MINUTES OF THE MEETING OF THE
S-9 TECHNICAL ADVISORY COMMITTEE
FOR
PLANT GENETIC RESOURCES CONSERVATION AND UTILIZATION
S-9 MULTISTATE RESEARCH PROJECT

A Cooperative Research Project Among:

THE STATE AGRICULTURAL EXPERIMENT STATIONS

OF THE SOUTHERN REGION

and the

U.S. DEPARTMENT OF AGRICULTURE AGENCIES:

AGRICULTURAL RESEARCH SERVICE

COOPERATIVE STATE RESEARCH, EDUCATION AND EXTENSION SERVICE

NATURAL RESOURCES CONSERVATION SERVICE

JUNE 6-7, 2006

SOUTH MEADOW ROOM
GATEWAY HOTEL AND CONFERENCE CENTER
AMES, IA

SUBMITTED BY

TIM PHILLIPS, SECRETARY
EMERSON SHIPE, CHAIRMAN

Agenda

Tuesday, June 6, 2006
South Meadow Room, Gateway Hotel and Conference Center, Ames, IA

Time **Topic and Speaker**

1:10 pm – Call to Order, Dr. Emerson Shipe, Chair S-9 RTAC

1:20 pm – Welcome and remarks by Administrative Advisor, Dr. Gerald Arkin

1:40 pm – Remarks by National Staff

Dr. Peter Bretting, National Program Leader for Plant Germplasm and Genomes, ARS, USDA

Dr. Ann Marie Thro, National Program Leader for Plant Breeding and Genetics, CREES, USDA

2:15 pm – Approval of minutes from last meeting
Additions to agenda
Appointments of committees (officer nominations, time and place of 2007 meeting)

2:30 pm – Summary of the year at PGRCU, Griffin, GA, Dr. Gary Pederson

3:00 pm – Break

3:15 pm – Peanut Curation, Dr. Roy Pittman

3:40 pm – Sorghum Curation, Dr. John Erpelding

4:00 pm – State Reports

4:30 pm – Business Meeting

5:00 pm – Adjourn

5:30 pm – Reception, Gallery Lobby

6:30 pm – Dinner, Garden Room

7:30 pm – Speaker, Dr. Jules Janick, Purdue University

Wednesday morning June 7, 2006

8:00 am – General Session (Joint RTACs, CGC Chairs, and PGOC)

1:00 pm – Tours of North Central Region Plant Introduction Station and Iowa State University Seed Science Center

6:00 pm – Dinner at Reiman Gardens

Attendees:

TAC Members:

Fred Allen (allenf@utk.edu)	University of Tennessee, TN
Thomas G. Isleib (tom_isleib@ncsu.edu)	North Carolina State University, NC
Don LaBonte (dlabonte@agctr.lsu.edu)	Louisiana State University, LA
Mari Marutani (marutani@uog9.uog.edu)	University of Guam
Tim Phillips (tphillip@uky.edu)	University of Kentucky, KY
Ken Quesenberry (clover@ifas.ufl.edu)	University of Florida, FL
Emerson Shipe, Chair (eshipe@clemson.edu)	Clemson University, SC
Thomas Zimmerman (tzimmer@uvi.edu)	University of the Virgin Islands, VI
Gerald F. Arkin, Administrative Advisor (garkin@uga.edu)	University of Georgia, GA

Griffin PGRCU Staff:

Gary Pederson, (gpederson@ars-grin.gov)	Research Leader & Curator Annual Clovers, USDA, ARS
Roy Pittman (rpittman@ars-grin.gov)	Agronomist, Peanut Curator, USDA, ARS

Other Attendees:

Peter Bretting, (pkb@ars.usda.gov)	National Program Leader for Plant Germplasm and Genomes, USDA, ARS, Beltsville, MD
Ann Marie Thro (jlecouteur@csrees.usda.gov)	National Program Leader for Plant Breeding and Genetics, USDA, CREES, Washington, DC
John Erpelding (mayje@ars-grin.gov)	Sorghum Curator, USDA, ARS, TARS, Mayaguez, PR
Brian Irish (maybi@ars-grin.gov)	USDA, ARS, TARS, Mayaguez, PR
Lisa Keith (cmayo@pbarc.ars.usda.gov)	USDA, ARS, TPGRMU, Hilo, HI
Francisis Zee (cmayo@pbarc.ars.usda.gov)	USDA, ARS, TPGRMU, Hilo, HI
Tomas Ayala-Silva (tasilva@saa.ars.usda.gov)	USDA, ARS, NGRSHRS, Miami, FL

Call to order

The meeting was called to order at 1:00 pm by Chair Emerson Shipe. The agenda was adjusted to allow Peter Bretting and Ann Marie Thro to drop in when they were between other sessions.

Welcome

Jerry Arkin, Administrative Advisor for S-9, informed the group of a recent move to create a National Crop Germplasm Committee, composed of personnel from USDA-ARS, CSREES, and the Agricultural Experiment Station directors, to provide advocacy of the NPFS functions. He also updated the group on the review of NP301 in the USDA-ARS.

Minutes and Committee Appointments
Ken Quesenberry moved and Tom Isleib seconded that the minutes from the 2005 meeting in Knoxville, TN, (which had been circulated to members via email) be approved. The motion passed.

Two committees were formed: 1. Officer nomination committee (Thomas Zimmerman, Ken Quesenberry, and Tom Isleib) and 2. Time and place committee for 2007 meeting (Don LaBonte and Tim Phillips).

PGRCU Summary
Gary Pederson gave a report on distribution of germplasm from Griffin over the past year, and a summary of activity there (Appendix 1). He gave a hearty 'thumbs up' for the Reigi weeder that they recently acquired.

