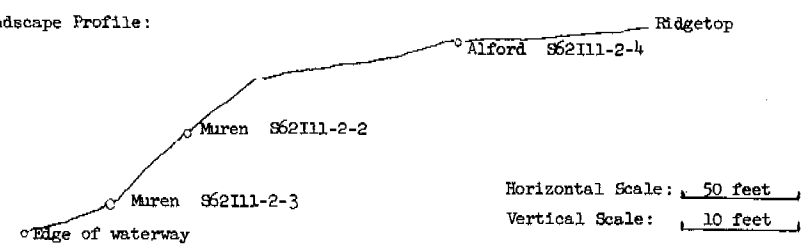
Soil Type: Muren silty clay loam
Soil Nos.: S62Ill-2-2
Location: Alexander County, Illinois, T14S, R2W, Sec. 29, NE 160, NW 40, SE 10, 137 steps east of large mulberry tree and located in middle of slope 26 steps south of gully in draw.
Parent Material: Deep loess.
Physiography: Upland sideslope.
Slope: 16 percent.
Drainage Class: Moderately well.
Vegetative Cover: Grass (pasture).
Erosion: Severe.
Sampled by: R. B. Grossman and G. S. Holmgren, May 22, 1962.
Described by: G. O. Walker, J. B. Fehrenbacher and W. D. Parks.

Horizon and Lincoln Lab. No.	
Ap 16935	0 to 4 inches. Yellowish brown (10YR 5/4) light silty clay loam; moderate thin platy structure breaking to weak medium subangular blocky structure; firm; pH 5.2; clear smooth boundary.
B21 16936	4 to 9 inches. Yellowish brown (10YR 5/4) silty clay loam with few medium distinct light brownish gray (10YR 6/2) and few medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure breaking to moderate thin platy structure; firm; brown (7.5YR 4/4) clay films on surface of the peds; pH 5.3; clear smooth boundary.
B22 16937	9 to 16 inches. Brown (7.5YR 5/4) silty clay loam with few medium distinct light brownish gray (10YR 6/2) and few medium prominent yellowish red (5YR 4/6) mottles; moderate to strong medium subangular blocky structure; firm; medium reddish brown (5YR 4/4) clay films on the surface of the peds; pH 5.3; clear smooth boundary.
B23 16938	16 to 25 inches. Dark brown to brown (7.5YR 4/4) light silty clay loam with common medium distinct brown (10YR 5/3 moist) and light gray (10YR 7/2 dry), and few common prominent yellowish red (5YR 4/6) mottles; weak to moderate medium and coarse subangular blocky structure; firm; slightly fragile; medium continuous reddish brown (5YR 4/4) clay films on surface of the peds, root channels filled with reddish brown (5YR 4/4); pH 4.6; gradual smooth boundary.
B31 16939	25 to 34 inches. Dark brown to brown (7.5YR 4/4) heavy silt loam with common medium distinct grayish brown (10YR 5/2 moist) and light gray (10YR 7/2 dry) and common medium prominent dark reddish brown (5YR 3/4) mottles; weak coarse angular blocky structure; firm; slightly fragile; peds coated with brown (7.5YR 4/4) clay films and thin smears of black (10YR 2/1) Mn; many fine pores, and few very dark brown (10YR 2/2) Fe and Mn concretions; pH 5.0; gradual smooth boundary.
B32 16940	34 to 44 inches. Dark brown to brown (7.5YR 4/4) silt loam with common medium distinct grayish brown (2.5Y 5/2) mottles; weak coarse angular blocky structure; firm; peds coated with thin discontinuous dark brown (7.5YR 3/2) clay films, root channels lined with black (10YR 2/1) Mn coatings and a few black (10YR 2/1) Fe and Mn concretions; pH 5.6; gradual smooth boundary.
B33 16941	44 to 50 inches. Dark brown to brown (10YR 4/3) silt loam with common medium prominent grayish brown (2.5Y 5/2) mottles; very weak coarse angular blocky structure to massive; firm; peds coated with thin discontinuous dark brown (7.5YR 3/2) clay films, and thin continuous black (10YR 2/1) Mn and thin grayish brown (2.5Y 5/2) silt; root channels lined with black (10YR 2/1) Mn coatings, and a few black (10YR 2/1) Fe and Mn concretions; pH 5.8; gradual smooth boundary.
C1 16942	50 to 61 inches. Dark yellowish brown (10YR 4/4) silt loam with common fine prominent light brownish gray (10YR 6/2) and few fine faint dark yellowish brown (10YR 3/4) mottles; massive; friable; some thin black (10YR 2/1) Mn stains; pH 6.2; arbitrary boundary.
C2 16943	61 to 72 inches plus. Dark yellowish brown (10YR 4/4) silt loam with common fine prominent light brownish gray (10YR 6/2) mottles; massive; friable; fewer Mn stains than in above horizon; pH 6.7. Boring to 10 feet was the same as this horizon.

Remarks: This profile is the middle one in elevation in a transect of three soils. Upslope on the ridge top is Alford (S62Ill-2-4). Downslope position is Muren (S62Ill-2-3).

Mineralogy (Method 7A).
B22 horizon: The clays contain small to moderate amounts of montmorillonite, vermiculite, mica and kaolinite and small amounts of chlorite and an interstratified chlorite mineral. The clays are fairly well crystallized.

Landscape Profile:



SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Miren silt loam SOIL Nos. 862Il1-2-3 LOCATION Alexander County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 16944-16952 March 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (in.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	2A2 Coarse fragments: > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm														
0-5	Ap	2.4	78.6	19.0	0.1a	0.2b	0.1b	0.2b	1.8c	44.4	34.2	46.3	0.6	-		
5-9	B1	2.4	79.4	18.2	-	0.2b	0.2b	0.3b	1.7c	44.4	35.0	46.4	0.7	-		
9-15	B21	2.4	77.9	19.7	0.1b	0.3b	0.2b	0.3b	1.5c	43.8	34.1	45.5	0.9	-		
15-27	IIB22	2.0	76.9	21.1	0.1b	0.2b	0.1b	0.2b	1.4c	42.7	34.2	44.2	0.6	-		
27-38	IIB23	1.8	78.0	20.2	-	Tr.b	0.1b	0.2b	1.5c	44.5	33.5	46.1	0.3	-		
38-42	IIIB31	1.6	80.2	18.2	-	0.2d	0.1d	0.2d	1.1d	45.1	35.1	46.3	0.5	-		
42-52	IIIB32	2.5	82.7	14.8	0.2	0.5	0.2	0.3	1.3	45.7	37.0	47.2	1.2	-		
52-61	IIIC1	2.6	83.5	13.9	0.1	0.3	0.1	0.2	1.9	48.6	34.9	50.6	0.7	-		
61-72+	IIIC2	1.9	84.3	13.8	-	0.1	0.1	0.2	1.5	49.6	34.7	51.3	0.4	-		

Depth (in.)	6A1a Organic carbon e Pct.	6B1a Nitrogen Pct.	C/N	Carbonate as $CaCO_3$ Pct.	Bulk density: 4A1a Field-State g/cc	4A1c 30-Cm. g/cc	4A1b Air-Dry g/cc	4I1 COLE	Water Content: 4B4 Field-State Pct.	4B3 30-Cm Pct.	4B1b 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-minus 15-Bar in./in.	pH: 8C1a (1:1)
0-5	0.99	0.101	10		1.49	1.43	1.49	0.014	8.6	24.6	21.6	8.2	0.19	5.6
5-9	0.36	0.053	7		1.47	1.44	1.50	0.014	13.2	24.2	19.7	7.1	0.18	5.2
9-15	0.21				1.45	1.42	1.50	0.017	19.0	26.5	21.6	8.3	0.19	5.6
15-27	0.13				1.54	1.48	1.62	0.032	23.0	27.5	23.7	10.4	0.20	5.3
27-38	0.06				1.60	1.50	1.66	0.036	20.6	27.0	27.0	10.4	0.25	4.7
38-42	0.05											10.3		5.1
42-52	0.05				1.54	1.42	1.55	0.028	25.5	32.2		9.4		6.3
52-61	0.06				1.54	1.42	1.55	0.028	24.8	31.9	25.9	8.3	0.25	6.6
61-72+	0.06										26.6	7.9		6.6

Depth (in.)	Extractable bases 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap.: 5A3a Sum Cations	5A1a NH_4OAc	6G1b KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-5	7.9	2.1	Tr.	0.2	10.2	5.9	16.1	12.5	Tr.	3.8	63	82
5-9	5.7	1.8	0.1	0.2	7.8	5.6	13.4	10.4	0.1	3.2	58	72
9-15	6.4	2.6	0.1	0.2	9.3	5.2	14.5	11.1	Tr.	2.5	64	84
15-27	6.5	4.2	0.3	0.2	11.2	6.4	17.6	13.5	0.5	1.5	64	83
27-38	6.8	5.3	0.4	0.3	12.8	5.7	18.5	15.1	0.8	1.3	69	85
38-42	7.7	5.8	0.6	0.2	14.3	2.6	16.9	14.7	0.1	1.3	85	97
42-52	7.2	5.3	0.6	0.2	13.3	3.3	16.6	13.3		1.4	80	100
52-61	6.8	5.0	0.6	0.2	12.6	2.4	15.0	12.2		1.4	84	103
61-72+	6.5	4.6	0.5	0.2	11.8	2.4	14.2	11.4		1.4	83	104

Depth (in.)	Ratios to Clay 8D1: NH_4OAc CEC	15-Bar Water
0-5	0.66	0.43
5-9	0.57	0.39
9-15	0.56	0.42
15-27	0.64	0.49
27-38	0.75	0.51
38-42	0.81	0.56
42-52	0.90	0.64
52-61	0.88	0.60
61-72+	0.83	0.57

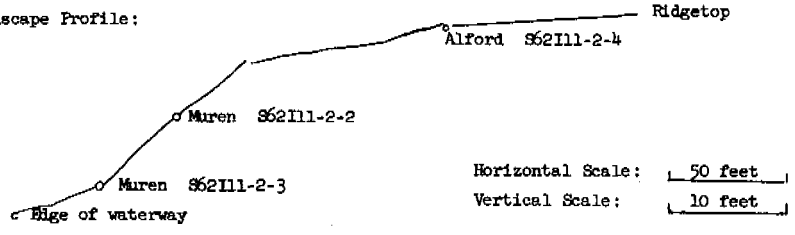
a. > 50% organic fragments.
b. > 50% Fe-Mn nodules.
c. 25-50% Fe-Mn nodules.
d. 5-25% Fe-Mn nodules.
e. 4.0 Kg/M^2 to 60 inches. (Method 6A)

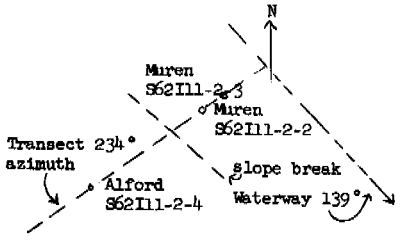
Soil Type: Muren silt loam
Soil Nos.: S62Ill-2-3
Location: Alexander County, Illinois, T14S, R2W, Sec. 29, NE 160, NW 40, SE 10, 137 steps east of large mulberry tree and located at the foot of the slope 14 steps south of the gully in draw.
Parent Material: Deep loess.
Physiography: Upland footslope.
Slope: 8 percent.
Drainage Class: Moderately well.
Vegetative Cover: Grass (pasture).
Erosion: Moderate.
Sampled by: R. B. Grossman and G. S. Holmgren, May 22, 1962.
Described by: G. O. Walker, J. B. Fehrenbacher and W. D. Parks.

Horizon and Lincoln Lab. No.	
Ap 16944	0 to 5 inches. Mixed dark grayish brown (10YR 4/2) and dark brown (7.5YR 4/4) silt loam; weak to moderate thin platy structure; friable; pH 5.8; abrupt smooth boundary. (Soil may be removed from slope above and deposited on this profile.)
B1 16945	5 to 9 inches. Dark brown to brown (7.5YR 4/4) heavy silt loam; weak medium subangular blocky structure; friable; pH 5.8; clear smooth boundary. (May be mixed with material deposited from slope above.)
B21 16946	9 to 15 inches. Dark brown to brown (7.5YR 4/4) light silty clay loam with few fine faint brown (7.5YR 5/4) mottles; weak medium subangular blocky structure; firm; many small pores; pH 6.0; abrupt smooth boundary.
IIB22 16947	15 to 27 inches. Yellowish brown (10YR 5/4) light silty clay loam with common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; peds are coated with medium dark brown (7.5YR 4/4) clay films; firm; pH 6.0; clear smooth boundary.
IIB23 16948	27 to 38 inches. Dark yellowish brown (10YR 4/4) silty clay loam with common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular and angular blocky structure; firm; peds coated with medium continuous dark brown (7.5YR 4/4) clay films; pH 5.3; abrupt smooth boundary.
IIIB31 16949	38 to 42 inches. Dark brown (7.5YR 4/4) silt loam with common medium prominent grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) mottles; weak coarse angular blocky structure; firm; slightly fragile; peds coated with thin discontinuous brown (10YR 4/3) clay films; pH 6.2; gradual smooth boundary.
IIIB32 16950	42 to 52 inches. Dark brown (7.5YR 4/4) silt loam with few fine prominent grayish brown (10YR 5/2) mottles; weak coarse angular blocky structure; firm; slightly fragile; few thin discontinuous dark grayish brown (10YR 4/2) clay films and very thick coats of black (10YR 2/1) Mn which has a highly cemented 1-mm. layer of grayish brown (10YR 5/2) underneath the black coats; an occasional Fe and Mn concretion; firm; pH 6.8; gradual wavy boundary.
IIIC1 16951	52 to 61 inches. Dark brown (7.5YR 4/4) silt loam with few fine distinct grayish brown (10YR 5/2) mottles; massive; firm; slightly fragile; very few clay films; pH 7.0; arbitrary boundary.
IIIC2 16952	61 to 72 inches plus. Same as above horizon (C1).

Remarks: This soil was sampled at the foot of a slope where, it is believed, some material from the slope above had been deposited on the profile, probably after most of original A horizon was lost through erosion. The profile appeared to have three different layers of loess. This profile is the lowest in elevation of a transect of three soils. Upslope are Muren (S62Ill-2-2) on the sideslope and Alford (S62Ill-2-4) on the ridge top.

Landscape Profile:





SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Muscatine silt loam SOIL Nos. 855Ill-75-2 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551786 - 551794

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap		78.9	17.9	-	0.2	0.2	0.4	2.4		29.4	52.1				-		
7-14	A1		74.8	23.2	-	0.0	0.1	0.2	1.7		32.7	43.9				-		
14-18	A3		72.4	24.8	-	0.1	0.1	0.2	2.4		31.7	43.2				-		
18-21	B1		70.2	28.2	-	0.0	0.1	0.1	1.4		31.7	39.9				-		
21-27	B21		66.6	30.3	-	0.1	0.2	0.2	2.6		31.2	38.1				-		
27-35	B22		66.6	30.1	-	0.1	0.2	0.3	2.7		31.7	37.7				-		
35-48	B3		71.2	26.6	-	0.2	0.2	0.2	1.6		33.8	39.1				-		
48-58	C1		73.7	24.4	-	0.2	0.2	0.2	1.3		37.6	37.5				-		
58-74	C2		76.1	22.0	-	0.2	0.1	0.2	1.4		36.1	41.5				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-7	1.51																6.9
7-14	1.25																5.6
14-18	0.96																5.5
18-21	0.67																5.4
21-27	0.53																5.5
27-35	0.36																5.5
35-48	0.24																5.6
48-58	0.16																5.8
58-74	0.10																6.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	12.2	2.6	0.1	0.4		3.8	19.1									80	
7-14	9.0	2.4	0.1	0.3		8.2	20.0									59	
14-18	8.6	2.8	0.1	0.3		8.0	19.8									60	
18-21	10.2	4.1	0.2	0.3		7.9	22.7									65	
21-27	11.2	5.1	0.2	0.4		7.9	24.8									68	
27-35	11.6	5.6	0.3	0.4		7.3	25.2									71	
35-48	11.0	5.3	0.3	0.4		5.8	22.8									74	
48-58	10.3	5.7	0.3	0.4		5.1	21.8									77	
58-74	9.1	5.5	0.3	0.3		4.3	19.5									78	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Muscatine silt loam
Soil No.: S55Ill-75-2
Location: Pike County, Illinois. T4S, R6W, Sec. 35, NW 160, SE 40, NE 10, NW corner of 10-34 rds. W. of center of rd. and 21 ft west of fence and 75 ft south of 1/4 line fence.
Vegetation: Rotation pasture - red clover.
Slope: 1- 1/2 to 2 percent.
Erosion: None
Drainage: Highly imperfect to moderately well.
Permeability: Moderate to moderately slow.
Parent material: 112 inches of peorian loess to possible Farmdale loess, 130 inches to old soil profile with plastic clay B in Loveland loess.
Physiography: Deep loess covered Kansan till plain.
Collected by and date: Herman L. Wascher, George O. Walker, Charles E. Downey, October 18, 1955.

Horizon and Beltsvile Lab. Nos.	
Ap 551786	0 to 7 inches. Very dark grayish brown to very dark brown (10YR 2.5/2) silt loam, weak, fine, granular to subangular blocky structure, friable. Many roots and numerous worm-holes.
A1 551787	7 to 14 inches. Same color, texture, structure and consistence as Ap layer.
A3 551788	14 to 18 inches. Very dark grayish brown (10YR 3/2) silt loam, medium, fine subangular blocky structure, friable. Many roots and numerous wormholes.
B1 551789	18 to 21 inches. Dark brown (10YR 4/3) light silty clay loam, slightly mottled with a few, fine, distinct yellowish brown (10YR 5/6) mottles, and coated with very dark grayish brown (10YR 3/2) and light brownish gray (10YR 6/2) when dry, strong, fine to medium, subangular blocky structure, firm. Many roots and numerous wormholes.
B21 551790	21 to 27 inches. Dark brown (10YR 3.5/3) silty clay loam, mottled with a few, fine, faint pale brown (10YR 6/3) mottles, and coated with light brownish gray (10YR 6/2), strong, medium to coarse, subangular blocky structure, firm. Many roots and numerous wormholes.
B22 551791	27 to 35 inches. Yellowish brown to pale brown (10YR 5/4 to 6/3) silty clay loam, mottled with dark grayish brown (10YR 4/2) and coated with light brownish gray (10YR 6/2) and dark brown (7.5YR 3/2) clay skins, and streaked with very dark brown (10YR 2/2) organic matter in root channels, moderate columns which breaks to a strong, coarse, subangular blocky structure, firm. Few roots and wormholes.
B3 551792	35 to 48 inches. Pale brown (10YR 6/3) light silty clay loam, mottled with many, fine, distinct yellowish brown (10YR 5/4) mottles, coated with very dark grayish brown (10YR 3/2) clay skins, streaked with very dark brown (10YR 2/2) organic matter in root channels. Weak, coarse subangular blocky structure, friable. Few roots and wormholes.
C1 551793	48 to 58 inches. Yellowish brown (10YR 5/6) silt loam, mottled with common, fine, distinct pale brown (10YR 6/3) mottles, massive structure, friable.
C2 551794	58 to 74 inches. Pale brown (10YR 6/3) silt loam, mottled with common, medium, prominent yellowish brown (10YR 5/8) mottles.