Pacific Basin Agricultural Research Center
Francis Zee from Hilo, HI informed the group on the Pacific Basin Agricultural Research Center. The first phase will completed by the end of 2006, with two more phases of development planned. In 1999 two new positions were added (plant pathologist and horticulturalist/plant physiologist). He reported that the research center is located on 33 acres of rocky (young lava) fields, with 200 inches of annual rainfall. Research is conducted on 13 tropical fruit crops. About 1000 accessions are housed there, with three scientists and eight technicians. Recent research has found that potassium chlorate (an ingredient in fireworks) triggers flowering in longan. Blueberry production is being evaluated in Hawaii as well.

Lisa Keith, tropical fruit pathologist, reported on the 1993 outbreak of papaya ringspot virus. She said that transgenic work saved the industry, but anti-GMO sentiments are a problem.

Peanut Curation
Roy Pittman gave a report on peanut curation activity over the past year at Griffin (Appendix 2). He mentioned work on tomato spotted wilt virus.

Sorghum Curation
John Erpelding, USDA-ARS-TARS (St. Croix and PR) discussed sorghum work that he has conducted (Appendix 3). He said that bird problems necessitate bagging of seed heads. Grain mold under shade cloth production can be a problem, but some tolerant lines have been identified (but with high tannins). He said that the wild species collection is being regenerated. He reported on work in evaluating sorghum collections from Mali for Anthracnose resistance.

Old Business
The issue of the tobacco germplasm collection was discussed under old business.

Committee Reports

We discussed location of the meeting for 2007, and decided to meet in Charleston, SC on August 7-8, 2007. Dr. Richard Fery is the contact person there.

Tim Phillips will serve as chair for the 2007 meeting. Ken Quesenberry moved and Fred Allen seconded that Tom Isleib be elected incoming secretary. Tom Isleib was elected by acclamation.

New Business

Tom Zimmerman moved that we extend an invitation to other regional curators in the S-9 area to be ex-officio members of the S-9 RTAC. The group strongly supported this, and unanimously recommended that we invite them to attend the meeting next year.

Difficulties with distribution of cassava germplasm was mentioned, mainly regulation issues.

Mari Marutani expressed thanks to Merrelyn Spinks, USDA-ARS IT specialist at Griffin, for the excellent contributions she makes to our RTAC in the form of the Excel spreadsheets of the material shipped to each state or area.

It was recommended that we extend an invitation to Jennifer Nicholson, curator of tobacco germplasm at NCSU, to attend next year's S-9 meeting.

Peter Bretting and Ann Marie Thro discussed some issues from Washington, DC.

The meeting was adjourned at 5:30 p.m.

Appendix 1

DR. GARY PEDERSON

PLANT GENETIC RESOURCES: CURRENT STATUS

Plant Genetic Resources: Current Status

Gary A. Pederson

USDA, ARS, Plant Genetic Resources Conservation Unit

Griffin, GA

Outline

- PGRCU mission
- Current status of each crop
- Progress made
  - Distributions
  - Funding
  - Staffing
  - Equipment and facilities
- Needs

What is the mission of PGRCU?

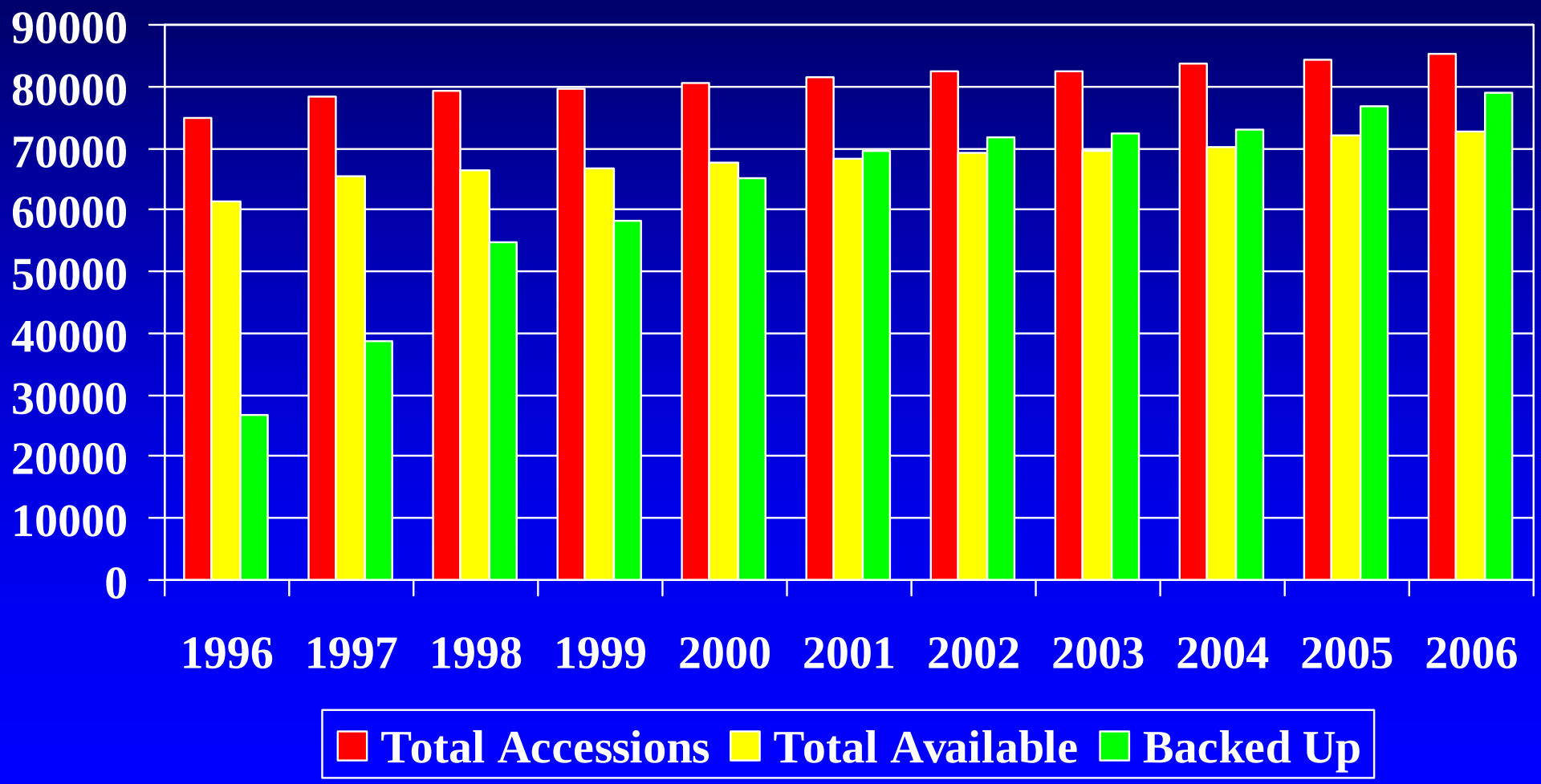
- Plant Genetic Resources Conservation Unit (PGRCU) exists to conserve plant genetic resources for users today and for future generations.
- Mission: “acquire, characterize, maintain, evaluate, document, and distribute plant genetic resources”.
- This is what users of the genetic resources maintained at Griffin expect from the Unit.