Notes: Borings were made in the bottom of the pit to a depth of 154 inches. At this depth a plastic clay Kansan till or Loveland loess was found. Colors refer to moist soil unless indicated otherwise.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Muscatine silt loam SOIL Nos. S55Ill-75-6 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551821 - 551829

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: Int. III (0.05–0.02)	Int. II (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm															
0-8	Ap		81.4	16.9	0.1	0.3	0.3	0.2	0.8		34.4	47.9			-		
8-15	A1		75.0	21.5	0.1	0.5	0.4	0.5	2.0		33.9	43.4			-		
15-18	A3		72.2	25.6	-	0.3	0.2	0.4	1.3		34.3	39.4			-		
18-22	B1		68.5	28.5	-	0.2	0.2	0.5	2.1		31.8	39.1			-		
22-25	B21		67.3	29.4	-	0.2	0.3	0.5	2.3		33.8	36.0			-		
25-30	B22		65.4	31.6	-	0.3	0.3	0.5	1.9		35.1	32.5			-		
30-36	B23		67.2	29.8	-	0.3	0.4	0.6	1.7		34.7	34.6			-		
36-53	B3		70.6	26.9	-	0.2	0.3	0.5	1.5		37.3	35.1			-		
53-70	C1		73.6	24.1	-	-	0.1	0.4	1.8		38.2	37.3			-		

Depth (In.)	6A1a Organic carbon	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density 4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content 4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
0-8	1.55														7.0
8-15	0.98														5.5
15-18	0.58														5.0
18-22	0.45														5.0
22-25	0.39														5.0
25-30	0.34														5.1
30-36	0.24														5.2
36-53	0.21														5.2
53-70	0.12														5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
0-8	12.7	1.8	0.1	0.2		3.2	18.0							82	
8-15	8.0	2.5	0.1	0.3		8.4	19.3							56	
15-18	7.1	3.8	0.1	0.3		9.5	20.8							54	
18-22	8.8	4.7	0.1	0.4		9.3	23.3							60	
22-25	9.6	5.6	0.2	0.4		8.7	24.5							64	
25-30	10.3	6.4	0.3	0.4		8.3	25.7							68	
30-36	11.2	6.0	0.2	0.4		7.5	25.3							70	
36-53	10.6	5.6	0.2	0.4		7.0	23.8							70	
53-70	9.6	5.5	0.3	0.4		5.4	21.2							74	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Muscatine silt loam
Soil No.: S55Ill-75-6
Location: Pike County, Illinois. T4S - R6W - Sec. 8 - NW160, SE40 - SE10 - 21 rds. N. of center of section and 160 feet west of center of section.
Vegetation and land use: Cornfield
Slope and land form: 3-1/2 percent.
Erosion: Slight
Drainage: High imperfect to low moderately well.
Permeability: Moderate
Parent Material: 110 inches of Peorian loess.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. October 20, 1955.

Horizon and Beltsville Lab. No.	
Ap 551821	0 to 8 inches. Very dark brown (10YR 2/2), silt loam, moderate fine, crumb structure. Friable.
A1 551822	8 to 15 inches. Very dark brown (10YR 2/2), silt loam with wormhole fillings of dark brown (10YR 3/3), weak, fine subangular blocky structure which breaks to a moderate, fine, crumb structure. Friable.
A3 551823	15 to 18 inches. Dark brown to dark yellowish brown (10YR 3/3 to 4/4), silt loam with a few gray (10YR 5/1) specks when dry, moderate, fine, subangular blocky structure with a few weak, fine, crumb peds. Friable.
B1 551824	18 to 22 inches. Dark brown (10YR 4/3), light silty clay loam with some very dark grayish brown (10YR 3/2) splotches, moderate, fine, subangular blocky structure. Friable.
B21 551825	22 to 25 inches. Dark brown (10YR 4/3), silty clay loam, mottled with a few fine prominent yellowish brown (10YR 5/4) mottles and coated with grayish brown and very dark grayish brown (10YR 5/2 and 3/2), moderate, fine to medium subangular blocky structure. Firm. Black iron concretions.
B22 551826	25 to 30 inches. Dark brown (10YR 4/3), silty clay loam mottled with common, fine, distinct yellowish brown (10YR 5/4) mottles and coated with light brownish to pale brown (10YR 6.5/2) mottles, strong, medium, subangular blocky structure. Firm. Black iron concretions.
B23 551827	30 to 36 inches. Yellowish brown (10YR 5/4), silty clay loam mottled with many, medium, prominent dark brown (10YR 4/3) mottles, strong coarse prisms which break to a strong coarse, subangular blocky structure. Firm. Black iron concretions.
B3 551828	36 to 53 inches. Grayish brown (10YR 5/2), light silty clay loam mottled with a few fine, prominent reddish brown (5YR 4/4) and many, fine, prominent yellowish brown (10YR 5/4) mottles, weak, coarse, subangular blocky structure. Firm. Black iron concretions.
C1 551829	53 to 70 inches. Gray (10YR 5/1), silt loam mottled with many, fine, prominent yellowish brown (10YR 5/6) and common, fine, prominent reddish brown (5YR 4/4) mottles, friable.

Notes: Colors refer to moist soil unless indicated otherwise.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Muscatine silt loam SOIL Nos. S55Il1-75-9 LOCATION Pike County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551848 - 551855

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap		76.4	19.7	-	0.7	0.8	0.8	1.6		37.1	41.2				-		
7-13	A1		72.1	24.8	-	0.5	0.6	0.6	1.4		37.2	36.5				-		
13-15	A3		70.4	27.6	-	0.4	0.5	0.5	0.7		36.8	34.4				-		
15-19	B1		66.6	31.6	-	0.3	0.4	0.4	0.7		36.7	30.8				-		
19-24	B21		66.2	32.2	-	0.2	0.3	0.3	0.8		36.1	31.0				-		
24-34	B22		68.3	30.3	-	0.3	0.3	0.3	0.6		36.5	32.5				-		
34-42	B23		69.2	28.7	0.1	0.6	0.3	0.4	0.7		38.6	31.5				-		
42-52	B3		67.6	30.7	0.1	0.3	0.2	0.3	0.8		37.6	30.9				-		
52-66	C1		79.8	19.4	-	-	0.1	0.1	0.5		39.6	40.8				-		
66-70	C2		86.9	12.0	-	0.1	0.1	0.2	0.7		36.0	51.7				-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	1.52															6.0
7-13	1.36															5.6
13-15	0.99															5.4
15-19	0.72															5.4
19-24	0.58															5.3
24-34	0.42															5.4
34-42	0.28															5.5
42-52	0.23															5.8
52-66	0.12															6.8
66-70	0.07															7.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	13.9	3.4	0.1	0.4		6.8	24.6									72	
7-13	10.6	3.7	0.1	0.3		9.1	23.8									62	
13-15	13.3	4.7	0.1	0.4		9.1	27.6									67	
15-19	12.0	5.6	0.1	0.4		9.1	27.2									66	
19-24	12.0	6.1	0.1	0.5		8.7	27.4									68	
24-34	13.7	8.0	0.2	0.4		7.5	29.8									75	
34-42	10.4	5.3	0.2	0.4		6.9	23.2									70	
42-52	15.5	10.0	0.2	0.4		6.1	32.2									81	
52-66	9.7	5.8	0.2	0.3		2.8	18.8									85	
66-70	a																

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Sample is calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Muscatine silt loam
Soil No.: S55Ill-75-9
Location: Pike County, Illinois. T4S - R3W - Sec. 16 - SW160 - SW40 - SE10 - 60 rds. E. of SW corner of Sec. 16 - 7 rds. N. of center of gravel road.
Vegetation and land use: Rotation pasture
Slope and land form: 3 1/2 percent N.
Erosion: Slight
Drainage: Imperfect
Permeability: Moderate to moderately slow.
Parent Material: Peorian loess to 140 inches on Farmdale loess.
Physiography: Illinoian till plain.
Sampled by and date: Herman L. Wascher, George O. Walker, and Charles E. Downey. November 7, 1955.

Horizon and Beltsville Lab. No.	
Ap 551848	0 to 7 inches. Very dark grayish brown to very dark brown (10YR 2.5/2), silt loam, weak, fine, crumb structure. Friable.
A1 551849	7 to 13 inches. Very dark brown (10YR 2/2), silt loam, moderate to strong, very fine, subangular blocky structure which breaks to a weak to moderate, medium, crumb structure. Friable.
A3 551850	13 to 15 inches. Very dark grayish brown (10YR 3/2) with some dark yellowish brown (10YR 4/4), heavy silt loam, strong, fine, subangular blocky structure. Friable.
B1 551851	15 to 19 inches. Dark yellowish brown (10YR 4/4), light silty clay loam, heavily coated with very dark grayish brown (10YR 3/2) strong, fine subangular blocky structure.
B21 551852	19 to 24 inches. Yellowish brown (10YR 5/6), silty clay loam heavily coated with dark grayish brown (10YR 4/2) and mottled with many, fine, prominent light brownish gray (10YR 6/2) mottles, strong, fine to medium, subangular blocky structure.
B22 551853	24 to 34 inches. Yellowish brown (10YR 5/6), silty clay loam mottled with many, fine, prominent light brownish gray (10YR 6/2) and a few fine, distinct reddish brown (5YR 4/4) mottles, moderate to strong, medium subangular blocky structure.
B23 551854	34 to 42 inches. Strong brown (7.5YR 5/8), silty clay loam mottled with common, fine prominent light gray (10YR 7/1) and few, fine, distinct dark brown (7.5YR 3/2), weak, coarse, subangular blocky to very weak, coarse prismatic structure.
B3 551855	42 to 52 inches. Yellowish red (5YR 4/6 to 5/8), light silty clay loam mottled with many, coarse, light gray (10YR 7/1) mottles, very weak, very coarse subangular blocky structure.
C1 551856	52 to 66 inches. Yellowish red (5YR 4/6 to 5/8), silt loam mottled with many, coarse prominent light gray (10YR 7/1) mottles.
C2 551857	66 to 70 inches. Yellowish red (5YR 4/7 to 5/8) silt loam mottled with common, coarse, prominent light gray (10YR 7/1) mottles. Calcareous.

Notes: Colors refer to moist soil.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Newart silt loam SOIL Nos. S63Ill-39-1 LOCATION Jackson, County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 19333-19339 May 16, 1966
General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) a 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2: > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm														Pct.		
0-8	Ap	34.5	48.0	17.5	0.1	0.1	0.1	5.6	28.6	29.3	18.7	63.1	5.9			-		
8-17	A1	33.7	46.8	19.5	-	0.1	0.1	4.0	29.5	31.1	15.7	64.2	5.2			-		
17-21	A3	30.8	48.0	21.2	-	0.1	0.1	2.0	28.6	34.3	13.7	64.6	2.2			-		
21-29	B21	34.6	44.4	21.0	-	0.1	0.2	1.8	32.5	30.7	13.7	64.7	2.1			-		
29-38	B22	25.9	55.6	18.5	-	0.1	0.2	4.2	21.4	41.8	13.8	67.0	4.5			-		
38-47	IIC1	57.0	30.3	12.7	-	0.1	0.1	14.8	42.0	23.7	6.6	79.9	15.0			-		
47-58+	IIC2	10.8	67.8	21.4	-	0.1	0.1	1.1	9.5	38.4	29.4	48.8	1.3			-		

Depth (In.)	6A1a Organic carbon a, b Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe a Pct.	Bulk density: 4A1a Field-State g/cc	4A1d 1/3-Bar g/cc	4A1b Air-Dry g/cc	4D1 COLE	Water content: 4B4 Field-State Pct.	4B1c 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-to-15-Bar in./in.		pH a:	8C1a (1:1)
0-8	1.31	0.124	10			0.5	1.49	1.41	1.46	0.010	5.0	18.4	8.4	0.14			5.5
8-17	0.77	0.077	10			0.7	1.56	1.48	1.56	0.017	6.4	20.6	9.5	0.16			5.9
17-21	0.51	0.058	9			0.8	1.55	1.44	1.56	0.028	9.9	22.8	10.7	0.17			6.0
21-29	0.38	0.048	8			0.8	1.53	1.43	1.54	0.024	10.1	21.8	10.5	0.16			5.9
29-38	0.27					0.8	1.52	1.43	1.53	0.024	11.0	22.9	10.1	0.18			5.9
38-47	0.15					0.7	1.48	1.42	1.48	0.014	7.0	13.6	6.5	0.10			6.0
47-58+	0.19					0.9	1.46	1.38	1.50	0.028	16.6	25.5	12.1	0.18			5.7

Depth (In.)	Extractable bases a 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. Acidity a	Ext. Exch. Cap. a: 5A3a Sum Cations	5A1a NH_4OAc	KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-8	10.6	1.8	0.2	0.6	13.2	6.0	19.2	16.2		5.9	69	81
8-17	12.7	2.5	0.2	0.4	15.8	4.7	20.5	17.4		5.1	77	91
17-21	13.6	3.2	0.2	0.5	17.5	4.5	22.0	19.0		4.2	80	92
21-29	12.8	3.6	0.3	0.5	17.2	4.6	21.8	18.6		3.6	79	92
29-38	11.5	3.6	0.2	0.5	15.8	4.2	20.0	17.4		3.2	79	91
38-47	8.0	2.7	0.2	0.3	11.2	2.8	14.0	12.1		3.0	80	92
47-58+	13.6	4.9	0.3	0.6	19.4	3.8	23.2	20.6		2.8	84	94

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-8	0.92	0.03	0.48
8-17	0.89	0.04	0.49
17-21	0.90	0.04	0.50
21-29	0.88	0.04	0.50
29-38	0.94	0.04	0.54
38-47	0.95	0.06	0.51
47-58+	0.96	0.04	0.56

a. Determined by Soil Survey Laboratory - Riverside, California.
b. 10 kg/m^2 to 58 inches. (Method 6A)

Soil type: Newart Silt Loam
Soil Nos.: S63 Ill-39-1
Location: Jackson County, Illinois, T8S, R5W, Sec. 36, NE 160, NE 40, SE 10, 450 feet east of road (ditch along west side of road) and 200 feet north of fence. About 3¼ miles west and 3½ miles south to edge of Mississippi River.
Slope and land form: Level to nearly level; Mississippi River bottomland or low terrace.
Drainage and permeability: Somewhat poorly drained; moderately permeable.
Parent material: Alluvium
Described and sampled by: G. O. Walker, H. L. Wascher, W. D. Parks, C. C. Miles, October 21, 1963.

Horizon and Lab. Nos.	
Ap LSL 19333 UIL 19396	0-8 inches, very dark brown (10YR 2/2 to 3/2) silt loam with some very fine sand; weak fine crumb structure; very friable; abundant roots; pH 6.4; abrupt smooth boundary.
A1 LSL 19334 UIL 19397	8-17 inches, very dark brown (10YR 2/2) to very dark grayish brown (10YR 3/2) silt loam; medium clods breaking to weak medium crumb structure; friable; abundant roots; pH 6.4; clear smooth boundary.
A3 LSL 19335 UIL 19398	17-21 inches, very dark grayish brown (10YR 3/2) silt loam with common, medium, faint, brown (10YR 5/3) to yellowish brown (10YR 5/4) mottles; weak fine crumb structure; friable; abundant roots; many worm channels; pH 6.7; gradual smooth boundary.
B21 LSL 19336 UIL 19399	21-29 inches, mixed very dark grayish brown (10YR 3/2), brown (10YR 4/3), and pale brown (10YR 6/3) silt loam; weak medium and coarse subangular blocky structure; friable; very thin discontinuous very dark grayish brown (10YR 3/2) coatings on aggregates; occasional very weak coarse prisms; many worm channels; abundant roots; pH 6.7; gradual smooth boundary.
B22 LSL 19337 UIL 19400	29-38 inches, mixed grayish brown (10YR 5/2), yellowish brown (10YR 5/4), and pale brown (10YR 6/3) silt loam with a few light gray (10YR 7/2) silt loam with a few light gray (10YR 7/2) mottles; weak coarse subangular blocky structure to massive; friable; very thin patchy dark grayish brown (10YR 4/2) coatings; many worm channels; pH 6.7; abrupt wavy boundary.
IIC1 LSL 19338 UIL 19401	38-47 inches, brown (7.5YR 4/4) loamy very fine sand with common medium distinct grayish brown (10YR 5/2) mottles; massive; very friable to loose; pH 6.7; abrupt smooth boundary.
IIC2 LSL 19339 UIL 19402	47-58 inches, mixed light gray (10YR 7/2) and dark yellowish brown (10YR 4/4) stratified loamy very fine sand, loam, silt loam, and light silty clay loam with common fine distinct yellowish brown (10YR 5/6) mottles; massive within strata; worm channel coatings of very dark brown (10YR 2/2); very dark brown (10YR 2/2) iron concretions.

Remarks: Most areas of Newart silt loam have strata of light silty clay loam between 42 and 60 inches. Silt loam was predominant in the sample collected between 47 and 58 inches. Field pH was determined with Hellige-Truog kit. All colors are for moist conditions.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE *Reddick silty clay loam **LOCATION** Kankakee County, Illinois

SOIL NOS. S57Ill-46-1 **LAB. NOS.** 6910-6917

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-10	A1p	0.5a	1.1a	1.9a	6.2a	4.7a	52.5	33.1	29.3	31.4	Tr.	sicl
10-14	A12	2.1b	1.3b	1.8b	5.7b	4.2b	50.3	34.6	28.2	29.5	Tr.	sicl
14-18	B1	1.1b	1.3b	1.9b	5.6b	4.0b	50.4	35.7	27.3	30.1	Tr.	sicl
18-24	B21	0.4b	1.0b	1.5b	4.9b	3.8b	53.9	34.5	27.3	33.1	Tr.	sicl
24-30	B22	0.3b	0.9b	1.3b	4.0b	3.1b	56.2	34.2	26.0	35.5	Tr.	sicl
30-37	B23	0.5b	0.9b	1.2b	4.0b	3.9b	57.5	32.0	29.9	33.8	Tr.	sicl
37-44	C	1.8b	2.0b	2.6b	8.6b	4.3b	41.3	39.4	18.4	31.7	Tr.	sicl
44-60+	D	0.1b	0.4b	0.7b	1.9b	2.1b	46.8	48.0	10.2	39.8	-	sic

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	c WATER CONTENT Field-State %	d 15-Bar %
6.5			3.54	0.262	14			-		1.31	17.9	17.1
6.6			1.83	0.148	12			-				17.5
6.8			0.69	0.063	11			-				16.6
7.0			0.42	0.043	10			-				16.0
7.2			0.31					-		1.40	14.4	16.3
7.5			0.24					-				13.9
7.7			0.32					-		1.57	16.2	11.6
7.7			0.47					12		1.56	20.6	20.0

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases me/100g	5A3a Sum Ext. Cations me/100g	MOISTURE AT SATURATION %
←	milliequivalents per 100g. soil	→							
31.6	22.7	9.4	7.0	-	0.4	82	32.5	39.5	
26.4	17.5	8.4	5.0	-	0.4	84	26.3	31.3	
23.6	15.9	9.0	2.9	0.1	0.4	90	25.4	28.3	
22.0	14.5	8.6	2.5	0.1	0.4	90	23.6	26.1	
21.7	14.2	9.0	1.6	0.1	0.5	94	23.8	25.4	
18.7	12.1	7.9	0.8	0.1	0.5	96	20.6	21.4	
13.2	9.9	6.1	0.4	0.1	0.4	98	16.5	16.9	
13.3		7.3	0.4	0.1	0.4				

a. Few smooth dark brown to black concr. (Fe-Mn?) Also, few $CaCO_3$ concr.

b. Few smooth dark brown to black concr. (Fe-Mn?)

c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)

d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type:* Reddick silty clay loam
Soil Nos. .: S57Ill-46-1
Location: Kankakee County, Illinois; 125 feet east of paved road and 50 feet south of northwest corner of NW10, NW40, SW160 of Section 5, T32N, R12E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Plowed field.
Climate: Humid temperate.
Slope: 0 percent.
Erosion: None.
Elevation: Approximately 666 feet.
Parent material: 40 to 60 inches of outwash over silty clay loam Wisconsin till of Cary age.
Sampled by: J. E. Paschke and D. E. Hallbick, Soil Conservation Service, October 17, 1957.