PGRCU Collection - June 2006

- Total Accessions
  - 85,377
- Total Available
  - 72,754 (85.2%)
- Backed Up
  - 78,866 (92.4%)

Acknowledgement: Merrelyn Spinks and Lee Ann Chalkley, PGRCU, compiled and summarized all numbers shown in this presentation. Pictures were taken by Tiffany Fields, Melanie Harrison-Dunn, and Rob Dean.

PGRCU Collection 1996 - 2006



Vigna

CURATOR	CROP	TOTAL ACCESSIONS	TOTAL AVAILABLE	NUMBER BACKED UP	ITEMS SHIPPED IN 2005
Graves Gillaspie	Cowpea	8,039	5,990	6,298	2,103
	Mung bean	4,203	3,841	4,104	380
	Other Vigna spp.	604	262	299	105

Vegetable Crops & Sweetpotato

CURATOR	CROP	TOTAL ACCESSIONS	TOTAL AVAILABLE	NUMBER BACKED UP	ITEMS SHIPPED IN 2005
Bob Jarret	Cucurbits	2,041	954	1,870	235
	Eggplant	993	902	986	168
	Okra	2,982	1,553	2,941	160
	Peppers	4,587	4,226	4,570	4,031
	Sweetpotato - tissue culture	755	716	730	572
	Other Ipomoea spp.	473	203	407	276
	Watermelon	1,876	1,701	1,842	2,717

Legumes and Misc. Crops

CURATOR	CROP	TOTAL ACCESSIONS	TOTAL AVAILABLE	NUMBER BACKED UP	ITEMS SHIPPED IN 2005
Brad Morris	Castor bean	374	258	359	660
	Kenaf & Roselle	339	294	310	65
	Legumes	3,593	2,680	3,359	991
	Miscellaneous	136	99	121	26
	Sesame	1,211	1,194	1,211	201

Warm-Season Grasses

CURATOR	CROP	TOTAL ACCESSIONS	TOTAL AVAILABLE	NUMBER BACKED UP	ITEMS SHIPPED IN 2005
Melanie Harrison-Dunn	Bamboo	98	98	3	61
	Grasses	6,857	6,053	6,535	986
	Pearl millet	1,089	1,056	1,072	116

Clover and Sorghum

CURATOR	CROP	TOTAL ACCESSIONS	TOTAL AVAILABLE	NUMBER BACKED UP	ITEMS SHIPPED IN 2005
Gary Pederson	Annual Clover	2,148	1,616	1,608	182
	Sorghum	32,975	30,505	31,559	2,039

Peanuts

CURATOR	CROP	TOTAL ACCESSIONS	TOTAL AVAILABLE	NUMBER BACKED UP	ITEMS SHIPPED IN 2005
Roy Pittman	Cultivated Peanuts	9,228	7,907	8,474	551
	Wild Peanuts	776	646	208	294

Digital photos

Crop	Images
Sorghum	5,273
Pepper	1,123
Peanuts	546
Pearl millet	444
Cowpea	382
Cucurbits	253
Watermelon	120
Bamboo	84
Total	**8,342 (9.9%)**