Horizon and Lincoln Lab. Number	
Alp 6910	0 to 10 inches. Black (10YR 1/1 moist) silty clay loam; weak medium granular structure; slightly firm when moist; boundary abrupt and smooth; pH is 6.5.
A12 6911	10 to 14 inches. Black (10YR 2/1 moist) silty clay loam; moderate medium granular; slightly firm when moist; boundary clear and smooth; pH is 6.2; some black (10YR 1/1 moist) organic coatings.
B1 6912	14 to 18 inches. Dark grayish brown (2.5Y 4/2 moist) gritty silty clay loam; many fine faint yellowish brown (10YR 5/4 moist) mottles; moderate fine subangular blocky structure; firm when moist; boundary clear and smooth; pH is 6.0; some very dark gray (10YR 3/1 moist) organic coatings; thin discontinuous clay skins.
B21 6913	18 to 24 inches. Dark grayish brown (2.5Y 4/2 moist) silty clay loam; many fine faint yellowish brown (10YR 5/4 moist) mottles; weak medium prismatic structure breaking to moderate fine to medium angular blocky; very firm when moist; boundary clear and smooth; pH is 6.5; thin discontinuous clay skins; some very dark gray (10YR 3/1 moist) organic coatings; few small iron-manganese concretions.
B22 6914	24 to 30 inches. Grayish brown (2.5Y5/2 moist) silty clay loam with many medium distinct yellowish brown (10YR 5/8 moist) mottles; moderate medium prismatic structure breaking to moderate medium to coarse angular blocky; very firm when moist; boundary clear and smooth; pH is 7.0; thin discontinuous clay skins; some dark gray (10YR 4/1 moist) organic coatings; few small iron-manganese concretions.
B23 6915	30 to 37 inches. Gray (5Y 5/1 moist) heavy silty clay loam with many medium to coarse distinct to prominent yellowish brown (10YR 5/8 moist) and strong brown (7.5YR 5/8 moist) mottles; moderate medium prismatic breaking to moderate medium to coarse angular blocky; very firm when moist; boundary abrupt and wavy; pH is 7.8; few small iron-manganese concretions.
C 6916	37 to 44 inches. Gray (N 5/ moist) silty clay loam with 6 or 7 pockets of loamy sand per square foot of vertical surface; many medium distinct yellowish brown (10YR 5/8 moist) mottles; same colors in sandy pockets; massive; firm when moist; boundary clear and smooth; pH is 8.0; many small iron-manganese concretions.
D 6917	44 to 60 inches plus. Mixed yellowish brown (10YR 5/8 moist) and gray (N 5.5/ moist) heavy silty clay loam glacial till; massive; firm when moist; calcareous.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Water table was at 63 inches. The outwash over the glacial till is on the finer-textured end of medium-textured outwash.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE *Reddick silty clay loam **LOCATION** Livingston County, Illinois

SOIL NOS. S57 Ill-53-2 **LAB. NOS.** 6926-6932

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-9	A1	0.1a	0.5b	3.3b	10.9b	3.4a	41.7	40.1	14.3	36.3	Tr.	sic/sicl
9-14	B1	0.2a	1.2b	9.2b	34.0b	10.1a	24.6	20.7	41.5	16.7	Tr.	scl
14-21	B21	0.4a	1.1b	9.2b	34.9b	9.3a	23.9	21.2	35.1	16.4	Tr.	scl
21-25	B22	0.6a	0.8a	8.4a	36.0a	10.7a	23.7	19.8	37.9	15.2	Tr.	fsl
25-34	C1	0.1a	1.1a	14.1a	57.0a	14.0a	6.4	7.3	45.3	3.7	Tr.	lfs
34-41	C2	0.6a	3.4a	24.6a	58.2a	8.5a	1.9	2.8	32.0	1.0	Tr.	s
41-47+	D	1.6c	1.5c	1.1c	2.5c	2.7c	56.1	34.5	17.2	43.0	Tr.	sicl

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	Bulk Density[d] g/cc	WATER CONTENT Field-State[d] %	15-Bar[e] %
6.3			4.05	0.344	12			-		1.28	21.1	21.9
7.6			1.14	0.112	10			-				9.6
7.8			0.54	0.055	10			-		1.51	9.6	8.5
7.8			0.33	0.032	10			-				7.4
8.0			0.21					-		1.54	16.5	2.5
8.1			0.05					-				1.0
7.9			0.92					24		1.76	11.9	13.8

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases me/100 g	5A3a Sum Ext. Cations		MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →											
31.7	23.1	8.1	8.7	-	0.7		78	31.9	40.6		
16.8	14.1	4.8	2.0	-	0.3		90	19.2	21.2		
15.6	14.3	4.4	0.4	-	0.3		98	19.0	19.4		
14.4	11.7	4.2	0.8	-	0.3		95	16.2	17.0		
5.7	4.8	2.2	0.4	-	0.1		95	7.1	7.5		
1.4	1.6	1.0	0.8	-	-			2.6	3.4		
9.8		6.9	0.4	-	0.2						

a. Few smooth dark brown to black concr. (Fe-Mn?)
b. Few smooth dark brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
c. Common smooth light brown to black concr. (Fe-Mn?) Also few $CaCO_3$ concr.
d. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
e. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type; *Reddick silty clay loam
Soil Nos. : 857Ill-53-2
University of Illinois Laboratory Nos.: 18052 through 18058.
Location: Livingston County, Illinois; 380 feet south of east quarter corner on west side of dirt road, SE160, NE40, NE10 of Section 25, T30N, R8E.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 1/2 percent to south.
Erosion: None.
Elevation: 640 feet approximately.
Parent material: 40 to 60 inches of loamy outwash over calcareous silty clay loam Wisconsin till of Cary age.
Sampled by: J. E. Paschke, N. E. Barnes, and D. C. Hallbick, Soil Conservation Service, October 18, 1957.

Horizon and Lincoln Lab. Number	
A1 6926	0 to 9 inches. Black (10YR 1/1 moist) silty clay loam; moderate fine to medium subangular blocky structure; firm when moist; boundary clear and smooth; pH is 6.5; roots abundant.
B1 6927	9 to 14 inches. Very dark grayish brown (2.5Y 3/2 moist) light clay loam; moderate medium subangular blocky structure; very firm when moist; boundary clear and smooth; pH is 7.8; roots common; abundant worm channels filled with A1 material.
B21 6928	14 to 21 inches. Dark grayish brown (2.5Y 4/2 moist) clay loam with few fine faint yellowish brown (10YR 5/4 moist) mottles; moderate medium to coarse prismatic structure breaking to weak medium subangular blocky; firm when moist; boundary clear and smooth; pH is 7.8; some black (10YR 2/1 moist) to very dark grayish brown (2.5Y 3/2 moist) organic coatings; many black (10YR 2/1 moist) worm channel fillings; roots common.
B22 6929	21 to 25 inches. Mixed dark grayish brown (2.5Y 4/2 moist) and yellowish brown (10YR 5/6 moist) clay loam; spots of sandy clay loam occur in this horizon; massive; friable when moist; boundary abrupt and wavy; pH is 7.8; few black (10YR 2/1 moist) worm casts; roots common.
C1 6930	25 to 34 inches. Sandy loam with loamy fine sand bands and pockets; banded colors of dark grayish brown (2.5Y 4/2 moist) 60 percent, yellowish brown (10YR 5/6 moist) 20 percent, and black (10YR 2/1 moist 20 percent; massive to single grain; boundary abrupt and wavy; pH is 7.8; roots few; very few worm casts.
C2 6931	34 to 41 inches. Very pale brown (10YR 7/4 moist) loamy fine sand with many medium faint, 10YR 5/8 moist, mottles; single grain; very friable when moist; boundary abrupt and smooth; pH is 7.8.
D 6932	41 to 47 inches plus. Mixed gray (N 6/ moist), yellowish brown (10YR 5/6 to 5/8 moist), and olive brown (2.5Y 4/4 moist) silty clay loam glacial till; massive; very firm when moist; calcareous; many small rocks.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas start in B21 (14 inches) and extend to bottom of C horizon (41 inches). A matted slightly decomposed layer of grass 1½ inches thick lies on the surface. The outwash over the till in this soil is ideal for medium-textured outwash.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Rozetta silt loam SOIL Nos. S55Ill-1-3 LOCATION Adams County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 551795 - 551803

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	Coarse fragments 3B1: 2 – 19 Pct. of < 76mm	Coarse fragments 3B1: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm															
0-5	Ap		80.8	15.8	0.1	0.2	0.5	0.8	1.8		39.8	43.1			-		
5-10	A2		79.6	18.8	-	0.1	0.3	0.4	0.8		43.3	37.2			-		
10-13	B1		74.4	23.9	-	-	0.2	0.3	1.2		41.5	34.2			-		
13-19	B21		69.3	29.6	-	-	-	0.1	1.0		42.2	28.0			-		
19-25	B22		69.6	29.8	-	-	-	0.1	0.5		42.9	27.1			-		
25-35	B23		66.2	33.0	-	-	-	0.2	0.6		41.9	25.0			-		
35-46	B3		68.9	30.2	-	-	-	0.1	0.7		41.0	28.7			-		
46-60	C1		72.7	25.6	-	0.2	0.5	0.6	0.4		46.4	27.0			-		
60-75	C2		62.3	20.0	-	2.0	6.4	7.0	2.3		39.7	27.9			-		

Depth (In.)	6A1a Organic carbon Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-5	0.82															6.2
5-10	0.32															5.5
10-13	0.21															4.9
13-19	0.16															4.8
19-25	0.13															4.9
25-35	0.14															4.9
35-46	0.14															5.2
46-60	0.12															5.5
60-75	0.10															6.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay: CEC Sum	Ratios to clay: Ext. iron	Ratios to clay: 15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g														
0-5	6.3	1.6	0.1	0.2		4.6	12.8							64	
5-10	4.9	2.3	0.1	0.2		5.2	12.7							59	
10-13	4.9	3.6	0.2	0.3		7.4	16.4							55	
13-19	6.2	5.0	0.3	0.4		9.5	21.4							56	
19-25	6.5	5.3	0.4	0.4		10.2	22.8							55	
25-35	7.7	6.6	0.5	0.5		10.8	26.1							59	
35-46	8.1	6.7	0.6	0.4		8.5	24.3							65	
46-60	8.2	6.1	0.8	0.4		6.0	21.5							72	
60-75	6.4	4.3	0.6	0.2		4.1	15.6							74	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Rozetta silt loam
Soil No.: S55Ill-1-3
Location: Adams County, Illinois. T3S - R6W - Sec. 13 - NW160 - SW 40 - SW 10 - 36 rds. E. of Gr. road and 15 rds. N of 1/2 line fence about middle of ridgetop.
Vegetation and land use: Pasture sod - Lespedeza and grass.
Slope and land form: 4 percent
Erosion: Slight
Drainage: Moderately well
Permeability: Moderately slow
Parent Material: 75 inches of Peorian loess over buried soil of gritty loam surface and clay loam subsoil.
Physiography: Remnant of Illinoian outwash plain.
Sampled by and date: Herman L. Wascher, George O. Walker, Charles E. Downey. October 18, 1955.

Horizon and Beltsville Lab. No.	
Ap 551795	0 to 5 inches. Dark grayish brown (10YR 4/2) silt loam, specked with dark reddish brown (5YR 3/2), weak, medium platy structure, friable. Many roots and worm casts.
A2 551796	5 to 10 inches. Brown (10YR 5/3) with some yellowish brown (10YR 5/6), silt loam, very weak, medium subangular blocky structure, friable. Many roots.
B1 551797	10 to 13 inches. Yellowish brown (10YR 5/6), light silty clay loam, weak, medium, subangular blocky structure, friable.
B21 551798	13 to 19 inches. Yellowish brown (10YR 5/4) silty clay loam, slightly coated with grayish brown to brown (10YR 5/2.5), moderate, medium, subangular blocky structure, firm. Many roots.
B22 551799	19 to 25 inches. Dark brown to dark yellowish brown (8YR 4/4) silty clay loam, highly coated with light brownish gray (10YR 6/2), moderate to strong, medium subangular blocky structure, firm. Few roots.
B23 551800	25 to 35 inches. Dark brown to dark yellowish brown (8YR 4/4) silty clay loam, mottled with dark grayish brown (10YR 4/2.5) mottles, and coated with light brownish gray (10YR 6/2), weak, coarse, subangular blocky structure, slightly firm. Some very dark brown (10YR 2/2) manganese concretions.
B3 551801	35 to 46 inches. Yellowish brown (10YR 5/4), heavy silt loam to light silty clay loam, mottled with many, common distinct light brownish gray (10YR 6/2), coated with dark brown (7.5YR 4/4) clay skins, weak, coarse, subangular blocky structure, slightly firm. Many very dark brown (10YR 2/2). Manganese concretions.
C1 551802	46 to 60 inches. Yellowish brown (10YR 5/4.5) silt loam, mottled with many, common, distinct light brownish gray (10YR 6/2) mottles, massive structure, slightly sticky. Few manganese concretions.
C2 551803	60 to 75 inches. Dark brown (7.5YR 4/4), silt loam, mottled with a few, fine, distinct light brownish gray (10YR 6/2) mottles, massive structure, slightly sticky.
D Not Sampled	75 inches plus. Yellowish brown (10YR 5/4) gritty loam, slightly sticky. Surface of buried soil from Illinoian outwash plain.

Notes: This profile is not mottled quite as much as the average for this soil in this area. C horizon has finer silts than the soils in the western part of the watershed. Colors refer to moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebr. March 1964

SOIL TYPE Rozetta silt loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S61-Ill-50-2 **LAB. NOS.** 16558-16567

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	
0-5	A1	-	0.2a	0.2a	0.4a	2.3	81.6	15.3	41.1	43.0	-	
5-11	A2	Tr.a	0.1a	0.2a	0.2a	1.3	80.9	17.3	40.0	42.3	-	
11-17	B1	-	0.1a	0.1a	0.3a	1.9	73.8	23.8	36.4	39.5	-	
17-23	B21	-	0.1a	0.1a	0.2a	1.9	65.3	32.4	32.9	34.4	-	
23-29	B21	-	0.1a	0.1a	0.2a	1.9	65.1	32.8	36.2	30.8	-	
29-35	B22	-	0.1a	0.1a	0.3a	2.8	66.1	30.6	38.7	30.4	-	
35-40	B23	-	Tr.a	0.1a	0.3a	3.2	67.8	28.6	40.9	30.3	-	
40-47	B3	-	Tr.a	Tr.a	0.2a	3.4	68.9	27.5	42.3	30.1	-	
47-59	C1	-	-	Tr.a	0.1a	2.6	71.1	26.2	44.5	29.3	-	
59-66+	C1	-	-	Tr.a	0.2a	3.8	70.4	25.6	44.5	29.8	-	

pH 1:1	6E1b $CaCO_3$ equivalent %	6G1a Ext. Al me/100g	ORGANIC MATTER 6A1a ORGANIC CARBON % [c]	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	[d] Bulk Density g/cc	WATER CONTENT [d] Field-State %	[e] 15-Atm. %
5.7			2.04	0.205	10	0.7	1.22	20.3	9.2
5.6			0.62	0.079	8	0.8	1.34	16.8	6.9
5.7		0.1	0.26	0.054	5	1.1			11.4
5.1		0.4	0.26	0.045	6	1.3			14.4
4.8		0.8	0.23	0.041		1.4	1.48	17.2	15.3
4.9		0.7	0.25			1.3			14.7
4.9		0.5	0.17			1.3			13.9
5.2		0.2	0.15			1.3			13.6
5.9	-		0.13			1.3	1.47	19.3	13.2
7.1	-		0.14			1.4			13.1

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a Sum	5C3 Base Sat.% on Sum Cations	5C1 Base Sat.% NH_4OAc	Ratios to Clay 8D1 NH_4OAc CEC	Ext. Iron	8D1 Water at 15-Atm.	8D3 Ca/Mg
< milliequivalents per 100g. soil >												
11.8	5.9	1.6	7.7	Tr.	1.2	16.4	53	74	.77	.046	.60	3.7
9.0	4.6	2.0	5.3	Tr.	0.7	12.6	58	81	.52	.046	.40	2.3
14.0	8.6	3.4	6.2	Tr.	0.6	18.8	67	90	.59	.046	.48	2.5
18.9	11.6	5.8	7.8	0.1	0.6	25.9	70	96	.58	.040	.44	2.0
21.2	11.4	6.7	8.6	0.1	0.5	27.3	68	88	.65	.043	.47	1.7
19.8	10.9	6.7	8.0	0.1	0.5	26.2	69	92	.65	.042	.48	1.6
19.2	10.8	6.8	7.2	0.1	0.5	25.4	72	95	.67	.045	.49	1.6
19.6	11.3	7.0	6.0	0.1	0.4	24.8	76	96	.71	.047	.49	1.6
19.5	11.8	7.4	3.8	0.1	0.4	23.5	84	101	.74	.050	.50	1.6
17.7	12.4	7.8	1.6	0.1	0.4	22.3	93	117	.69	.055	.51	1.6

a. > 50% Fe-Mn nodules.
b. Determined by University of Illinois.
c. 8.0 Kg/M^2 to 60 inches. (Method 6A).
d. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14 361-366 1950. (at "Field-State" moisture)
e. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Rozetta silt loam
Soil Nos. : 861Ill-50-2
University of Illinois Laboratory Nos.: 18896 through 18905
Location: LaSalle County, Illinois; 123 feet south of gravel road along fence, then 45 feet due west to sampling site, NW160, NE40, NE10, NE2½ of Section 11, T34N, R1E.
Classification: Gray-Brown Podzolic.
Natural drainage: Moderately well.
Native vegetation: Forest.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: Base of 5 percent slope.
Erosion: 7 to 14 inches topsoil remaining.
Elevation: 655 feet.
Parent material: Deep loess over 5 feet thick.
Described by: J. D. Alexander and L. E. Tyler, October 23, 1961.

Horizon and Lincoln Lab. Number	
A1 16558	0 to 5 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium crumb structure; friable; lower half of this horizon has worm channels filled with A2 material; abundant roots; pH 6.0; clear smooth boundary.
A2 16559	5 to 11 inches. Brown (10YR 4/3 to 5/3) silt loam; weak thin and medium platy structure breaking to moderate medium granules; friable; numerous worm channels filled with A1 material; abundant roots; pH 5.9; clear smooth boundary.
B1 16560	11 to 17 inches. Yellowish brown (10YR 4/4 to 5/4) heavy silt loam; moderate fine subangular blocky structure; friable; ped exteriors are brown to dark brown (10YR 4/3) and have faint grainy coatings evident in moist condition; upper 2 inches have worm channels filled with A1 material; common roots; pH 6.0; clear smooth boundary.
B21 16561(17 to 23 inches) 16562(23 to 29 inches)	17 to 29 inches. Brown to dark brown (10YR 4/3) medium silty clay loam; strong medium subangular blocky structure breaking to strong very fine angular blocks; firm; some grainy coatings evident in moist condition; some brown (7.5YR 4/4) clay films; common roots; pH 5.5; clear smooth boundary.
B22 16563	29 to 35 inches. Yellowish brown (10YR 5/4) medium clay loam with common fine faint brown (10YR 5/3) to pale brown (10YR 6/3) and few fine distinct yellowish brown (10YR 5/6 and 5/8) mottles; moderate medium subangular blocky structure breaking to moderate fine and very fine angular blocks; firm; some grainy coatings evident in moist condition; some silt and clay coatings discontinuous on all surfaces; common fine iron-manganese concretions; pH 5.4; clear smooth boundary.
B23 16564	35 to 40 inches. Mixed brown (10YR 5/3) to yellowish brown (10YR 5/4), grayish brown (2.5Y 5/2), and light brownish gray (2.5Y 6/2) light to medium silty clay loam with many fine distinct yellowish brown (10YR 5/6 and 5/8) mottles; weak to moderate medium and coarse angular blocky structure; firm; discontinuous silt coatings on vertical surfaces; discontinuous clay coatings of brown (10YR to 7.5YR 4/3 to 4/4) on vertical surfaces; common fine iron-manganese concretions; pH 5.4; clear smooth boundary.
B3 16565	40 to 47 inches. Grayish brown (2.5Y 5/2) to light brownish gray (2.5Y 6/2) light silty clay loam with many fine distinct yellowish brown (10YR 5/6 and 5/8) mottles; weak coarse subangular and angular blocky structure; firm; brown (10YR 5/3) to yellowish brown (10YR 5/4) silt coatings discontinuous on vertical surfaces; dark brown (7.5YR 4/2) thin to medium clay coatings discontinuous on vertical surfaces; common fine iron-manganese concretions; pH 5.5; diffuse smooth boundary.
C 16566(47 to 59 inches) 16567(59 to 66 inches)	47 to 66 inches. Grayish brown (2.5Y 5/2) to light brownish gray (2.5Y 6/2) silt loam with common fine distinct strong brown (7.5YR 5/6 and 5/8) mottles with horizontal elongation; massive; friable; a few large vertical cleavage faces have dark brown (7.5YR 3/2) patchy thin clay coatings on vertical surfaces; a few worm channels filled with translocated clay; pH 6.7.

Remarks: Six 3-inch soil cores were taken in each of the following horizons: A1, 1 to 4 inches; A2, 6 to 9 inches; B21, 23 to 26 inches; and C, 50 to 53 inches. This profile is located near the base of a 5 percent slope. pH determined with Hellige-Truog pH kit in the field.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Rushville silt loam SOIL Nos. S48I11-65-1 LOCATION Menard County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481377 - 481385

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-6½	A1	4.0	81.9	14.1	0.7	0.7	0.3	0.4	1.9	41.0	40.9	43.1	2.1			Tr.		
6½-11	A2	3.6	77.0	19.4	0.2	0.8	0.4	0.5	1.7	38.4	38.6	40.3	1.9			-		
11-14	B1	4.3	67.3	28.4	0.7	0.8	0.5	0.6	1.7	32.6	34.7	34.6	2.6			-		
14-20	B21	2.9	57.3	39.8	0.2	0.4	0.3	0.6	1.4	26.8	30.5	28.6	1.5			-		
20-26	B22	2.9	58.5	38.6	0.2	0.4	0.2	0.4	1.7	27.4	31.1	29.4	1.2			-		
26-30	B31	2.3	63.2	34.5	0.1	0.3	0.2	0.3	1.4	31.6	31.6	33.2	0.9			-		
30-34	B32	2.3	66.5	31.2	-	0.2	0.1	0.3	1.7	33.3	33.2	35.1	0.6			-		
34-39	C1	2.6	72.5	24.9	0.2	0.3	0.2	0.3	1.6	39.0	33.5	40.8	1.0			-		
43-47	C2	3.5	79.6	16.9	0.1	0.3	0.1	0.3	2.7	44.3	35.3	47.1	0.8			-		

Depth (in.)	6A1a Organic carbon [a] Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar [a] g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1)	8C1a (1:1) [a] H_2O
0-6½	0.9						1.39										6.4
6½-11	0.4						1.59										4.9
11-14	0.3						1.53										5.1
14-20	0.3						1.48										5.5
20-26	0.4						1.47										5.8
26-30	0.4						1.50										6.0
30-34	0.2						1.49										6.8
34-39	0.2						1.40										7.5
43-47	0.1						1.52										7.9

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg [a]	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-6½	7.0	1.7	0.2	0.3		3.4	12.6						4.2	73	
6½-11	5.8	2.7	0.2	0.4		5.5	14.6						2.1	62	
11-14	9.1	6.2	0.3	0.3		7.1	23.0						1.5	69	
14-20	14.1	10.5	0.3	0.3		7.1	32.3						1.3	78	
20-26	14.3	10.4	0.3	0.3		6.3	31.6						1.4	80	
26-30	14.2	9.8	0.3	0.1		4.9	29.3						1.4	83	
30-34	13.4	9.3	0.4	0.1		2.6	25.8						1.4	90	
34-39	12.5	8.9	0.3	0.5		1.2	23.4						1.4	95	
43-47	11.2	6.0	0.3	0.3		0.6	18.4						1.9	97	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Determinations by University of Illinois.

Soil Type: Rushville silt loam.
Soil No.: S48Ill-65-1
Location: Menard County, Illinois. T. 18 N., R. 7 W., Sec. 23, SW 1/4, NE 40, NE 10, SE corner, 100 feet west of the road.
Vegetation and land use: Hay
Slope and land form: 1/2 percent to SW.
Sampled by and date: J. R. Fehrenbacher and E. P. Whiteside. August 9, 1948.

Horizon and Beltsville Lab. No.	
Ap 481377	0 to 6½ inches. 10YR 5/2 moist (10YR 7/1.5 dry). Crushed, 10YR 4/2. Silt loam. Weak crumb structure. Friable.
A2 481378	6½ to 11 inches. 10YR 6/2 to 6/3. Silt loam. Platy in upper part 1/16-1/8 inch. Weak crumb to med. granular in lower part, 1/8-3/8 inch. Some coatings of 10YR 5/2. Friable.
B1 481379	11 to 14 inches. 10YR 6/3-5/3. Light silty clay loam. Fine subangular blocky 1/8-3/8 inch. Moderate coatings of 10YR 6/2-7/2. Moderately sticky.
B21 481380	14 to 20 inches. 10YR 6/2 + 6/3 + 2.5Y 6/2 to 6/3, and some 10YR 6/6 splotches. Silty clay. Blocky 1/4-3/4 inch. Moderate coatings of 10YR 6/2 and 10YR 4/1. Very sticky.
B22 481381	20 to 26 inches. Same as horizon above.
B31 481382	26 to 30 inches. 2.5Y 6/2 + 5/3 + 6/4 and 10YR 6/6 + 6/8. Silty clay loam. Irregular blocky 1/4-1 inch. Coatings of 10YR 6/2 + 10YR 4/1 are heavier than in B2. Moderately sticky.
B32 481383	30 to 34 inches. Same as horizon above.
C1 481384	34 to 39 inches. 2.5Y 6/4, 60 percent + 7.5YR 5/8, 30 percent + 2.5Y 5/2, 10 percent. Silt Massive. Friable.
C2 Not Sampled	39 to 43 inches. Same as horizon below.
C2 481385	43 to 47 inches. 10YR 7/1 - 2.5Y 7/2 = 80 percent, 10YR 5/8, 20 percent. Silt. Massive or single grain. Very friable. Calcareous, fossiliferous.

Notes: Brownish black concretions, 10YR 2/2, are present throughout this profile.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Sable silty clay loam **LOCATION** Marshall County, Illinois

SOIL NOS. S57Il1-62-1 **LAB. NOS.** 6881-6887

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	3A1 0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-8	A11	0.6a	0.3b	0.4b	0.6b	1.2b	60.6	36.3	30.2	31.9	Tr.	sicl
8-15	A12	0.4c	0.5c	0.4c	0.7c	1.0b	60.4	36.6	30.2	31.5	Tr.	sicl
15-21	B1	0.4d	0.5d	0.6c	0.9c	0.9b	60.1	36.6	29.0	32.4	Tr.	sicl
21-30	B21	0.8d	0.7d	0.4d	0.6d	0.9b	64.0	32.6	28.2	37.0	Tr.	sicl
30-41	B22	0.4d	0.4d	0.3d	0.6d	1.0b	67.3	30.0	31.1	37.5	-	sicl
41-49	B3	0.2d	0.6d	0.4d	0.4d	1.3b	70.3	26.8	35.3	36.5	-	sil
49 +	C	-	0.5c	0.6c	0.9c	1.8b	71.4	24.8	37.7	35.9	Tr.	sil

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC x 10^3 MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	e Bulk Density g/cc	WATER CONTENT e Field-State %	f 15-Bar %
7.3			4.98	0.409	12			-		1.15	29.2	23.1
7.1			3.20	0.305	10			-				21.6
7.5			1.58	0.148	11			-				18.9
7.7			0.49	0.050	10			-		1.36	19.4	16.0
7.7			0.32					-		1.43	20.8	15.2
7.6			0.21					-				14.8
7.6			0.24					-		1.42	29.8	11.5

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	5C3 Base Sat. % on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	MOISTURE AT SATURATION %
← milliequivalents per 100g. soil →							me/100g		
43.9	34.2	13.1	3.8	-	0.6	93	47.9	51.7	
42.6	31.8	11.1	5.4	0.1	0.4	89	43.4	48.8	
34.6	26.8	11.0	3.3	0.1	0.4	92	38.3	41.6	
28.5	19.0	9.6	1.7	0.1	0.4	94	29.1	30.8	
24.5	17.1	8.9	0.4	0.1	0.5	98	26.6	27.0	
21.1	14.3	7.6	0.4	0.1	0.6	98	22.6	23.0	
18.5	13.2	6.7	0.8	0.1	0.5	96	20.5	21.3	

a. Mostly organic matter.
b. Few smooth dark brown to black concr. (Fe-Mn?)
c. Common smooth dark brown to black concr. (Fe-Mn?)
d. Many smooth dark brown to black concr. (Fe-Mn?)
e. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
f. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Sable silty clay loam
Soil Nos. : S57Ill-62-1
University of Illinois Laboratory Nos.: 18029 through 18035.
Location: Marshall County, Illinois; 215 feet south of half-line fence on west side of gravel road in edge of cultivated field, SE160, NE40, NE10 of Section 1, T29N, R2W.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 1/2 percent to north.
Erosion: None.
Elevation: Approximately 685 feet.
Parent material: More than 60 inches of Peorian loess.
Sampled by: J. E. Paschke, D. C. Hallbick, N. E. Barnes, and G. O. Walker, Soil Conservation Service; H. L. Wascher and J. D. Alexander, University of Illinois, October 15, 1957.

Horizon and Lincoln Lab. Number	
A11 6881	0 to 8 inches. Black (10YR 1/1 moist) light silty clay loam; moderate fine granular structure; friable when moist; boundary diffuse and smooth; pH is 6.8; many roots.
A12 6882	8 to 15 inches. Black (10YR 1/1 moist) silty clay loam; moderate very fine to fine subangular blocky structure; friable when moist; boundary gradual and smooth; pH is 7.0; many roots.
B1 6883	15 to 21 inches. Black (10YR 2/1 moist) heavy silty clay loam to light silty clay; moderate fine subangular blocky structure; firm when moist; boundary clear and wavy; pH is 8.2; roots and root channels common.
B21 6884	21 to 30 inches. Dark gray (5Y 4/1 moist) heavy silty clay loam; moderate medium subangular blocky structure with a tendency toward weak fine prismatic; firm when moist; boundary gradual and smooth; pH is 8.0; few small iron-manganese concretions; root channels common.
B22 6885	30 to 41 inches. Gray to dark gray (N 4.5/ moist) silty clay loam; common fine and faint yellowish brown (10YR 5/6 moist) mottles; moderate medium prismatic structure breaking to moderate medium blocky; firm when moist; boundary diffuse and smooth; many filled root channels; pH is 8.2.
B3 6886	41 to 49 inches. Gray to dark gray (N. 4.5/ moist) light silty clay loam; common fine distinct yellowish brown (10YR 5/8 moist) mottles; weak coarse blocky; firm when moist; boundary diffuse and smooth; pH is 8.0; few root channels.
C 6887	49 inches plus. Gray to dark gray (N 4.5/ moist) heavy silt loam; many fine distinct yellowish brown (10YR 5/8 moist) mottles; massive; firm when moist; pH is 8.0; few root channels.

Remarks: pH determined with Hellige-Truog Soil Reaction Kit. Krotovinas are common in this profile; they are first noticed in the B21 and extend in a more or less vertical direction to sampling depth at least. They range from 1½ inches to 2 inches in diameter and there are about 3 per square foot in horizontal cross section. Loess extends to 80 inches. Sandy-silt loam mixed outwash material from 80 to 90 inches. Calcareous loam till is encountered at 90 inches and extends downward.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Sable silty clay loam SOIL Nos. S48Il1-65-3 LOCATION Menard County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481394 - 481399

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand (2–1)	Sand (1–0.5)	Sand (0.5–0.25)	Sand (0.25–0.1)	Sand (0.1–0.05)	Silt (0.05–0.02)	Silt (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 – 19 Pct. of < 2mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	A1	1.9	65.7	32.4	-	0.1	0.1	0.2	1.5	30.0	35.7	31.6	0.4			Tr.		
8-16	A1	1.7	63.3	35.0	0.2	0.1	0.1	0.2	1.1	29.3	34.0	30.5	0.6			-		
16-21	A3	2.4	64.1	33.5	0.4	0.4	0.1	0.2	1.3	29.0	35.1	30.4	1.1			-		
21-26	B2	2.8	65.3	31.9	0.6	0.5	0.2	0.2	1.3	30.5	34.8	31.9	1.5			-		
26-34	B2	2.4	66.0	31.6	0.1	0.2	0.2	0.3	1.6	31.6	34.4	33.3	0.8			-		
34-40	C1	3.2	65.7	31.1	0.5	0.6	0.3	0.5	1.3	30.0	35.7	31.6	1.9			-		

Depth (In.)	6A1a Organic carbon [a] Pct.	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar [a] g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) [a] H_2O
0-8	2.7						1.43									6.5
8-16	2.7						1.41									6.4
16-21	1.1						1.51									6.8
21-26	0.7						1.48									6.9
26-34	0.5						1.45									7.4
34-40	0.3						1.46									7.7

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay CEC Sum	Ratios to clay Ext. iron	Ratios to clay 15-bar water	8D3 [a] Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g																
0-8	31.9	9.2	0.2	0.6		6.3	48.2							3.5		87	
8-16	23.4	11.0	0.2	0.4		7.5	42.5							2.1		82	
16-21	18.5	9.4	0.1	0.4		5.8	33.5							2.0		85	
21-26	15.4	8.5	0.2	0.4		3.9	28.4							1.8		86	
26-34	14.9	8.6	0.4	0.4		2.8	27.1							1.7		90	
34-40	14.0	9.3	0.4	0.4		1.6	25.7							1.5		94	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
			7A2 X-ray				7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Determinations by University of Illinois.

Soil Type: Sable silty clay loam.
Soil No.: S48Ill-65-3
Location: Menard County, Illinois. T. 18 N., R. 7 W., Sec. 27, SW 1/4, NW 40. 190 feet E and 60 feet S of NW corner of field.
Vegetation and land use: Pasture
Slope and land form: 1/4 percent to SE.
Sampled by and date: B. W. Ray, M. M. Mortland, and J. B. Fehrenbacher. August 10, 1948.

Horizon and Beltsville Lab. No.	
A1 481394	0 to 8 inches. 10 YR 2/1. Silty clay loam. Granular structure 1/16-1/4 inch. Sticky.
A1 481395	8 to 16 inches. Same as horizon above.
A3 481396	16 to 21 inches. 10 YR 3/1 + some 10YR 5/3 mottling. Silty clay loam. Granular to subangular blocky 1/8-1/2 inch. Sticky.
B2 481397	21 to 26 inches. 10YR 5/2 + 6/6 + some 10YR 3/1. Silty clay loam. Subangular blocky to blocky, 1/4-3/4 inch. Hint of prismatic arrangement. Sticky.
B2 481398	26 to 34 inches. Same as horizon above.
C1 481399	34 to 40 inches. 10YR 5/1 + 6/6 + some 10YR 3/1, 5/8, and 7.5YR 5/8. Light silty clay loam. Nearly massive. Calcareous. Soft iron-manganese concretions are most numerous in this horizon. Sticky.

Notes: Munsell notations are of the moist colors of freshly broken fragments.
This profile was moist throughout when sampled. Water stood in the bottom of the excavation.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958

SOIL TYPE Sable silty clay loam **LOCATION** Warren County, Illinois

SOIL NOS. S57Ill-94-1 **LAB. NOS.** 6865-6872

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 <19mm	TEXTURAL CLASS
0-7	A1p	0.1a	0.1a	- a	0.1a	0.9a	67.8	31.0	35.9	32.9	-	sicl
7-19	A12	0.1a	0.1a	- a	0.1a	0.8a	66.3	32.6	35.4	31.8	-	sicl
19-24	A3	1.3b	0.9b	0.3b	0.4b	1.0a	63.9	32.2	34.8	30.3	-	sicl
24-29	B1	1.1b	0.9b	0.3b	0.4b	1.0a	65.3	31.0	34.5	32.0	-	sicl
29-38	B2	0.2b	0.4b	0.3b	0.4b	1.3a	68.8	28.6	36.0	34.3	-	sicl
38-47	B3	0.3b	0.5b	0.1b	0.3b	1.3a	70.9	26.6	36.2	36.2	-	sil
47-59	C21	-	0.1b	0.1b	0.2b	0.8a	74.7	24.1	37.8	37.8	-	sil
59-71+	C22	-	0.2b	0.2b	0.2b	0.9a	76.9	21.6	38.5	39.4	-	sil

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	Free Iron Fe_2O_3%	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1a $CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	c Bulk Density g/cc	WATER CONTENT c Field-State %	d 15-Bar %
5.7			3.22	0.220	15			-				16.2
5.8			2.52	0.171	15			-		1.22	23.3	19.2
6.4			1.16	0.088	13			-				16.8
6.9			0.64					-				15.9
7.4			0.30					-		1.39	18.5	15.6
7.6			0.17					2		1.36	20.7	14.7
7.8			0.07					7				12.2
7.8			0.06					17		1.50	27.3	10.8

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	5C1 Base Sat.% NH_4Ac	5C3 Base Sat.% on Sum Cations	5B1a Sum Ext. Bases	5A3a Sum Ext. Cations	8D3 Ca/Mg	MOISTURE AT SATURATION %
	← milliequivalents per 100g. soil →							me/100g			
32.9	23.2	7.0	10.8	0.1	0.4	93	74	30.7	41.5	3.3	
32.8	22.0	7.3	11.3	0.1	0.4	91	72	29.8	41.1	3.0	
28.5	20.7	7.9	5.4	0.1	0.4		84	29.1	34.5		
26.6	19.8	8.0	2.9	0.1	0.4		91	28.3	31.2		
24.4	18.5	8.0	2.9	0.1	0.3		90	26.9	29.8		
22.2		7.7	2.1	0.1	0.3						
18.9		7.8	0.8	0.1	0.3						
15.8		7.7	0.4	0.1	0.3						

a. Common dark brown to black concr. (Fe-Mn?)
b. Many dark brown to black concr. (Fe-Mn?)
c. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
d. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Sable silty clay loam
Soil Nos. : 57Ill-94-1
University of Illinois Laboratory Nos.: 18021 through 18028.
Location: Warren County, Illinois; 97 feet west and 39 feet north of southeast corner of SE10, NE40, NE160 of Section 14, T9N, R3W, in a cultivated field.
Classification: Humic Gley.
Natural drainage: Poor.
Native vegetation: Wet prairie.
Present vegetation: Soybeans.
Climate: Humid temperate.
Slope: 0 percent.
Erosion: None.
Elevation: Approximately 733 feet.
Parent material: 133 inches of Peorian loess over a moderately dark-colored Paleosol.
Sampled by: L. J. Bushue, R. H. Jordan, and D. E. McCormack, Soil Conservation Service; R. T. Odell, University of Illinois, October 14, 1957.