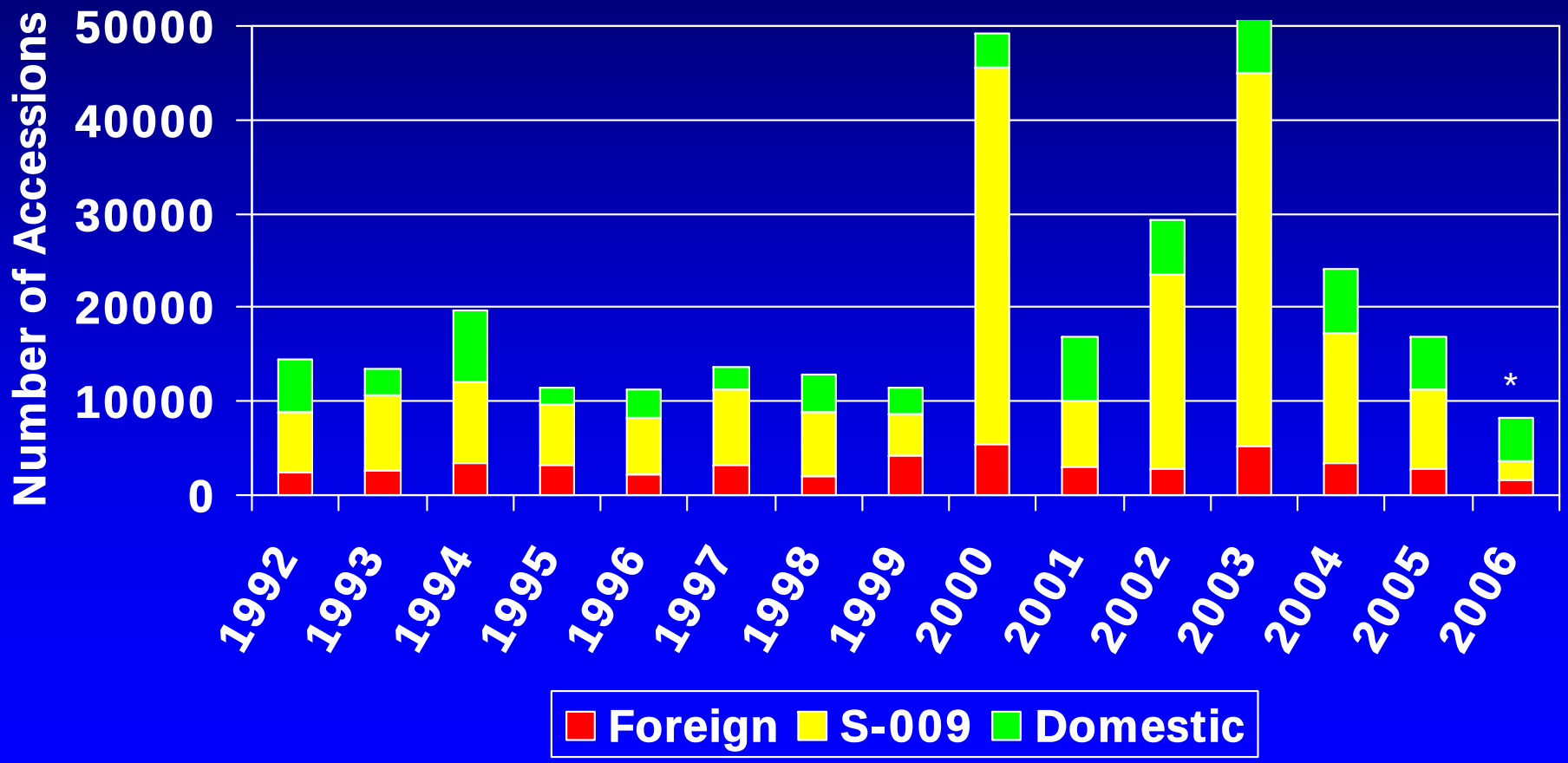
Requested for regeneration in CY2005

Crop	# accessions	Crop	# accessions
Cowpea	298	Grasses	69
Sorghum	1,707	Legumes	356
Cucurbit	41	Misc. crops	7
Clovers	258	Sesame	85
Eggplant	1	Cult peanut	740
Peppers	9	Okra	70
Watermelon	24		

Distributions in CY2005

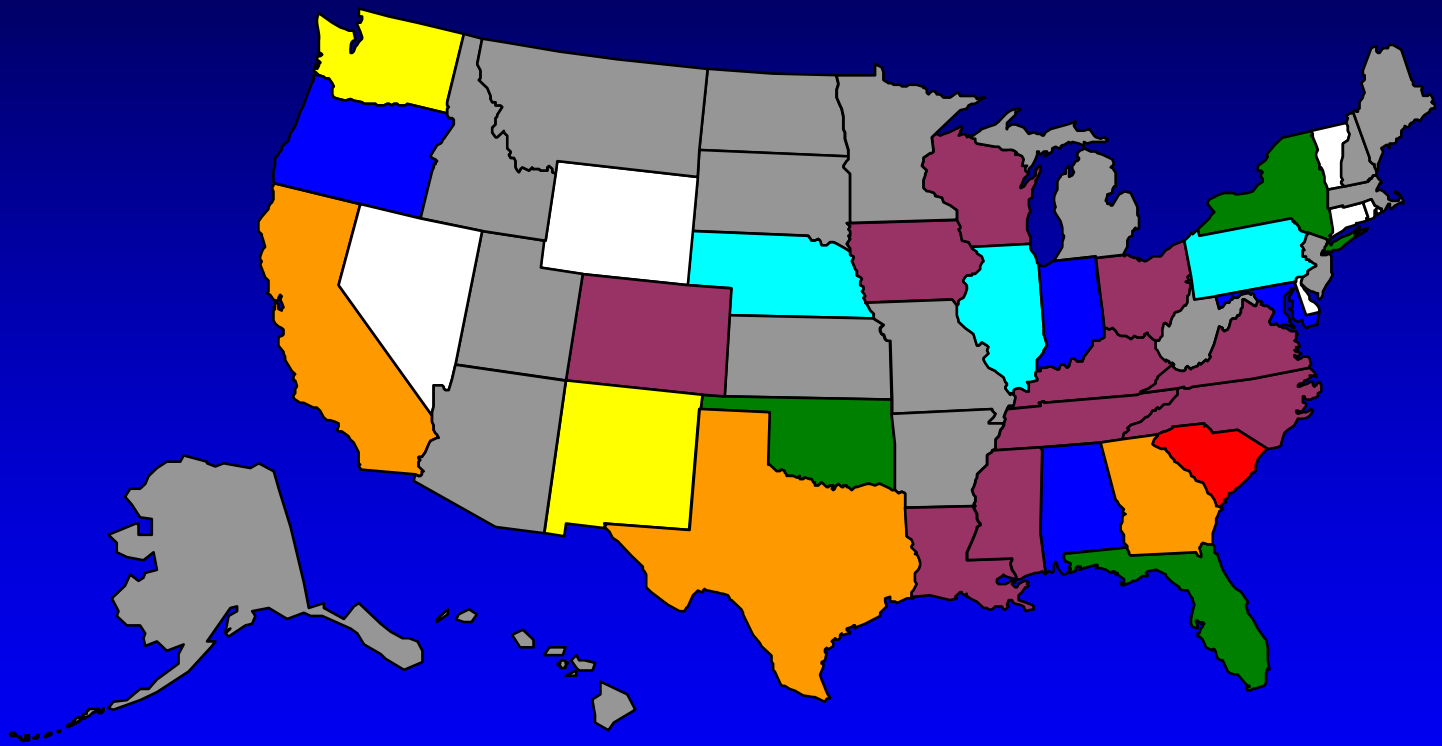
- Domestic = 14,032 items in 481 orders
  - S-9 region = 8,373 items
- Foreign = 2,814 items in 111 orders
- Total CY2005 distributions = 16,846 items