Horizon and Lincoln Lab. Number	
Alp 6865	0 to 7 inches. Black (10YR 2/1 moist) silty clay loam; moderately developed fine to medium crumb to weakly developed fine to medium granular in upper part, grading to moderately developed medium to coarse platy in lower part; moderately friable when moist; boundary to horizon below is abrupt and smooth; pH is 5.2.
A12 6866	7 to 19 inches. Black (10YR 2/1 to 2.5Y 2/1 moist, 10YR 2/1.5 crushed) silty clay loam; strongly developed medium granular to moderate very fine angular blocky structure; slightly firm when moist; clear smooth boundary; many worm casts; somewhat vesicular; pH is 5.5.
A3 6967	19 to 24 inches. Very dark gray (10YR 3/1 moist) heavy silty clay loam; mottles are common, fine, and faint very dark grayish brown (10YR 3/2 moist); moderate very fine angular blocky structure; firm when moist; clear smooth boundary; common brown to dark brown (7.5YR 4/4 moist) to yellowish brown (10YR 5/5 moist) iron-manganese concretions; pH is 6.0.
B1 6868	24 to 29 inches. Very dark gray (10YR 3/1 moist) to very dark grayish brown (10YR 3/2 moist) heavy silty clay loam; mottles are many medium distinct dark grayish brown (10YR 4/2 moist) to brown (10YR 5/3 moist); crushed color of dark grayish brown to very dark grayish brown (10YR 3.5/2 moist); moderate fine to medium subangular blocky to angular blocky structure; firm when moist; clear smooth boundary; common brown to dark brown (7.5YR 4/4 moist) to yellowish brown (10YR 5/5 moist) iron-manganese concretions; very dark gray (10YR 3/1 moist) to very dark grayish brown (10YR 3/2 moist) clay and organic coatings; pH is 6.3.
B2 6869	29 to 38 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6/2 moist) silty clay loam; mottles are many medium distinct to prominent yellowish brown (10YR 5/7 moist); moderate medium to coarse subangular blocky structure; firm when moist; clear wavy boundary; many strong brown (7.5YR 5/8 moist) iron-manganese concretions; dark gray (10YR 4/1 moist) clay and organic coatings; pH is 7.2.
B3 6870	38 to 47 inches. Gray (2.5Y 5.5/1 moist) light silty clay loam; mottles are many medium distinct to prominent yellowish brown (10YR 5/7 moist); weak medium prismatic breaks to weak coarse angular blocky structure; slightly firm to firm when moist; abrupt and wavy boundary; common strong brown (7.5YR 5/8 moist) iron-manganese concretions; thin grayish brown (10YR 5/2 moist) clay and organic coatings; pH 7.5.
C21 6871	47 to 59 inches. Gray (2.5Y 6/1 moist) silt loam; mottles are many medium distinct yellowish brown (10YR 5/4 to 10YR 5/8 moist); massive; friable when moist; calcareous; boundary diffuse and smooth; few small root channels.
C22 6872	59 to 71 inches plus. Gray (2.5Y 6/1 moist) silt loam; mottles are many fine distinct yellowish brown (10YR 5/4 to 5/8 moist); massive; friable when moist; calcareous.

Remarks: This profile possibly has slightly better natural drainage than modal Sable silty clay loam. pH determined with Hellige-Truog Soil Reaction Kit.

SCS-421
10-64 (Rev. 9-68)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Saybrook silt loam SOIL Nos. S48Ill-99-4 LOCATION Will County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481140 - 481143

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	> 2	2 - 19	19–76
		Pct. of < 2 mm													Pct.	Pct. of < 76mm	
0-14			59.9	30.6	0.1	1.2	2.3	3.4	2.5		38.7	25.5			tr.		
14-19½			55.6	35.4	0.4	1.3	2.0	3.2	2.1		38.4	20.9			1		
19½-30			48.7	36.9	1.9	2.7	2.7	4.3	2.8		39.8	14.0			¼		
30+			62.9	14.5	1.6	2.0	2.4	7.6	9.0		51.8	24.9			3		

Depth (in.)	6A1a Organic carbon	Nitrogen	C/N	6A3a Organic Matter H_2O_2	Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density		4D1	Water content				4C1	pH	
								4A1e ⅓ bar	4A1h Oven dry	COLE		4B1c ⅓ bar	4B2 15 bar		WRD	8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.		Pct.	Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		In/in	KCl	H_2O
0-14				4.2													7.6
14-19½				1.8													7.1
19½-30				1.0													6.9
30+				-													8.1

Depth (in.)	Extractable bases 5B1a					6H2a	CEC		6G1d		Ratios to clay			8D3		Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	Ext. acidity	5A3a Sum cations		Ext. Al		CEC Sum	Ext. Iron	15-bar water	Ca/Mg		5C3 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.

Depth (in.)	Clay Fraction Analysis 7A1b-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Saybrook silt loam
Soil No.: S48Ill-99-4
Location: Will County, Illinois. NW160 SE40 SE10, Sec. 18 T.37N R.9E.
Slope and land form: 4 percent
Sampled by and date: Paul T. Veale, 1948.

Horizon and Beltsville Lab. No.	
A1 481140	0 to 14 inches. Very dark gray (10YR 3/1) moist, friable granular silt loam.
B1 481141	14 to 19-1/2 inches. Blends into variegated brown and very dark gray (10YR 4/3 and 3/1) moist, light silty clay loam; soft rounded peds about 1/8 inch in diameter.
B2 481142	19-1/2 to 30 inches. Blends into very dark grayish brown (10YR 3/2) moist, silty clay loam, which has subangular structure 1/8 to 1/4 inch in diameter. Crushes to yellowish brown (10YR 5/6) moist. Dark organic matter on cleavage faces is common.
C 481143	30 inches plus. Blends into yellowish brown (10YR 5/4 - 5/6) moist, structureless calcareous silt loam till.

SCS-421
10-64 (Rev 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Seaton silt loam SOIL Nos. 13[a] LOCATION Carroll County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. D3533 - D3551

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	6A1a Organic matter H_2O_2 Pct.	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2–19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm															
0-6			76.6	10.4	-	0.1	0.1	0.7	12.1		25.7	63.5			1.6	tr.		
6-9			73.5	14.4	-	0.1	0.1	0.5	11.4		24.6	60.7			0.6	tr.		
9-12			69.9	19.1	-	0.1	0.1	0.4	10.4		22.9	57.8			0.6	tr.		
12-15			69.0	20.3	-	0.1	0.1	0.5	10.0		22.2	57.3			0.5	tr.		
15-18			66.3	22.5	-	0.1	0.1	0.5	10.5		20.6	56.5			0.3	tr.		
18-21			65.3	22.6	-	0.1	0.1	0.4	11.5		19.7	57.4			0.2	tr.		
21-24½			65.8	22.7	-	0.1	0.1	0.4	10.9		19.6	57.4			0.1	tr.		
24½-27½			65.9	22.0	-	-	0.1	0.5	11.5		19.4	58.3			0.1	tr.		
27½-30½			66.9	20.3	-	-	0.1	0.4	12.3		18.6	60.9			0.1	tr.		
30½-33½			67.9	18.2	-	-	0.1	0.4	13.4		17.8	63.7			-	tr.		
33½-37			66.7	17.8	-	0.1	0.1	0.5	14.8		18.2	63.6			-	tr.		
37-40½			66.8	17.0	-	0.1	0.1	0.6	15.4		18.7	63.9			-	-		
40½-45			66.1	16.0	-	0.1	0.1	0.5	17.2		19.0	64.7			-	-		
45-48½			63.9	14.0	-	0.1	0.1	0.5	21.4		18.0	67.7			-	-		
48½-52½			63.4	15.0	-	-	0.1	0.6	20.9		17.8	67.0			-	-		
52½-60			65.0	16.2	-	-	0.1	0.6	18.1		21.4	62.2			-	-		
60-66			65.5	14.6	-	0.1	0.1	0.8	18.9		23.4	61.7			-	-		
66-70			59.6	11.5	-	0.1	0.1	1.3	27.4		17.4	70.6			-	-		
75-90			45.5	9.3	-	0.2	0.2	10.6	34.2		13.4	75.5			-	-		

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext acidity	CEC: 5A3a Sum cations	6G1d Ext Al	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct
	meq/100 g												
0-6	4.8	1.0				3.8				5.6		60	
6-9	5.8	1.3				3.2				5.5		69	
9-12	7.7	2.0				3.6				5.6		73	
12-15	8.2	2.4				3.9				5.6		73	
15-18	9.0	2.8				4.2				5.6		74	
18-21	9.2	3.3				4.0				5.6		76	
21-24½	9.4	3.5				3.9				5.6		77	
24½-27½	8.8	3.4				3.9				5.6		76	
27½-30½	8.3	3.5				4.0				5.6		75	
30½-33½	7.6	3.2				3.5				5.7		76	
33½-37	7.6	3.3				3.3				5.8		77	
37-40½	7.7	3.5				3.2				5.8		78	
40½-45	7.7	3.5				3.0				5.9		79	
45-48½	7.1	3.3				2.8				6.0		79	
48½-52½	7.6	3.7				2.9				6.0		80	
52½-60	8.2	4.1				3.0				6.0		80	
60-66	8.2	3.5				2.3				6.1		84	
66-70	6.9	3.0				1.9				7.1		84	
75-90	b					"				8.1			

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl	Vm	Mi.	Int	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Part of Project Z-1-2-8

b Not determined, sample is calcareous.

Mt. = Montmorillonite, Chl = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Soil Type: Seaton silt loam
Soil No.: 13[a]
Location: Carroll County, Illinois. NW 1/4 of SW 1/4 of Sec. 27, T 25 N, R 3 E.
Slope and land form: 5 percent
Sampled by and date: H. Wascher, E. P. Whiteside, and R. J. Muckenhirn. September 27, 1944.

Horizon and Beltsville Lab. No.	
D3533	0 to 6 inches. Brown silt loam; dry to pale brown silt loam; fine granular structure; friable; fine roots; worm casts; organic residues present.
D3534	6 to 9 inches. Brown to yellowish brown silt loam; medium granular structure; moderately vesicular; lightly sprinkled with silica; friable; worm casts, fine roots common.
D3535	9 to 12 inches. Brown silt loam; medium blocky structure; moderately vesicular; slightly firm; roots, wormholes, casts present.
D3536	12 to 15 inches. Brown silt loam; medium blocky structure; moderately vesicular; slightly firm; irregularly coats of silica flour; fine roots, wormholes common.
D3537	15 to 18 inches. Yellowish brown silt loam; medium to coarse blocky structure; lightly sprinkled with silica; moderately vesicular; slightly firm; fine roots common, wormholes, casts present.
D3538	18 to 21 inches. Brown silty clay loam; medium blocky structure; slightly vesicular; very lightly sprinkled with silica flour; sharply angular and slightly firm; wormholes few, roots fairly common.
D3539	21 to 24 1/2 inches. Brown silt loam; medium blocky structure; slightly vesicular; subangular; slightly firm; silica flour present; wormholes few; roots common.
D3540	24 1/2 to 27 1/2 inches. Brown silt loam; medium blocky structure; slightly vesicular; subangular; slightly firm; fine and fibrous roots, wormholes, and casts common.
D3541	27 1/2 to 30 1/2 inches. Similar to layer above.
D3542	30 1/2 to 33 1/2 inches. Yellowish brown to moderate brown silt loam; medium blocky structure; slightly vesicular; subangular; slightly firm; occasionally specked with dark brown; roots few.
D3543	33 1/2 to 37 inches. Yellowish brown silt loam; weakly developed; slightly vesicular; friable; roots very few; worm activity slight.
D3544	37 to 40 1/2 inches. Yellowish brown silt loam; coarse blocky structure; slightly vesicular; friable; worm casts and roots very few.
D3545	40 1/2 to 45 inches. Yellowish brown silt loam or very fine sandy loam coarse blocky structure; friable; splotched with brown; roots and worm casts few.
D3546	45 to 48 1/2 inches. Yellowish brown very fine sandy loam; weakly developed coarse blocky structure; slightly vesicular; friable; slight silica flour coatings; roots and worm casts few.
D3547	48 1/2 to 52 1/2 inches. Same as above.
D3548	52 1/2 to 60 inches. Yellowish brown; very fine sandy loam; weakly developed coarse blocky structure; slightly vesicular; little or no silica flour; friable; roots few.
D3549	60 to 66 inches. Yellowish brown silt loam to very fine sandy loam.
D3550	66 to 70 inches. Similar to above.
D3551	75 to 90 inches. Light yellowish brown very fine sandy loam; calcareous.

Notes: a Part of Project Z-1-2-8.

SCS 421
10-64 (Rev. 9-66)

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Scioto silt loam SOIL Nos 853I11-44-6 LOCATION Johnson County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531731 - 531739

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct of < 76mm	19 – 76 Pct of < 76mm
		Pct. of < 2 mm																
0-5	A1	13.4a	67.0	19.6	0.3	0.5	0.8	5.4	6.4	32.5	34.5	42.6	7.0			-		
5-9½	A2	11.8	66.6	21.6	-	0.2	0.5	5.2	5.9	31.1	35.5	40.7	5.9			-		
9½-12	A3 b																	
12-16	B1 b																	
16-23	B21	24.9	40.6	34.5	-	0.1	1.0	16.6	7.2	16.5	24.1	33.8	17.7			-		
23-34	B22	9.9	55.3	34.8	-	0.1	0.2	2.2	7.4	23.2	32.1	32.3	2.5			-		
34-45	B23	21.8	41.9	36.3	-	0.1	0.4	11.6	9.7	17.3	24.6	35.7	12.1			-		
45-51	B3 b																	
51-72	C1	10.8	57.8	31.4	-	0.2	0.3	3.8	6.5	25.2	32.6	34.7	4.3			-		

Depth (In.)	6A1a Organic carbon Pct	Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD In/in	pH: 8C1c (1 1) KCl	8C1a (1:1) H_2O
0-5	1.63																5.4
5-9½	0.62																5.0
9½-12																	
12-16																	
16-23	0.17																4.6
23-34	0.10																4.6
34-45	0.11																4.6
45-51																	
51-60	0.12																4.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 6A3a Sum cations		6G1d Ext Al		Ratios to clay: CEC Sum	Ext iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct
	meq/100 g																
0-5	5.1	2.5	tr.	0.5		10.1	18.2									44	
5-9½	3.0	2.0	tr.	0.5		9.9	15.4									36	
9½-12																	
12-16																	
16-23	2.6	4.3	tr.	0.7		15.8	23.4									32	
23-34	3.4	5.4	0.1	0.7		16.7	26.2									37	
34-45	3.8	6.6	0.4	0.6		16.9	28.3									40	
45-51																	
51-72	7.7	9.8	1.0	0.5		9.8	28.8									66	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl	Vm.	Mi	Int	Qtz.	Kl	Gibbsite
	7A2 X ray						7A3	

a Undecomposed organic matter in all sand fractions.

b. No analyses on these horizons.

Mt. = Montmorillonite, Chl = chlorite, Vm. = Vermiculite, mi = mica, Int = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Sciotoville silt loam.
Soil No.: S53Il1-44-6
Location: Johnson County, Illinois. T.14 S., R.2 E., Sec. 9, NE 1/4, NE 40, NE 10, on west side of lightly graveled road in edge of open ungrazed woods, about 190 feet south of edge of woods on east side of road (also about NE corner of section 9) 12 feet north of power line pole in bank with 2 foot road cut.
Vegetation and land use: Broomsedge, bluegrass, weeds, and various deciduous hardwood trees.
Slope and land form: 2 percent from S., 5 percent to N.
Sampled by and date: J. B. Fehrenbacher, R. H. Ruhe, and H. L. Wascher. September 15, 1953.

Horizon and Beltsville Lab. No.	
A1 531731	0 to 5 inches. Dark grayish brown (10YR 4/2), crumb silt loam.
A2 531732	5 to 9-1/2 inches. Brown (7.5YR 5/4), indistinct thin platy to fragmental silt loam.
A3 531733	9 1/2 to 12 inches. Brown (7.5YR 5/5), 1/8 - 1/4 inch irregular fragmental to subangular, heavy silt loam.
B1 531734	12 to 16 inches. Reddish brown (6YR 5/4), 1/4 inch subangular blocky silty clay loam.
B21 531735	16 to 23 inches. Reddish brown (6YR 4/4), 3/8 - 1/2 inch subangular to nutlike silty clay loam with fine to very fine sand.
B22 531736	23 to 34 inches. Dark brown to brown (7.5YR 4/4 and 5/4), 1/4 - 3/4 inch subangular to nut-like mod. thick coatings light yellowish brown (10YR 6/4), silty clay loam with some fine to very fine sand.
B23 531737	34 to 45 inches. Dark brown (7.5YR 4/4 spotted 6/2 and splotched iron-manganese 2/2), 3/4 - 3 inches blocky coated gray to pale brown (10YR 6/1 - 6/3), silty clay loam with fine to very fine sand.
B3 531738	45 to 51 inches. Pale brown (10YR 6/3) mottled dark brown (7.5YR 4/4) with concretions and splotches of iron-manganese very dark brown (7.5YR 2/2), silty clay loam.
C1 531739	51 to 72 inches. 51 to 72 inches. Light brownish gray (10YR 6/2) mottled strong brown (7.5YR 5/6) and splotched iron-manganese very dark brown (715YR 2/2), light silty clay loam.
C2 Not Sampled	72 to 95 inches plus. Stratified clay loam, sandy clay loam and silty clay loam.

Notes: Taken on terrace about 10 feet above adjacent bottom in former Ohio river (now Cache creek) basin. Material above 16 inches may be loess of Peorian age, that below 16 inches is probably mostly deposited by waters from high floods of Ohio river or possibly backwaters from Mississippi river floods. Elevation between 320 and 340 feet.