Distributions to S-009 Region



* As of May 5, 2006

Domestic Distributions in CY2005



Total number of accessions by state

2,500 to	5,000	500 to	749	50 to	99
1,000 to	2,499	250 to	499	1 to	49
750 to	999	100 to	249	0	

Distributions outside of 50 U.S. states in CY2005

Algeria	Chile	Hungry	Netherlands	Thailand
Australia	China	India	New Zealand	Trinidad and Tobago
Austria	Czech Republic	Indonesia	Poland	Turkey
Belgium	Egypt	Ireland	Puerto Rico	Uganda
Bolivia	Finland	Italy	South Africa	United Kingdom
Brazil	France	Jamaica	South Korea	Virgin Islands (US)
Cambodia	Germany	Japan	Spain	
Canada	Guam	Lithuania	Taiwan	

Total PGRCU Funding

- ARS base funding
  - FY2005 = $2,183,295
- S-009 base funding
  - FY2005 = $398,373

PGRCU Funding

- ARS base funding increases
  - FY2001 = $349,370 (President and Congress)
  - FY2002 = $248,861 (Congress)
    - FY2002 money in President's budget reduction
- ARS temporary funding increases
  - FY2005 = $21,000 (deer fence for 17 acres at Westbrook Farm)
  - FY2006 = $24,000 (pepper virus screening)

Staffing - ARS

- 24 ARS full-time employees
  - Biol Sci Lab Technician (molecular lab) July 10
  - Agric Sci Res techncian (farm manager) vacant
- Two resignations and positions terminated
  - Agric Sci Res technician (Byron)
  - Agric Sci Res Technician (veg) term

Staffing - S-009

- Seven permanent S-009 employees
- One vacancy
  - Research Technician II (Byron)
- 17 temporary full-time and part-time employees were hired during FY2005 to handle specific labor needs.

Staffing summary

- When vacant positions are filled, current staff will be 31 employees (24 ARS and 7 S-009)
- Additional 17 S-009 temporary labor positions

Equipment purchased

- Farm operations
  - Reigi weeder
  - ice machine for shop

Equipment purchased

- Grass curation
  - tissue culture chamber
- IT equipment
  - upgraded all hubs and switches

Facilities: Leases

- ARS leases with University of Georgia
  - Old PI building (germination and grass greenhouse)
  - Seed storage building (large 4C and -18C cold rooms)
  - S-9 building (Jarret's labs and sweetpotato tissue culture)
  - Redding building (molecular labs and offices)
  - Existing 11 acres and new machine shed on Westbrook Farm
  - Developing 17 acres on Westbrook Farm
- Existing ARS leases with University of Georgia
  - Land on Griffin campus where ARS buildings are located

Facility Repair and Maintenance

- Installed well water line for watering plants in ARS greenhouses
- Replaced greenhouse control modules for auto-watering system
- Repaired greenhouse boiler heating system
- Repaired greenhouse temperature controls
- Repaired 4 C cold room dehumidifier


ARS greenhouses


ARS Seed processing

Other activities

- NP 301 Customer and Assessment Workshop (Oct/Nov 2005)
- NPGS Curator Workshop (Dec 2005)
  - 3 curators from Griffin attended
  - good interchange of ideas from other locations

Other activities

- Clean up and repair houses after Hurricane Katrina with others at Bethel Lutheran Church in Biloxi, MS (Sept 2005 and Jan 2006)

Needs

- Reinstate money in President's budget reduction ($248,861)
- Technical support
  - Seed storage: seed processing
  - Forage legumes: HPLC characterization
  - Greenhouse manager
  - Grass: labor to support grass tissue culture
  - Germination: labor for germination testing
  - Field crew: weeding, irrigation, harvesting

Equipment Needs

– Enclosed cargo trailer	$2,600
– No till drill	$10,000
– Germinator	$9,500
– John Deere Gator	$14,000
– Tractor (slow speed) for Reigi Weeder	$28,000
– Plant pathology growth chamber	$15,000
– Real time PCR	$30,000
– Moveable storage shelves for 4C room	$70,000
– Tractor loader/backhoe (bamboo)	$55,000
– Autogen Prep DNA isolation system	$74,900