SOIL SURVEY LABORATORY Lincoln, Nebraska March 1964

SOIL TYPE Stronghurst silt loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S61-Ill-50-5 **LAB. NOS.** 16586-16593

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	
0-4	A1	0.3a	0.6a	0.3a	0.5b	2.3	81.0	15.0	39.2	44.4	-	
4-9	A2	0.4a	0.7a	0.4a	0.5a	1.2b	79.3	17.5	38.4	42.4	-	
9-14	B1	0.3a	0.6a	0.3a	0.4a	1.8b	68.5	28.1	33.6	36.9	-	
14-22	B21	Tr.a	0.2a	0.1a	0.3a	2.3b	60.1	37.0	30.9	31.7	-	
22-29	B22	-	0.1a	0.2a	0.3a	2.1b	65.6	31.7	38.9	29.0	-	
29-40	B23	-	0.1a	0.1a	0.3a	3.0	66.2	30.3	39.1	30.3	-	
40-46	C1	-	0.2a	0.2a	0.3a	3.9c	70.4	25.0	42.7	31.8	-	
46-66+	C2	Tr.a	0.1a	0.2d	2.3d	6.2c	80.3	10.9	59.0	29.3	-	

pH 1:1	6E1b $CaCO_3$ equivalent % f	6G1a Ext. Al me/100g	ORGANIC MATTER 6A1a ORGANIC CARBON g %	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	h Bulk Density g/cc	WATER CONTENT h Field State %	i 15-Atm. %			
5.4		Tr.	2.17	0.206	10	0.6	1.33	17.8	8.5			
5.2		0.4	0.58	0.063	9	0.8	1.38	15.6	7.2			
4.7		0.4	0.46	0.056	8	1.0			12.6			
4.8		0.6	0.39	0.048	8	1.2			17.9			
5.4		0.1	0.29	0.041	7	1.3	1.51	16.1	18.0			
6.4	-		0.22			1.1			17.1			
7.4	1		0.18			1.1			14.3			
7.9	24		0.13			1.0	1.50	15.3	6.3			

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a Sum	5C3 Base Sat. % on Sum Cations	5C1 Base Sat. % NH_4OAc	Ratios to Clay NH_4OAc CEC	Ext. Iron	6D1 Water at 15-Atm.	8D3 Ca/Mg
< milliequivalents per 100g. soil >												
13.4	6.8	1.8	8.7	Tr.	0.5	17.8	51	68	.89	.040	.57	3.8
10.6	5.6	1.7	6.0	Tr.	0.4	13.7	56	73	.60	.046	.41	3.3
17.8	11.1	4.8	5.6	0.1	0.5	22.1	75	93	.63	.036	.45	2.3
28.5	16.1	8.8	7.7	0.1	0.7	33.4	77	90	.77	.032	.48	1.8
24.0	14.6	8.8	5.6	0.1	0.6	29.7	81	100	.76	.041	.57	1.6
24.0	15.6	9.1	3.0	0.1	0.6	28.4	89	106	.79	.036	.56	1.7
21.7				0.1	0.4				.87	.044	.57	
8.5				0.1	0.2				.78	.092	.58	

a. > 50% Fe-Mn nodules. b. 5-25% Fe-Mn nodules. c. 5-25% carbonate nodules.
d. < 50% Fe-Mn nodules. < 5% carbonate nodules. e. Determined by Univ. of Illinois.
f. No carbonate clay. g. 8.8 Kg/M^2 to 60 inches. (Method 6A)
h. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
i. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Stronghurst silt loam
Soil Nos. : 861I11-50-5
University of Illinois Laboratory Nos.: 18924 through 18931.
Location: LaSalle County, Illinois; 568 feet south of gravel road along fence then 290 feet west, NW160, NE40, NE10, SE2½ of Section 11, T34N, R1E.
Classification: Gray-Brown Podzolic.
Natural drainage: Imperfect.
Native vegetation: Forest.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 1/4- to 1/2-percent southeast.
Erosion: 7 to 14 inches topsoil remaining.
Elevation: 655 feet.
Parent material: Deep loess over 5 feet thick.
Described by: J. D. Alexander and E. R. Sinclair, October 26, 1961.

Horizon and Lincoln Lab. Number	
A1 16586	0 to 4 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium crumb structure; friable; abundant roots; few worm channels filled with A2 material in lower A1; pH 6.0; clear smooth boundary.
A2 16587	4 to 9 inches. Brown (10YR 5/3) silt loam; moderate medium platy structure breaking to weak fine subangular blocks; friable; common roots; many worm channels filled with A1 material; pH 5.3; clear smooth boundary.
B1 16588	9 to 14 inches. Brown (10YR 5/3) crushing to 10YR 5/3 to 6/3 light silty clay loam with few fine faint yellowish brown (10YR 5/4) mottles; moderate very fine and fine subangular blocky structure; firm; brown (10YR 5/3) very thin continuous clay coatings; light brownish gray (10YR 6/2) thin patchy silt coatings; common roots; occasional black (N 2/) iron-manganese concretions; occasional worm channels filled with A1 material; pH 5.5; clear smooth boundary.
B21 16589	14 to 22 inches. Brown (10YR 5/3) crushing to 10YR 5/4 medium silty clay loam with few fine faint yellowish brown (10YR 5/4 and 5/6) mottles; moderate fine angular and subangular blocky structure; firm; dark grayish brown (10YR 4/2) thin shiny continuous clay coatings; occasional roots; occasional iron-manganese concretions; pH 5.5; clear smooth boundary.
B22 16590	22 to 29 inches. Grayish brown (2.5Y 5/2) crushing to 10YR 5/3 medium silty clay loam with many fine distinct yellowish brown (10YR 5/6 and 5/4), light brownish gray (2.5Y 6/2), and dark grayish brown (2.5Y 4/2) mottles; moderate fine and medium angular blocky structure; firm; dark grayish brown (10YR 4/2) thin shiny continuous clay coatings; common fine black (N 2/) iron-manganese concretions; occasional roots; pH 6.0; diffuse smooth boundary.
B23 16591	29 to 40 inches. Mixed light brownish gray (2.5Y 6/2) and grayish brown (2.5Y 5/2) medium silty clay loam with many fine distinct yellowish brown (10YR 5/6 and 5/8) and dark grayish brown (10YR 4/2) mottles; weak medium prismatic structure breaking to moderate medium and coarse angular blocks; firm; grayish brown (10YR 5/2) and dark grayish brown (10YR 4/2) thin shiny continuous clay coatings, thickest on vertical ped faces; many fine black (N 2/) iron-manganese concretions; occasional roots; pH 7.0; clear smooth boundary.
C1 16592	40 to 46 inches. Mixed grayish brown (2.5Y 5/2) and yellowish brown (10YR 5/6 and 5/8) heavy silt loam; massive with occasional vertical cleavage planes; friable; grayish brown (2.5Y 5/2) thin shiny clay coatings on vertical ped surfaces; many fine black (N 2/) iron-manganese concretions; occasional roots; pH 8.0; diffuse smooth boundary.
C2 16593	46 to 66 inches plus. Mixed yellowish brown (10YR 5/4 and 5/6) and light brownish gray (10YR 6/2) silt loam; massive; friable; common fine black (N 2/) iron-manganese concretions; an occasional calcium concretion; calcareous.

Remarks: Six 3-inch soil cores were taken in each of the following horizons: A1, 1 to 4 inches; A2, 5 to 8 inches; B22, 25 to 28 inches; and C2, 46 to 49 inches. pH determined with Hellige-Truog pH kit in the field.

SCS-421
10-64 (Rev. 9-66)

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Swygert silt loam SOIL Nos. S48Ill-99-3 LOCATION Will County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481131 - 481134

Depth (In)	Horizon	1B1b Total Sand (2–0 05)	Total Silt (0.05–0.002)	Total Clay (< 0 002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0 5)	Sand: Medium (0 5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0 1–0 05)	Silt (0.05–0 02)	Silt: Int III (0 02–0 002)	Int. II (0.2–0 02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76 Pct. of < 76mm
		Pct of < 2 mm																
0-9			55.6	32.1	0.6	1.6	2.0	4.8	3.3		40.3	21.3				1		
9½-12			51.2	34.8	2.1	2.0	2.0	4.4	3.5		38.2	19.0				2		
12-26			41.5	48.0	1.3	1.3	1.5	3.6	2.8		32.7	13.8				2		
26+			48.4	38.2	1.8	1.9	1.8	4.1	3.8		38.0	16.7				3		

Depth (in.)	6A1a Organic carbon Pct	Nitrogen Pct	C/N	6A3a Organic Matter H_2O_2 Pct.	Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct.	Bulk density: g/cc	Bulk density: ⅓ bar g/cc	Bulk density: Oven dry g/cc	4D1 COLE	Water content: Pct	Water content: ⅓ bar Pct.	Water content: 15 bar Pct		4C1 WRD in/in	pH: 8C1c (1 1) KCl	pH: 8C1a (1:1) H_2O
0-9				5.0													6.0
9½-12				2.1													5.6
12-26				0.2													7.5
26+				0.2													8.1

Depth (in)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2e K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct
	meq/100 g															

Depth (In)	Clay Fraction Analysis 7Aib-d: Mt	Chl	Vm.	Mi	Int.	Qtz.	Kl	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl = chlorite, Vm = Vermiculite, mi = mica, **Int.** = Interstratified layer, Qtz. = quartz, Kl = Kaolinite

Relative amounts. blank = not determined, dash = not detected, **tr** = **trace**, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Soil Type: Swygert silt loam
Soil No.: S48Ill-99-3
Location: Will County, Illinois. NE160 SE40 SE10 Sec. 12, T.43N R.12E.
Sampled by and date: Paul T. Veale, 1948.

Horizon and Beltsville Lab. No.	
A1 481131	0 to 9-1/2 inches. Very dark gray (10YR 3/1) moist, silt loam; granular friable structure containing numerous roots.
A3 481132	9-1/2 to 12 inches. Blends into dark grayish brown (10YR 4/2) moist, friable silt loam.
B2 481133	12 to 26 inches. Breaks into light brownish gray (10YR 6/2) mottled with pale brown (10YR 6/3) moist, heavy silty clay loam; subangular peds 1/4 to 1/2 inch in diameter; roots between peds.
481134	26 inches plus. Calcareous light brownish gray (10YR 6/2) moist, mottled with yellowish brown (10YR 5/6) moist, silty clay till; massive structure.

SCS 421
10-64 (Rev. 9-66)

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Tama silt loam SOIL Nos. S48Il1-65-2 LOCATION Menard County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 481386 - 481393

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 — Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9			71.9	26.0	0.1	0.2	0.1	0.3	0.4		34.6	38.8				-		
9-16			68.9	28.8	0.1	0.2	0.1	0.3	1.6		33.2	37.5				-		
16-21			67.9	30.1	0.1	0.2	0.1	0.2	1.4		32.9	36.6				-		
21-27			67.0	30.9	0.1	0.1	-	0.1	1.5		32.2	36.6				-		
27-34			68.7	29.2	-	-	-	0.1	2.0		31.3	39.3				-		
34-40			71.1	25.7	-	-	-	0.2	3.0		30.5	43.6				-		
40-48			73.8	23.2	-	-	-	0.3	2.7		29.5	47.1				-		
48-53																		
53-59			78.7	19.6	-	-	-	0.2	1.9		37.1	49.1				-		

Depth (In.)	6A1a Organic carbon Pct	Nitrogen Pct	C/N	6A3a Organic Matter H_2O_2 Pct.	Carbonate as $CaCO_3$ Pct.	Ext iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct	4B2 15 bar Pct		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9				1.9													5.3
9-16				1.0													5.6
16-21				1.4													5.7
21-27				0.9													5.6
27-34				0.6													5.6
34-40				0.4													5.8
40-48				0.4													6.3
48-53																	
53-59				0.1													7.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct.
	meq/100 g																
0-9	7.5	3.1	0.3	0.6		11.0										51	
9-16	9.4	3.7	0.4	0.4		8.3										74	
16-21	9.6	4.5	0.3	0.3		7.9										76	
21-27	9.9	5.9	0.1	0.5		6.9										79	
27-34	9.3	5.8	0.2	0.5		6.1										72	
34-40	8.8	5.7	0.2	0.4		4.9										76	
40-48	8.3	5.3	0.2	0.4		3.9										76	
48-53																	
53-59	10.4	7.3	0.2	0.3		0.6										97	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt	Chl	Vm	Mi	Int.	Qtz.	Kl.	Gibbsite
	7A2 X ray						7A3	

Mt. = Montmorillonite, Chl = chlorite, Vm = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl = Kaolinite

Relative amounts blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Soil Type: Tama silt loam
Soil No.: S48I11-65-2
Location: Menard County, Illinois. NE 1/4 NE 40 NW10 Sec. 33 T.18N R.7W 165 feet east of NW corner of NW 10.
Vegetation and land use: Sod
Slope and land form: 5 percent
Erosion: None
Parent Material: Deep loess
Sampled by and date: Dr. Whiteside and R. H. Rust. August 10, 1948.

Horizon and Beltsville Lab. No.	
A1 481386	0 to 9 inches. Broken color (10YR 3/1), crushed color (10YR 3/2) silt loam, fine granular 1/32 to 1/8 inch in diameter, gray specking on dry aggregates, physical condition friable.
A3 481387	9 to 16 inches. Broken color (10YR 3/1), crushed color (10YR 3.5/2) heavy silt loam, medium granular 1/16 - 1/4 inch more angular than A1, physical condition friable.
B1 481388	16 to 21 inches. Broken color (10YR 3/2) to (10YR 4/3) on interior, crushed color (10YR 4/3), light silty clay loam, coarse granular to fine subangular blocky 1/8 to 1/2 inches in diameter. (10YR 4/3) coatings on ped interior, friable.
B12 481389	21 to 27 inches. Broken color (10YR 4/3), crushed color (10YR 5/4), silty clay loam, medium subangular blocky 1/4 to 5/8 inch in diameter, coatings (10YR 4/2), friable.
B22 481390	27 to 34 inches. Broken color (10YR 4/3) mottled with (10YR 6/4 - 6/6) crushed color (10YR 5/6), silty clay loam, coarse subangular blocky 1/4 to 1 inch, coatings (10YR 4/2), firm but friable.
B3 481391	34 to 40 inches. Broken color (10YR 5/4) with some (10YR 6/4 - 6/6) crushed color (10YR 5/6), light silty clay loam, very coarse subangular blocky 1/2 to 1-1/2 inches some (10YR 4/3) coatings, firm but friable.
C1 481392	40 to 48 inches. Broken color (10YR 5/6), crushed color (10YR 5/6) silt loam, massive, few (10YR 4/3) coatings, friable.
C2 Not Sampled	48 to 53 inches. Broken color (10YR 6/4), crushed color (10YR 6/4), calcareous silt, massive, very friable.
C2 481393	53 to 59 inches. Broken color (10YR 8/1) (80 percent), (10YR 7/5) (16 percent), (5YR 4/6) (4 percent).

Notes: Profile description-moist condition except A1, which was slightly moist. Roots abundant throughout eight horizons. Calcareous loess began at 48 inches.

SOIL SURVEY LABORATORY Lincoln, Nebr. March 1964

SOIL TYPE Traer silt loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S61-Ill-50-3 **LAB. NOS.** 16568-16576

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2
0-5	A1	0.3a	0.4a	0.1a	0.3b	1.4	80.8	16.7	32.7	49.7	-
5-14	A2	0.6a	0.5a	0.2a	0.3b	0.9b	79.6	17.9	36.2	44.5	-
14-18	B1	-	0.1a	0.1a	0.2a	1.1	68.7	29.8	31.2	38.7	-
18-23	B21	-	Tr.a	Tr.a	0.1a	1.1	59.2	39.6	28.2	32.2	-
23-28	B22	Tr.a	Tr.a	Tr.a	0.1a	0.8	59.3	39.8	29.1	31.1	-
28-36	B23	Tr.a	0.1a	0.1a	0.1a	1.2	60.3	38.2	29.0	32.6	-
36-46	B24	0.1a	0.2a	0.1a	0.1a	2.7	61.8	35.0	34.9	29.7	-
46-53	C1	Tr.a	0.1a	0.1a	0.3a	2.3	68.9	28.3	41.7	29.7	-
53-62+	C2	Tr.a	0.2a	0.2a	0.3a	3.9	70.2	25.2	42.7	31.6	-

pH 1:1	6E1b $CaCO_3$ equivalent % d	6G1a Ext. Al me/100g	ORGANIC MATTER 6A1a ORGANIC CARBON % e	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	Bulk Density f g/cc	WATER CONTENT f Field-State %	g 15-Atm. %
5.6		-	2.30	0.227	10	0.5	1.26	21.7	10.4
5.0		0.6	0.35	0.054	6	0.5	1.44	16.7	7.1
4.6		1.1	0.25	0.049	5	0.5			12.4
4.6		1.6	0.37	0.056	7	0.6			18.2
4.8		1.1	0.30	0.045	7	0.8	1.46	19.7	19.9
5.1		0.2	0.25			0.8			19.5
6.3	-		0.22			1.0			20.4
6.9	-		0.22			0.8	1.49	18.6	15.1
7.3	1		0.18			0.8			16.8

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a Sum	5C3 Base Sat. % on Sum Cations	5C1 Base Sat. % NH_4OAc	Ratios to Clay NH_4OAc CEC	Ext. Iron	6D1 Water at 15-Atm.	8D3 Ca/Mg
← milliequivalents per 100g. soil →												
13.0	6.8	1.8	8.1	Tr.	0.4	17.1	53	69	.78	.030	.62	3.8
9.6	4.7	1.7	5.2	Tr.	0.3	11.9	56	70	.54	.028	.40	2.8
18.3	9.7	4.8	7.6	0.1	0.5	22.7	66	82	.61	.017	.42	2.0
27.1	14.3	8.2	7.4	0.1	0.6	30.6	76	86	.68	.015	.46	1.7
28.7	16.0	10.0	8.2	0.2	0.7	35.1	77	94	.72	.020	.50	1.6
28.8	17.2	10.7	6.2	0.2	0.6	34.9	82	100	.75	.021	.51	1.6
26.8	17.6	10.9	3.4	0.2	0.5	32.6	90	109	.76	.028	.58	1.6
22.5	15.0	8.8	2.2	0.1	0.4	26.5	92	108	.80	.028	.53	1.7
19.8				0.1	0.4				.78	.032	.67	1.7

a. > 50% Fe-Mn nodules. b. 5-25% Fe-Mn nodules. c. Determined by Univ. of Illinois.
d. No carbonate clay. e. 9.1 Kg/M^2 to 60 inches. (Method 6A).
f. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
g. Determined by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Traer silt loam
Soil Nos. : S61Ill-50-3
University of Illinois Laboratory Nos.: 18906 through 18914.
Location: LaSalle County, Illinois; 223 feet south of gravel road along fence, then 71 feet due west, and then 16 feet north-northeast to sampling site, NW160, NE40, NE10, NE2½ of Section 11, T34N, R1E.
Classification: Gray-Brown Podzolic intergrading to Planosol.
Natural drainage: Poor.
Native vegetation: Forest.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 1-1/2 percent down drainage way.
Erosion: 7 to 14 inches topsoil remaining.
Elevation: 650 feet.
Parent material: Deep loess over 5 feet thick.
Described by: L. E. Tyler and J. D. Alexander, October 25, 1961.