Plant Genetic Resources Conservation Unit
- - - in action - - -

Appendix 2

DR. ROY PITTMAN

PEANUT CROP GERMPLASM

Peanut Crop Germplasm

S-9 Meeting

Ames, Iowa

Roy N. Pittman

Plant Genetic Resources Conservation Unit

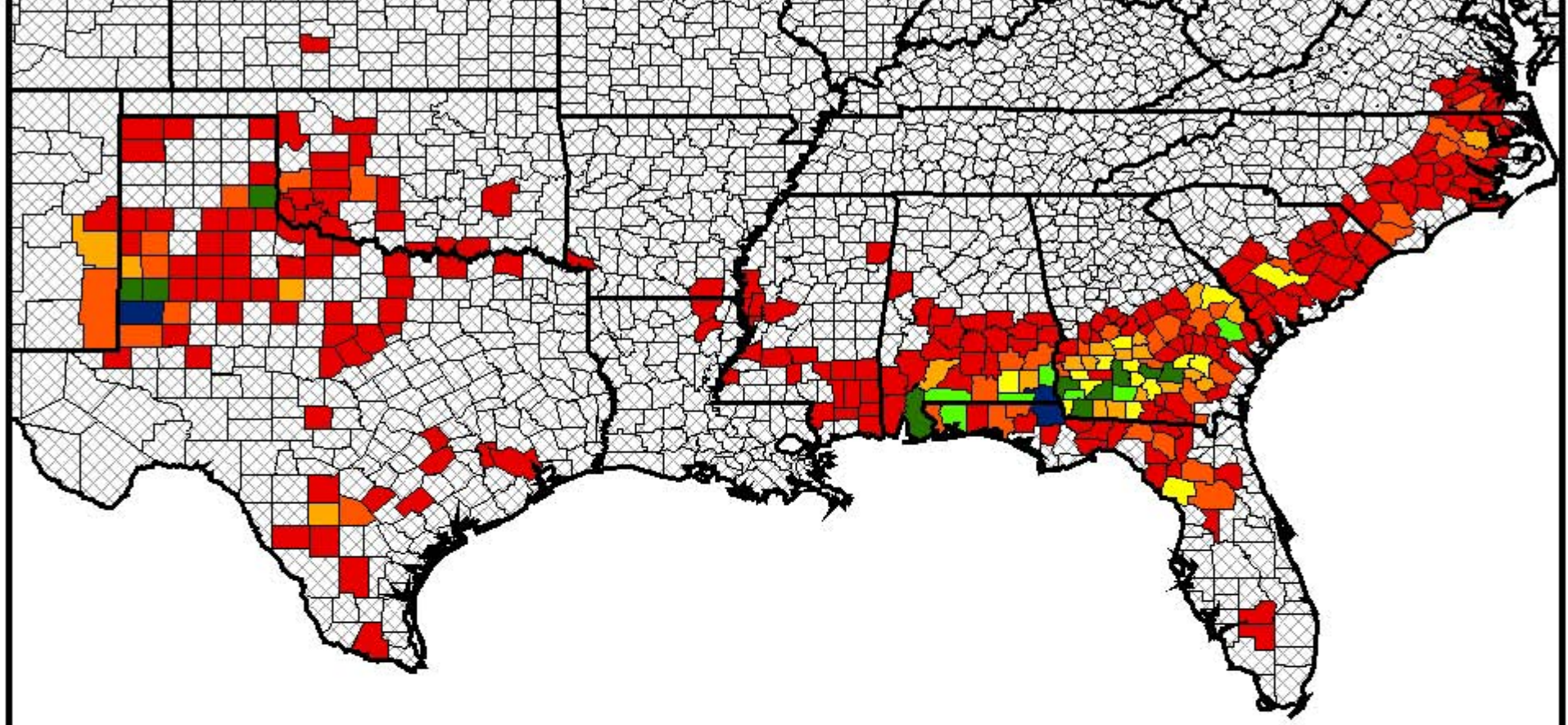
Griffin, Georgia

Plant Genetic Resources Conservation Unit

- PGRCU is a cooperative effort supported by USDA, ARS and the Southern State Agricultural Experiment Stations.
- PGRCU is charged to acquire, characterize, maintain, evaluate, document and distribute genetic resources.

Peanut Germplasm Conservation

- *Arachis* is South American
- Greater economic and social importance elsewhere



2005 Preliminary FSA Planted Peanut Acreage

- 0 to 50
- 51 to 5,000
- 5,001 to 10,000
- 10,001 to 15,000
- 15,001 to 20,000
- 20,001 to 25,000
- 25,001 to 35,000
- 35,001 to 65,129

N
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Prepared by the
University of Georgia
National Center for Peanut Competitiveness

- Cultivated – Low DNA polymorphism & lacks allelic diversity
- Wild species – High DNA polymorphism & many alleles

Objectives Include

- Conserve genetic resources and associated information
- Develop and apply new or improved evaluation procedures and marker based approaches
  - Assess diversity of genetic resources
  - Evaluate materials for useful traits
- Transfer technology to researchers and plant breeders

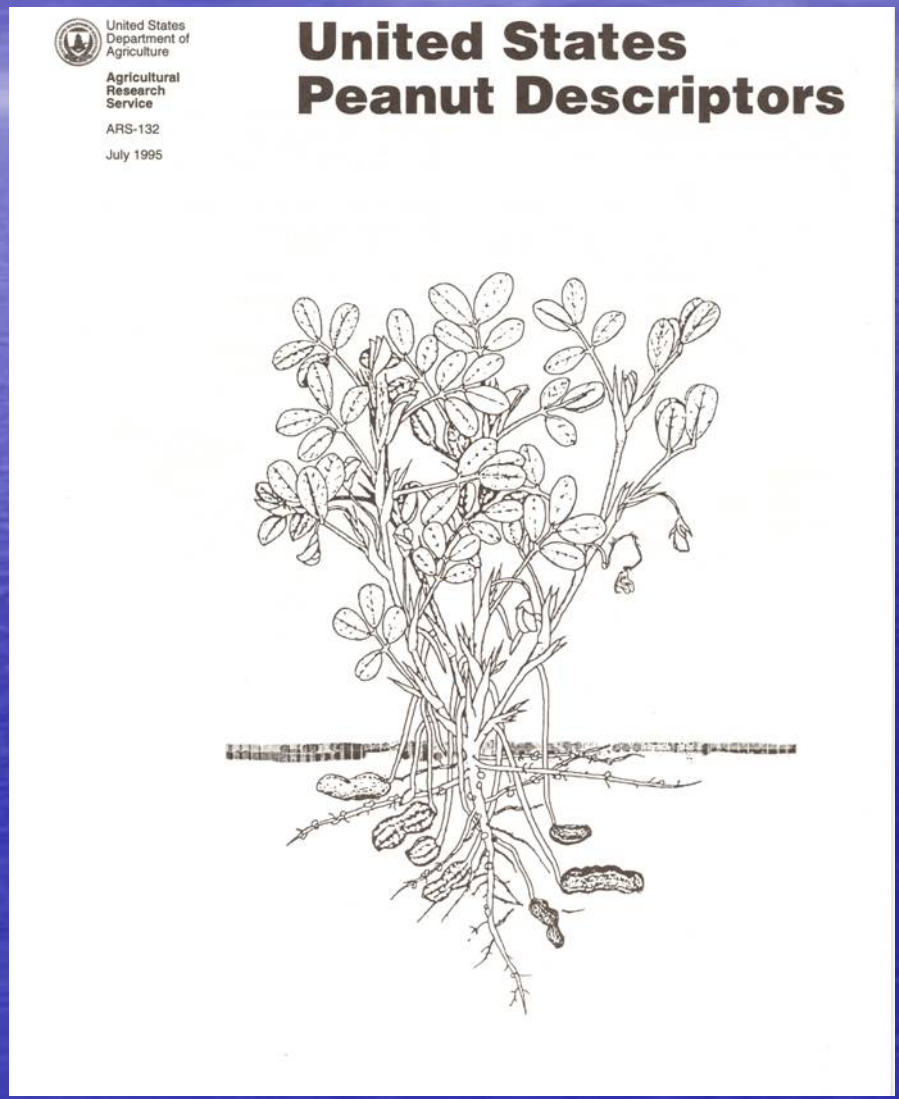
Peanut Conservation

	Cultivated		Wilds	
	7/1/05	5/10/06	7/1/05	5/10/06
Tot. at Griffin	9227	9228	782	776
No. Available	7983	7907	647	646
Not Available	1244	1321	135	130
Backed Up	8470	8470	208	208
Images	546			

Summary of Collection for Peanuts

- 10,004 Accessions in collection
- 8,553 Available
- 1,451 Not available (2005 crop not processed into storage)
- 8,682 Backed up