Horizon and Lincoln Lab. Number	
A1 16568	0 to 5 inches. Very dark gray (10YR 3/1) crushing to 10YR 3/2 silt loam; weak thin platy and moderate fine crumb structure; friable; abundant roots; worm channels filled with A2 material in lower part; pH 6.0; abrupt smooth boundary.
A2 16569	5 to 14 inches. Grayish brown (2.5Y 5/2) crushing to 10YR 6/2 silt loam; moderate thin platy structure; friable; considerable dark brown color around root channels; abundant roots; common fine iron-manganese concretions; worm channels filled with A1 material; pH 5.5; clear smooth boundary.
B1 16570	14 to 18 inches. Grayish brown (2.5Y 5/2) light silty clay loam; moderate fine subangular blocky structure; friable; discontinuous silt coatings on all surfaces; dark gray (10YR 4/1) discontinuous clay coatings on all surfaces in lower part of horizon; abundant roots; occasional worm channels filled with A1 material; pH 5.3; abrupt smooth boundary.
B21 16571	18 to 23 inches. Dark gray (2.5Y 4/1) heavy silty clay loam; moderate fine and very fine angular blocky structure; firm; very dark gray (10YR 3/1) to dark gray (10YR 4/1) continuous clay coatings; common roots; pH 5.3; gradual smooth boundary.
B22 16572	23 to 28 inches. Olive gray (5Y 5/2) heavy silty clay loam with few fine distinct yellowish brown (10YR 5/6 and 5/8) mottles; moderate fine and very fine angular blocky structure; firm; dark gray (2.5Y 4/1) continuous clay coatings; common roots; pH 5.5; gradual smooth boundary.
B23 16573	28 to 36 inches. Olive gray (5Y 5/2) medium to heavy silty clay loam with few fine distinct yellowish brown (10YR 5/6 and 5/8) mottles; mottled slightly more than above horizon; moderate medium angular blocky structure; firm; dark gray (10YR 4/1) continuous clay coatings; occasional roots; a krotovina starts in this horizon and continues down below a depth of 62 inches; it has fine brown mottles and structure of the surrounding horizon; pH 6.0; gradual smooth boundary.
B24 16574	36 to 46 inches. Olive gray (5Y 5/2) medium silty clay loam with common fine distinct yellowish brown (10YR 5/8) to dark yellowish brown (10YR 4/4) mottles; weak medium prismatic structure breaking to weak coarse angular blocks; firm; dark gray (2.5Y 4/1) discontinuous clay coatings; occasional roots; pH 7.0; gradual wavy boundary.
C1 16575	46 to 53 inches. Olive gray (5Y 5/2) heavy silt loam with common fine distinct strong brown (7.5YR 5/6 and 5/8) mottles; massive with vertical cleavage planes 3 to 6 inches apart; friable; dark gray (2.5Y 4/1) to very dark gray (2.5Y 3/1) discontinuous clay coatings on vertical surfaces; matrix contains many fine hair- to string-sized channels filled with dark material; pH 7.2; gradual smooth boundary.
C2 16576	53 to 62 inches plus. Same as C1 except slightly more mottled; coatings are fewer and thinner and fewer hair- to string-sized channels filled with dark material.

Remarks: Six 3-inch soil cores were taken in each of the following horizons: A1, 1 to 4 inches; A2, 8 to 11 inches; B22, 23 to 26 inches; and C1, 46 to 49 inches. pH determined with Hellige-Truog pH kit in the field. This profile is located 30 to 40 feet south of a drainage way.

SOIL SURVEY LABORATORY Lincoln, Nebraska March 1964

SOIL TYPE Traer silt loam **LOCATION** LaSalle County, Illinois

SOIL NOS. S61-Ill-50-4 **LAB. NOS.** 16577-16585

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	
0-4	A1	0.1a	0.5a	0.6a	1.2b	2.7	78.0	16.9	39.2	42.2	-	
4-11	A2	0.5a	0.8a	0.6a	1.2b	1.3	75.6	20.0	37.0	40.6	-	
11-15	B1	0.5a	0.6a	0.6a	0.9b	1.9	68.6	26.9	33.8	37.2	-	
15-24	B21	0.1a	0.3a	0.4a	0.7b	1.2	59.5	37.8	29.4	31.7	-	
24-33	B22	0.1a	0.4a	0.3a	0.5b	2.6	62.0	34.1	34.7	30.2	-	
33-42	B3	0.2a	0.4a	0.1a	0.3b	3.1	66.7	29.2	39.4	30.6	-	
42-51	C1	0.2a	0.4a	0.2a	0.9b	2.8	70.6	24.9	42.8	31.3	-	
51-58	C2	0.2a	0.4a	0.2c	0.8c	4.2d	74.3	19.9	47.1	31.8	-	
58-66	C3	0.1a	0.4c	0.3c	0.8c	3.7d	78.2	16.5	48.3	34.1	-	

pH 1:1	6E1b CaCO3 equivalent % f	6G1a Ext. Al me/100g	ORGANIC MATTER 6A1a ORGANIC CARBON % g	6B1a NITROGEN %	C/N	6C1a Ext. Iron as Fe %	h Bulk Density g/cc	WATER CONTENT h Field-State %	i 15-Atm. %
5.3		Tr.	1.82	0.177	10		1.29	19.4	8.7
5.1		0.4	0.57	0.075	8		1.38	16.1	8.0
5.1		0.4	0.29	0.048	6				11.0
5.2		0.3	0.30	0.048	6		1.41	17.6	17.5
5.5		0.3	0.29						18.7
6.1			0.18						15.8
6.7	-		0.14				1.50	16.2	12.5
7.5	1		0.18						10.4
7.9	15		0.18						7.9

5A1a CATION EXCHANGE CAPACITY NH_4OAc	6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a Sum	5C3 Base Sat. % on Sum	5C1 Base Sat. % NH_4OAc	Ratios to Clay NH_4OAc CEC	Ext. Iron	8I1 Water at 15-Atm.	8D3 Ca/Mg
	milliequivalents per 100g. soil						Cations					
12.1	6.2	1.8	6.7	Tr.	0.8	15.5	57	73	.72		.51	3.4
11.5	6.0	1.9	5.6	Tr.	0.6	14.1	60	74	.58		.40	3.2
16.4	9.4	3.6	6.2	Tr.	0.7	19.9	69	84	.61		.41	2.6
26.0	16.3	7.8	7.4	0.1	1.0	32.6	77	97	.69		.46	2.1
26.4	16.0	8.6	6.8	0.1	0.9	32.4	79	97	.77		.55	1.9
23.3	12.2	8.1	3.6	0.1	0.8	24.8	85	91	.80		.54	1.5
19.6	12.8	7.2	2.2	0.1	0.7	23.0	90	106	.79		.50	1.8
14.8				0.1	0.6				.74		.52	
12.1				0.1	0.5				.73		.48	

a. > 50% Fe-Mn nodules.
b. 5-25% Fe-Mn nodules.
c. > 50% Fe-Mn nodules. < 5% carbonate nodules.
d. 5-25% carbonate nodules.
e. Determined by Univ. of Illinois.
f. No carbonate clay.
g. 7.8 Kg/M² to 60 inches. (Method 6A)
h. Determined by University of Illinois. Core Method - Uhland, R. E., Soil Sci. Soc. Am. Proc. 14:361-366 1950. (at "Field-State" moisture)
i. Determin d by University of Illinois. Richards, L. A. and Weaver, L. R., Jour. Agr. Res. 69:215-235 1944.

Soil type: Traer silt loam
Soil Nos. : S61Ill-50-4
University of Illinois laboratory Nos.: 18915 through 18923.
Location: LaSalle County, Illinois; 606 feet south of gravel road along fence, then 421 feet west and then 23 feet west-southwest to sampling site, NW160, NE40, NE10, SW2½ of Section 11, T34N, R1E.
Classification: Gray Brown Podzolic intergrading to Planosol.
Natural drainage: Poor.
Native vegetation: Forest.
Present vegetation: Bluegrass.
Climate: Humid temperate.
Slope: 0 percent, slight depression.
Erosion: 7 to 14 inches topsoil remaining.
Elevation: 655 feet.
Parent material: Deep loess over 5 feet thick.
Described by: L. E. Tyler and J. E. Paschke, October 26, 1961.

Horizon and
Lincoln
Lab. Number

A1
16577 — 0 to 4 inches. Very dark gray (10YR 3/1) crushing to 10YR 3/1 to 3/2 silt loam; moderate medium and fine crumb structure; friable; abundant roots; pH 5.5; clear smooth boundary.

A2
16578 — 4 to 11 inches. Grayish brown (10YR 5/2) to light brownish gray (10YR 6/2) silt loam with common fine faint yellowish brown (10YR 5/4) mottles mainly in root channels; moderate medium platy and moderate fine and very fine subangular blocky structure; friable; common roots; worm channels filled with A1 material; few iron-manganese concretions predominate in upper part; common iron-manganese concretions; pH 5.3; clear smooth boundary.

B1
16579 — 11 to 15 inches. Grayish brown (2.5Y 5/2) light silty clay loam with common fine faint dark yellowish brown (10YR 4/4) mottles; moderate fine and very fine subangular blocky structure; friable; common roots; common iron-manganese concretions; pH 5.9; clear smooth boundary.

B21
16580 — 15 to 24 inches. Dark gray (10YR 4/1) crushing to 10YR 4/2 heavy silty clay loam with common medium distinct yellowish brown (10YR 5/6) mottles in ped interiors and common medium fine dark yellowish brown (10YR 4/4) mottles on ped exteriors; moderate fine and very fine subangular and angular blocky structure; firm; dark gray (10YR 4/1) thin continuous clay coatings; common roots; common fine iron-manganese concretions; pH 6.0; gradual smooth boundary.

B22
16581 — 24 to 33 inches. Olive gray (5Y 5/2) crushing to 2.5Y 4/2 to 5/2 medium to heavy silty clay loam with many medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure breaking to moderate fine and medium angular blocks; firm; gray (5Y 5/1) to dark gray (5Y 4/1) thin continuous clay coatings; common roots; a krotovina starts at 33 inches and continues to 66 inches; common iron-manganese concretions; pH 6.0; gradual smooth boundary.

B3
16582 — 33 to 42 inches. Olive gray (5Y 5/2) light to medium silty clay loam with many medium distinct reddish yellow (7.5YR 6/6) to strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure breaking to moderate coarse and medium angular and subangular blocks; firm; dark gray (5Y 4/1) thin continuous clay coatings mostly on vertical ped surfaces; occasional roots; some old root channels filled with dark gray (5Y 4/1) material; common iron-manganese concretions; pH 6.8; gradual smooth boundary.

C1
16583 — 42 to 51 inches. Mixed olive gray (5Y 5/2) and strong brown (7.5YR 5/8) silt loam; massive with some large vertical cleavage planes; friable; dark gray (5Y 4/1) thin discontinuous clay coatings mostly on vertical ped surfaces; occasional roots; many old root channels filled with dark gray (5Y 4/1) material; common iron-manganese concretions; pH 7.5; gradual smooth boundary.

C2
16584 — 51 to 58 inches. Mixed dark olive gray (5Y 3/2) and strong brown (7.5YR 5/8) silt loam; massive with some large vertical cleavage planes; friable; dark gray (5Y 4/1) thin discontinuous clay coatings mostly on vertical ped surfaces; occasional roots; common iron-manganese concretions; few large root channels filled with dark silty clay loam material; pH 7.6; gradual smooth boundary.

C3
16585 — 58 to 66 inches. Mixed gray (5Y 5/1) 30 percent, and strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) 70 percent, silt loam; massive; friable; dark gray (5Y 4/1) thin discontinuous clay coatings mostly on vertical ped surfaces; occasional roots; pH 7.6.

Remarks: Six 3-inch soil cores were taken in each of the following horizons: A1, 1 to 4 inches; A2, 7 to 10 inches; B21, 18 to 21 inches; and C1, 45 to 48 inches. pH determined with Hellige-Truog pH kit in the field. This profile is located in a shallow upland closed depression.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Wartrace silt loam SOIL Nos. S62Ill-44-1 LOCATION Johnson County, Illinois

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 16953-16962 March 1966

General Methods: 1A, 1B1b, 2A1, 2B

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	4E1c Moved Clay	2A2 Coarse fragments: ≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm												Pct.	Pct.	Pct. of < 76mm	
0-5	Ap	1.5	85.9	12.6	0.2a	0.1a	Tr.a	0.2a	1.0b	44.5	41.4	45.6	0.5		-		
5-9	A2	1.3	85.5	13.2	0.1a	0.1a	Tr.a	0.1a	1.0b	44.3	41.2	45.4	0.3	Tr.	-		
9-13	B1	1.0	78.4	20.6	Tr.a	Tr.a	Tr.a	0.1a	0.9b	36.4	42.0	37.4	0.1	1.0	-		
13-20	B21	0.9	70.0	29.1	Tr.a	Tr.a	Tr.a	0.1a	0.8b	31.8	38.2	32.7	0.1	1.6	-		
20-29	B22	1.0	69.0	30.0	0.1a	Tr.a	Tr.a	0.1a	0.8c	30.5	38.5	31.4	0.2	4.0	-		
29-40	B23	1.2	71.4	27.4	0.1a	Tr.a	Tr.a	0.2a	0.9a	33.1	38.3	34.1	0.3	4.7	-		
40-50	B31	1.2	75.8	23.0	0.1a	Tr.a	Tr.a	0.1a	1.0a	35.8	40.0	36.9	0.2	5.5	-		
50-62	B32	1.0	79.0	20.0	0.1a	Tr.a	Tr.a	Tr.a	0.9c	37.7	41.3	38.6	0.1	2.6	-		
62-74	C	1.0	81.3	17.7	Tr.a	Tr.a	Tr.a	0.1a	0.9c	38.9	42.4	39.9	0.1	1.8	-		
74-82	C	1.0	83.1	15.9	Tr.a	0.1a	Tr.a	Tr.a	0.9c	40.2	42.9	41.1	0.1	1.4	-		

Depth (In.)	6A1a Organic carbon d Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C2a Ext. Iron as Fe Pct.	Bulk density: 4A1a Field-State g/cc	4A1c 30-Cm. g/cc	4A1b Air-Dry g/cc	4D1 COLE	Water Content: 4B4 Field-State Pct.	4B3 30-Cm. Pct.	4B1b 1/3-Bar Pct.	4B2 15-Bar Pct.	4C1 1/3-min. 15-Bar In./in.	pH		8C1a (1:1)
0-5	0.96	0.094	10			0.7	1.38	1.32	1.34	0.007	5.8	22.4	20.3	5.1	0.20			5.9
5-9	0.64	0.073	9			0.8	1.43	1.35	1.38	0.007	7.3	23.5	19.4	4.8	0.20			5.8
9-13	0.28	0.038	7			1.2	1.44	1.39	1.44	0.014	11.1	25.3	21.9	7.9	0.19			5.3
13-20	0.22					1.7	1.52	1.49	1.58	0.020	19.5	24.9	24.1	11.6	0.19			4.8
20-29	0.18					1.8	1.52	1.48	1.60	0.028	24.0	27.8	25.4	12.7	0.19			4.9
29-40	0.14					1.8	1.48	1.42	1.53	0.024	26.5	30.0	26.5	12.2	0.20			4.7
40-50	0.10					1.8	1.44	1.40	1.50	0.024	27.6	30.7	25.2	10.5	0.21			4.8
50-62	0.09					1.6							24.8	9.3				4.7
62-74	0.06					1.6	1.52	1.48	1.55	0.017	25.4	28.0	24.6	8.1	0.24			4.7
74-82	0.05					1.6								7.4				5.0

Depth (In.)	Extractable bases 5B1a: 6N2a Ca	6O2a Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. Acidity	Cat. Exch. Cap.: 5A3a Sum Cations	5A1a NH_4OAc	6G1b KCl-Ext. Al	8D3 Ca/Mg	Base saturation: 5C3 Sum Cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g											
0-5	4.0	0.6	Tr.	0.4	5.0	4.9	9.9	7.0	-		50	71
5-9	3.9	0.5	Tr.	0.2	4.6	4.9	9.5	6.5	-		48	71
9-13	4.5	1.0	Tr.	0.2	5.7	6.4	12.1	8.7	0.2	4.5	47	66
13-20	6.0	2.0	Tr.	0.3	8.3	9.8	18.1	13.2	1.4	3.0	46	63
20-29	7.0	3.3	0.1	0.4	10.8	9.8	20.6	15.5	1.2	2.1	52	70
29-40	6.3	3.6	0.1	0.4	10.4	9.8	20.2	14.9	1.3	1.8	51	70
40-50	5.2	3.2	0.1	0.3	8.8	9.2	18.0	13.4	1.2	1.6	49	66
50-62	4.6	3.2	0.1	0.3	8.2	8.0	16.2	11.9	0.8	1.4	51	69
62-74	4.6	3.0	0.1	0.2	7.9	6.6	14.5	10.9	0.5	1.5	54	72
74-82	4.6	2.8	0.1	0.2	8.4	6.4	14.8	10.2	0.4	1.6	57	82

Depth (In.)	Ratios to Clay 8D1: NH_4OAc CEC	Ext. Iron	15-Bar Water
0-5	0.56	0.056	0.40
5-9	0.49	0.061	0.36
9-13	0.42	0.058	0.38
13-20	0.45	0.058	0.40
20-29	0.52	0.060	0.42
29-40	0.54	0.066	0.44
40-50	0.58	0.078	0.46
50-62	0.60	0.080	0.46
62-74	0.62	0.090	0.46
74-82	0.64	0.101	0.46

a. > 50% Fe-Mn nodules.
b. 5-25% Fe-Mn nodules.
c. 25-50% Fe-Mn nodules.
d. 5.3 Kg/M^2 to 60 inches. (Method 6A).

Soil Type: Wartrace silt loam
Soil Nos.: S62Ill-44-1
Location: Johnson County, Illinois, T13S, R2E, Sec. 32, NE 160, SE 40, SW 10, approximately 170 feet south of sink depression.
Parent Material: Deep loess (pit 78 inches deep - auger to 138 inches).
Physiography: Upland loess (underlain by limestone) ridge top.
Drainage Class: Well.
Slope: 2 percent.
Vegetative Cover: Grass and legume (meadow).
Sampled by: R. B. Grossman and G. S. Holmgren, May 23, 1962.
Described by: G. O. Walker and J. B. Fehrenbacher.

Horizon and Lincoln Lab. No.

Ap 16953 — 0 to 5 inches. Dark grayish brown (10YR 4/2) silt loam; weak fine crumb structure; friable; many roots; pH 6.3; abrupt smooth boundary.

A2 16954 — 5 to 9 inches. Brown (10YR 4/3) silt loam; very weak medium platy structure that breaks to a weak fine crumb structure; friable; many roots; pH 6.3; abrupt smooth boundary.

B1 16955 — 9 to 13 inches. Yellowish brown (10YR 5/4) heavy silt loam to light silty clay loam; moderate fine and medium subangular blocky structure; firm; many small pores and roots; pH 5.3; abrupt smooth boundary.

B21 16956 — 13 to 20 inches. Dark brown to brown (7.5YR 4/4) silty clay loam; strong medium subangular blocky structure; firm; pores and roots; pH 5.1; clear smooth boundary.

B22 16957 — 20 to 29 inches. Dark brown to brown (7.5YR 4/4) and small pockets of yellowish brown (10YR 5/4) silty clay loam; strong medium subangular blocky structure; firm; peds coated with thin continuous dark reddish brown (5YR 3/4) clay films; occasional very dark gray (10YR 3/1) Fe and Mn concretions; common roots; pH 5.3; gradual smooth boundary.

B23 16958 — 29 to 40 inches. Dark brown to brown (7.5YR 4/4) silty clay loam; strong medium subangular blocky structure; firm; peds coated with moderately thick dark reddish brown (5YR 3/4) clay films; splotches of dark yellowish brown (10YR 4/4) in the peds and wormholes filled with light brownish gray (10YR 6/2); common black (10YR 2/1) Fe and Mn concretions and common roots; pH 5.5; gradual smooth boundary.

B31 16959 — 40 to 50 inches. Dark brown to brown (7.5YR 4/4) light silty clay loam with a few small pockets of yellowish brown (10YR 5/4); moderate medium and coarse subangular and angular blocky structure; firm; peds coated with moderately thick continuous dark reddish brown (5YR 3/4) clay films; many small pores and a few Fe and Mn concretions; pH 5.5; gradual smooth boundary.

B32 16960 — 50 to 62 inches. Dark brown to brown (7.5YR 4/4) silt loam with a few pockets of yellowish brown (10YR 5/4); weak coarse angular blocky structure; friable; peds coated with thin continuous dark reddish brown (5YR 3/4) clay films and upon drying a thin coating of light gray (10YR 7/2) silt; few Fe and Mn concretions; pH 6.0; gradual smooth boundary.

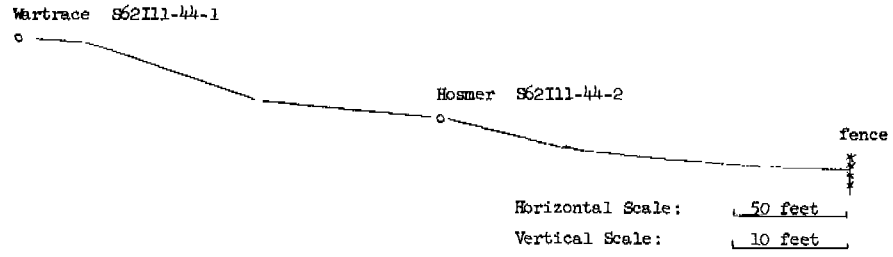
C 16961 — 62 to 74 inches. Dark brown to brown (7.5YR 4/4) silt loam with few common distinct grayish brown (10YR 5/2) mottles; very weak coarse blocky structure to massive; friable; occasional thin yellowish red (5YR 4/6) clay film; pH 6.0; arbitrary boundary.

16962 — 74 to 82 inches. Same as above horizon.

138 inches. Same as two horizons above except pH 6.2.

Remarks: The soil was moist when sampled. When samples from each layer of the B horizon dried, light gray silt coatings were apparent as ped coatings. These coatings seemed to be continuous throughout the B horizon and into the C horizon where they blended with the distinct mottlings. When water was applied to the peds, the gray coatings disappeared.

Landscape Profile:



SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Weir silt loam SOIL Nos. 850Ill-51-4 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 501314 - 501318

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt (0.05-0.02)	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 >2 Pct	2-19 Pct of <76mm	19-76 Pct of <76mm
		Pct of < 2 mm																
0-8	A1	7.5	79.3	13.2	0.4	1.2	1.6	2.4	1.9	33.9	45.4	37.0	5.6			-		
8-17	A2	7.6	77.8	14.6	1.0	1.5	1.4	2.2	1.5	31.3	46.5	34.1	6.1			-		
17-21	B1	4.7	65.1	30.2	0.3	1.0	0.9	1.4	1.1	24.9	40.2	26.7	3.6			-		
21-39	B2	3.1	58.7	38.2	0.1	0.5	0.6	1.0	0.9	22.4	36.3	23.8	2.2			-		
39-46	B3	2.7	70.7	26.6	0.2	0.6	0.5	0.7	0.7	29.3	41.4	30.3	2.0			-		

Depth (In.)	6A1a Organic carbon [a] Pct.	Nitrogen Pct	C/N		Carbonate as $CaCO_3$ Pct.	Ext. iron as Fe Pct	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) [a] H_2O
0-8	0.70															6.2
8-17	0.07															4.6
17-21	0.05															4.4
21-39	0.08															4.6
39-46	0.02															4.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext acidity	CEC: 5A3a Sum cations	6G1d Ext Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g													
0-8	6.8	2.1	0.2	0.3		4.2	13.6						69	
8-17	2.6	1.0	0.2	0.3		7.0	11.1						37	
17-21	4.3	4.0	0.3	0.5		14.1	23.2						39	
21-39	10.7	3.7	0.6	0.5		16.9	32.4						48	
39-46	7.0	6.7	0.6	0.4		9.6	24.3						60	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl	Vm	Mi.	Int	Qtz	Kl.	Gibbsite
	7A2 X ray						7A3	

Mt = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz = quartz, Kl. = Kaolinite

Relative amounts blank = not determined, dash = not detected, tr = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

a Determinations by University of Illinois.

Soil Type: Weir silt loam
Soil No.: S50Ill-51-4
Location: Lawrence County, Illinois. T3N, R12W, Sec. 2, NW 1/4, NW 40.
Vegetation and land use: Cultivated, last crop corn.
Slope and land form: Less than 1/2 percent.
Sampled by and date: J. B. Fehrenbacher and A. A. Klingebiel. June 8, 1950.

Horizon and Beltsville Lab. No.	
A1 501314	0 to 8 inches. Brown to pale brown (10YR 5/3 - 6/3) friable silt loam, fine crumb.
A2 501315	8 to 17 inches. Light gray (10YR 7/1), pale brown (10YR 6/3), with yellowish brown (10YR 5/8) mottles, friable silt loam, medium weak platy upper part, crumb to granular in lower part, many small very dark grayish brown (10YR 3/2) iron concretions.
B1 501316	17 to 21 inches. Light brownish gray (10YR 6/2), light yellowish brown (10YR 6/4), with yellowish brown (10YR 5/8) mottles sticky silty clay loam, 1/2 inch to 3/4 inch blocky, some rounded edges but prismatic arrangement, heavy light gray (10YR 7/1) coatings, some very dark gray (10YR 3/1) iron concretions.
B2 501317	21 to 39 inches. Light brownish gray (10YR 6/2), light yellowish brown (10YR 6/4), with yellowish brown (10YR 5/8) mottles very sticky heavy silty clay loam to silty clay, prismatic structure particles 1/2 inch to 1 1/2 inch wide, 1 inch to 2 1/2 inches long, break into 1/4 inch to 3/4 inch blocks, moderate light gray (10YR 7/2) coatings in 21 inch to 27 inch part, some very dark grayish brown (10YR 3/2) iron concretions.
B3 501318	39 to 46 inches plus. Light brownish bray (10YR 6/2), light yellowish brown (10YR 6/4), with yellowish brown (10YR 5/8) mottles slightly sticky silty clay loam, thick platy to massive (horizontal cleavage pronounced), some very dark gray (10YR 3/1) iron concretions.

SCS 421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Wheeling silt loam SOIL Nos. S53Ill-64-5 LOCATION Massac County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 531723 - 531730

Depth (In.)	Horizon	1B1b Total Sand (2-0 05)	Total Silt (0 05-0 002)	Total Clay (< 0 002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0 25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0 1-0 05)	Silt: 0 05-0 02	Silt: Int III (0 02-0 002)	Int II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct	2 - 19 Pct. of < 76mm	19-76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap a																	
7-11½	A2	20.4	59.9	19.7	0.2	0.6	0.7	7.3	11.6	21.8	38.1	39.9	8.8			-		
11½-14½	B1 a																	
14½-20	B21	25.7	42.4	31.9	-	0.3	0.5	9.5	15.4	18.2	24.2	42.4	10.3			-		
20-31	B22	35.2	36.8	28.0	-	0.2	0.3	12.9	21.8	17.2	19.6	51.4	13.4			-		
31-36	B3 a																	
36-45	C1	42.8	33.8	23.4	-	0.2	0.5	19.0	23.1	16.5	17.3	57.6	19.7			-		
45-52	C2	34.3	39.4	26.3	-	0.2	0.4	9.0	24.7	18.9	20.5	51.9	9.6			-		

Depth (In.)	6A1a Organic carbon Pct	Nitrogen Pct	C/N		Carbonate as $CaCO_3$ Pct	Ext iron as Fe Pct	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1 1) KCl	pH: 8C1a (1:1) H_2O
0-7																
7-11½	0.26															5.6
11½-14½																
14½-20	0.10															4.8
20-31	0.08															4.6
31-36																
36-45	0.08															4.7
45-52	0.08															4.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext Al		Ratios to clay: CEC Sum	Ratios to clay: Ext iron	Ratios to clay: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct
	meq/100 g																
0-7																	
7-11½	4.2	2.8	tr.	0.2		4.6	11.8									61	
11½-14½																	
14½-20	3.0	4.6	tr.	0.4		11.5	19.5									41	
20-31	2.0	3.4	tr.	0.4		12.1	17.9									32	
31-36																	
36-45	1.3	2.7	0.1	0.3		11.8	16.2									27	
45-52	1.6	3.3	tr.	0.4		13.6	18.9									28	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi	Int	Qtz.	Kl	Gibbsite
	7A2 X-ray						7A3	

a No analyses on these horizons.

Mt. = Montmorillonite, Chl = chlorite, Vm = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz = quartz, Kl, = Kaolinite

Relative amounts blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

Soil Type: Wheeling silt loam
Soil No.: S53Il1-64-5
Location: Massac County, Illinois. T.14 S., R.4 E., Sec. 22, NW 1/4, SE 40, NE 10 along west side of newly graveled road about 300 feet south of 1/4 line fence, in 4 foot road bank with 3 foot road cut.
Vegetation and land use: Thin grass and weed cover (formerly cultivated).
Slope and land form: 1 1/2 percent to east across road.
Sampled by and date: J. B. Fehrenbacher, R. H. Ruhe, H. L. Wascher. September 14, 1953.

Horizon and Beltsville Lab. No.	
Ap 531723	0 to 7 inches. Dark yellowish brown (10YR 4/4), 1/8 - 1/4 inch irregular crumb to fragmental silt loam.
A2 531724	7 to 11-1/2 inches. Yellowish brown (9YR 5/6), very weak thin platy compact and rather hard silt loam.
B1 531725	11-1/2 to 14-1/2 inches. Strong brown (7.5YR 4/6), 1/4 inch irregular subangular blocky light silty clay loam.
B21 531726	14-1/2 to 20 inches. Brown (7.5YR 4/5), 1/4 - 3/8 inch subangular blocky with few faces splotched with iron-manganese silty clay loam with some fine sand.
B22 531727	20 to 31 inches. Dark brown (7.5YR 4/4), 1/4 - 1/2 inch subangular to nutlike splotched black (7.5YR 2/1), silty clay loam with fine sand.
B3 531728	31 to 36 inches. Dark brown (7.5YR 4/4), 1/2 - 3/4 inch subangular with heavy iron-manganese splotches of black (7.5YR 2/1), silty clay loam with sand grains.
C1 531729	36 to 45 inches. Dark brown (7.5YR 4/4), 1/2 - 2 inch fragmental to massive with small iron-manganese concretions and splotches, mod. compact, slightly cemented, clay loam.
C2 531730	45 to 52 inches. Dark brown (7.5YR 4/4) streaked with light yellowish brown (10YR 6/4) clay loam or light silty clay loam with fine sand and small iron-manganese concretions and splotches.
Not Sampled	52 to 80 inches. Stratified silt loam, fine sandy loam, light silty clay loam, etc.

Notes: Taken on low terrace (5-6 feet above bottom) in former Ohio river (now Bay creek) basin. Material above 31 inches may be partly loess of Peorian age, that below 31 inches is probably mostly deposited by waters from high floods of Ohio and/or Wabash rivers. Elevation between 340 and 360 feet contour lines. Profile very dry to 30 inch depth.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Whitson silt loam SOIL Nos. 850Ill-51-2 LOCATION Lawrence County, Illinois

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos 501303 - 501308

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct of < 2 mm															
0-7	A1	5.3	85.7	9.0	0.7	1.5	0.7	1.1	1.3	36.7	49.0	38.7	4.0		-		
7-15	A2	5.4	79.8	14.8	1.3	1.7	0.8	0.8	0.8	32.0	47.8	33.2	4.6		tr.		
15-19	B1	2.3	59.8	37.9	0.2	0.5	0.3	0.5	0.8	25.7	34.1	26.7	1.5		-		
19-28	B2	1.6	61.6	36.8	-	0.1	0.2	0.5	0.8	28.5	33.1	29.5	0.8		-		
28-38	B3	1.3	71.1	27.6	-	0.1	0.1	0.4	0.7	32.8	38.3	33.7	0.6		-		
38-55	C1	1.6	77.3	21.1	-	0.2	0.2	0.4	0.8	37.2	40.1	38.3	0.8		-		

Depth (In.)	6A1a Organic carbon %	Nitrogen	C/N		Carbonate as $CaCO_3$	Ext iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar	4C1 WRD	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) % H_2O
	Pct	Pct			Pct	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	in/in		
0-7	1.16													5.3
7-15	0.14													5.2
15-19	0.16													4.9
19-28	0.22													5.4
28-38	0.13													6.8
38-55	0.12													7.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext Al	Ratios to clay: CEC Sum	Ext iron	15 bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct	5C1 NH_4OAc Pct
	meq/100 g													
0-7	2.8	0.9	0.1	0.2		6.7	10.7						37	
7-15	4.3	2.0	0.1	0.2		4.1	10.7						62	
15-19	11.2	7.8	0.2	0.4		9.6	29.3						67	
19-28	14.1	9.8	0.2	0.4		6.8	31.3						78	
28-38	13.1	8.3	0.2	0.3		2.7	24.6						89	
38-55	10.3	6.3	0.2	0.3		2.4	19.5						88	

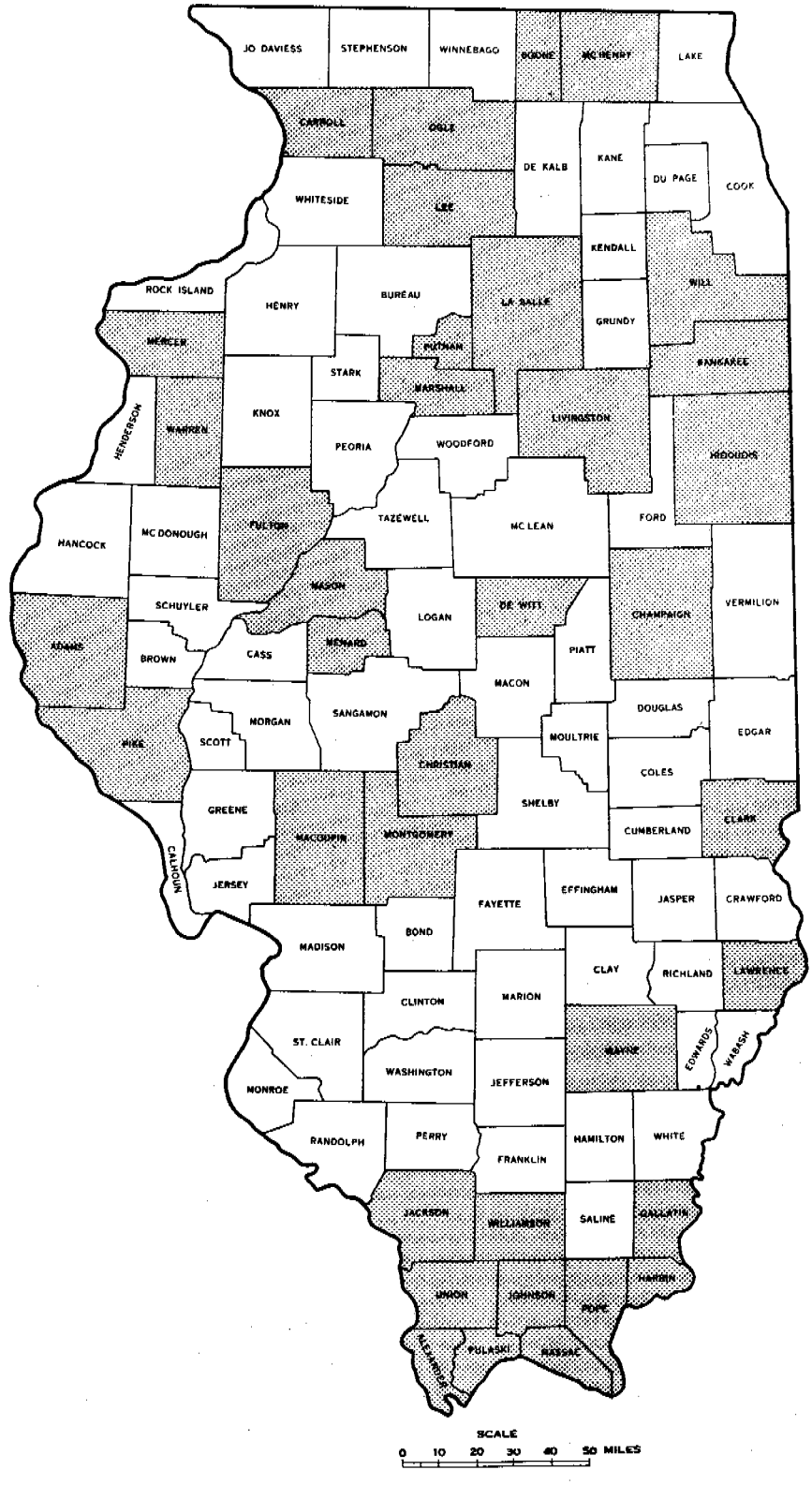
Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt	Chl	Vm.	Mi	Int.	Qtz.	Kl	Gibbsite
	7A2 X ray						7A3	

Mt = Montmorillonite, Chl = chlorite, Vm = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl = Kaolinite

Relative amounts blank = not determined, dash = not detected, tr = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant

a Determinations by University of Illinois.

ILLINOIS


JO DAVIESS
STEPHENSON
WINNEBAGO
BOONE
MC HENRY
LAKE
CARROLL
OGLE
DE KALB
KANE
DU PAGE
COOK
WHITESIDE
LEE
KENDALL
WILL
ROCK ISLAND
HENRY
BUREAU
LA SALLE
GRUNDY
MERCER
PUTNAM
KANKAKEE
STARK
MARSHALL
HENDERSON
WARREN
KNOX
LIVINGSTON
PEORIA
WOODFORD
IROQUOIS
FULTON
TAZEWELL
MC LEAN
FORD
HANCOCK
MC DONOUGH
MASON
SCHUYLER
LOGAN
DE WITT
CHAMPAIGN
VERMILION
ADAMS
BROWN
CASS
MENARD
PIATT
MACON
SANGAMON
DOUGLAS
EDGAR
PIKE
SCOTT
MORGAN
MOULTRIE
CHRISTIAN
COLES
GREENE
MACOUPIN
MONTGOMERY
SHELBY
CUMBERLAND
CLARK
CALHOUN
JERSEY
FAYETTE
EFFINGHAM
JASPER
CRAWFORD
MADISON
BOND
CLAY
RICHLAND
LAWRENCE
CLINTON
MARION
ST. CLAIR
WAYNE
EDWARDS
WABASH
WASHINGTON
JEFFERSON
MONROE
RANDOLPH
PERRY
HAMILTON
WHITE
FRANKLIN
JACKSON
WILLIAMSON
SALINE
GALLATIN
UNION
JOHNSON
POPE
HARDIN
ALEXANDER
PULASKI
MASSAC
SCALE
0 10 20 30 40 50 MILES