Peanut Descriptors

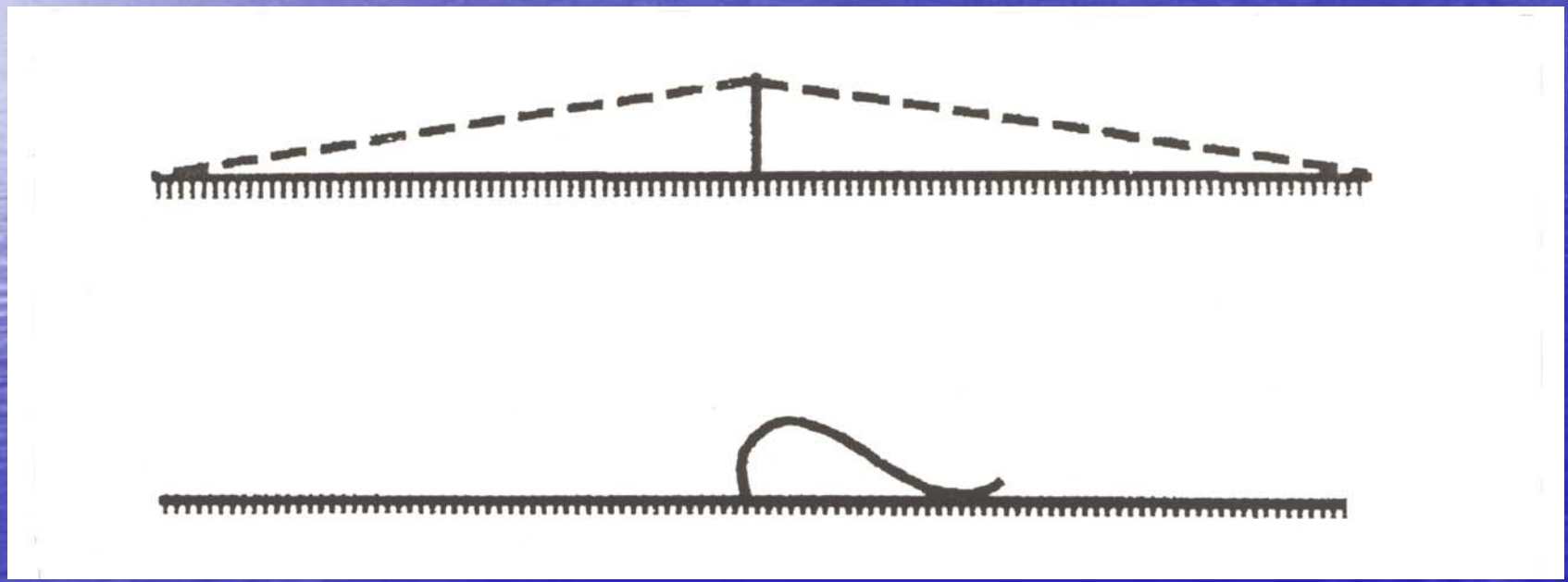


Peanut Descriptors

- Plant Traits
- Pod Traits
- Seed Traits
- Disease, Pests, or Stress Ratings

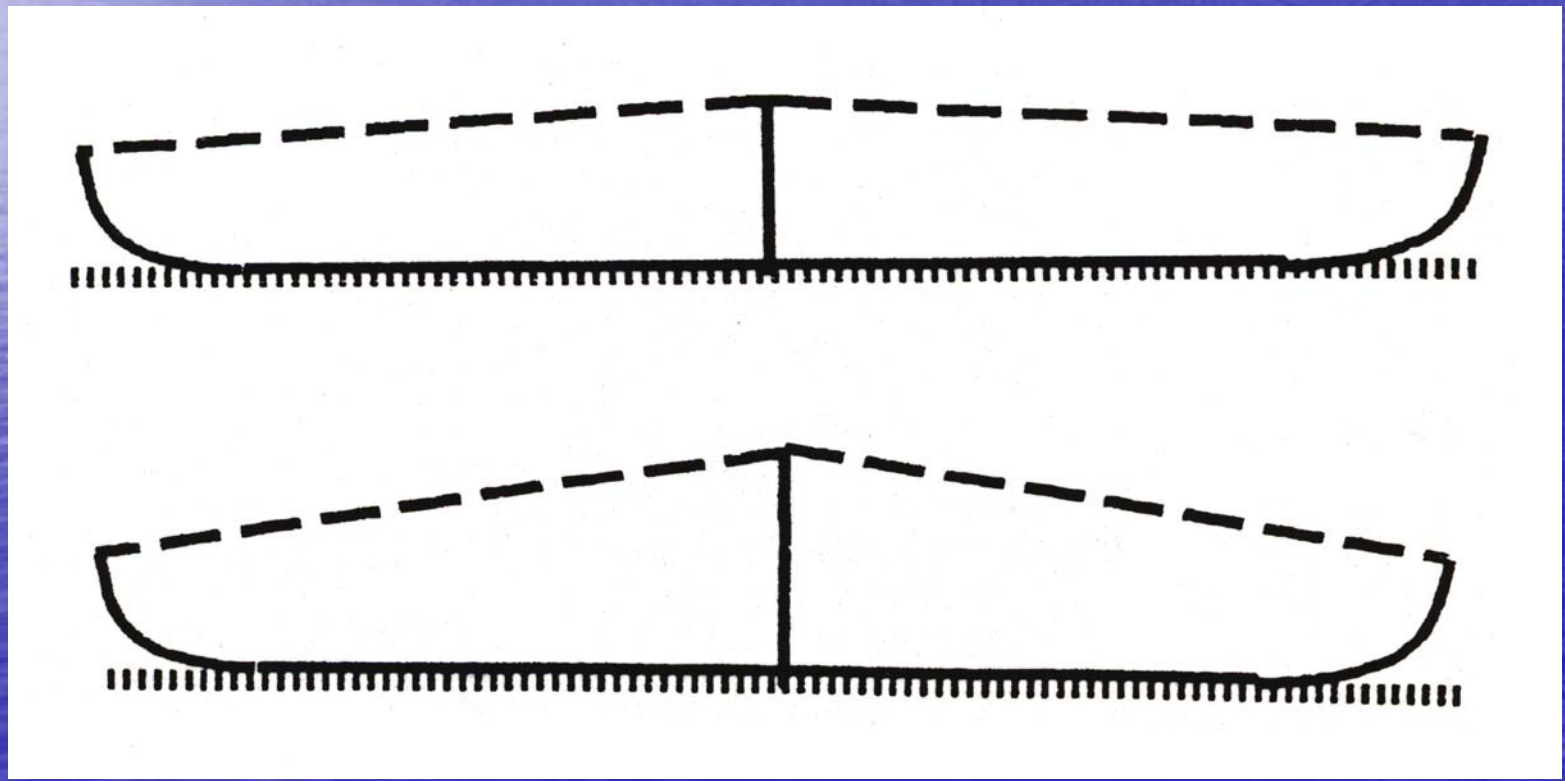
Plant Traits

- Growth Habit (60 – 70 DAP)
  - Prostrate



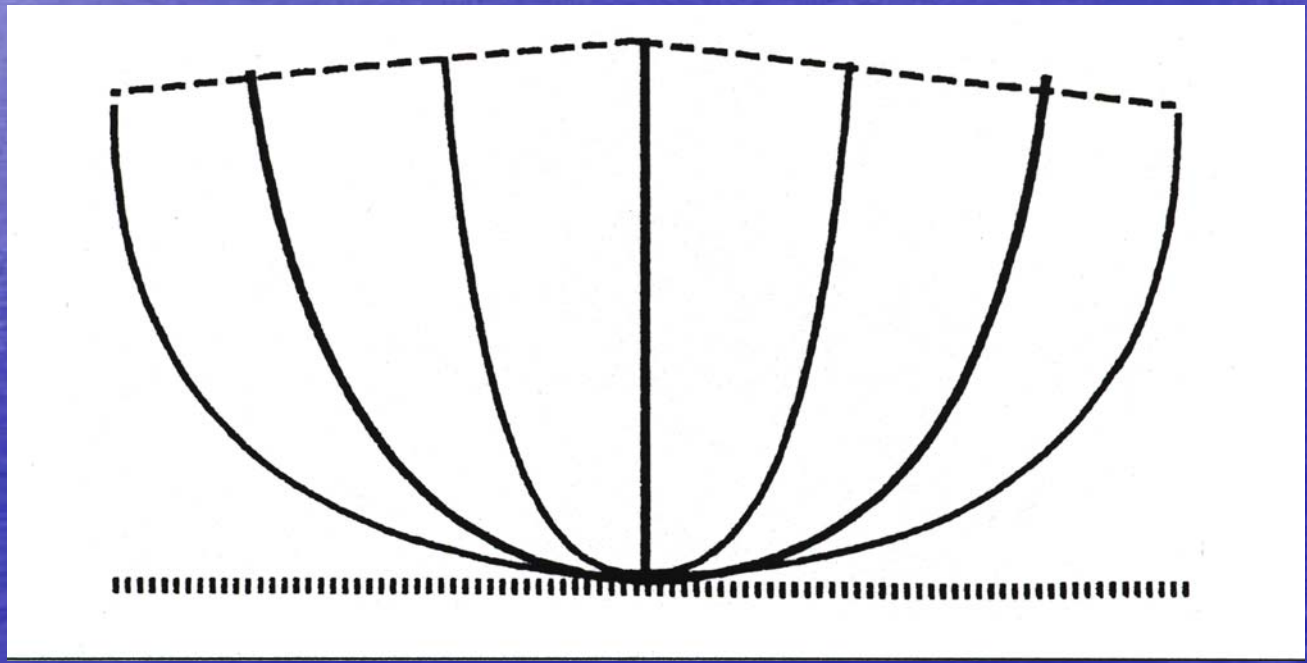
Plant Traits

- Growth Habit (60 – 70 DAP)
  - Spreading



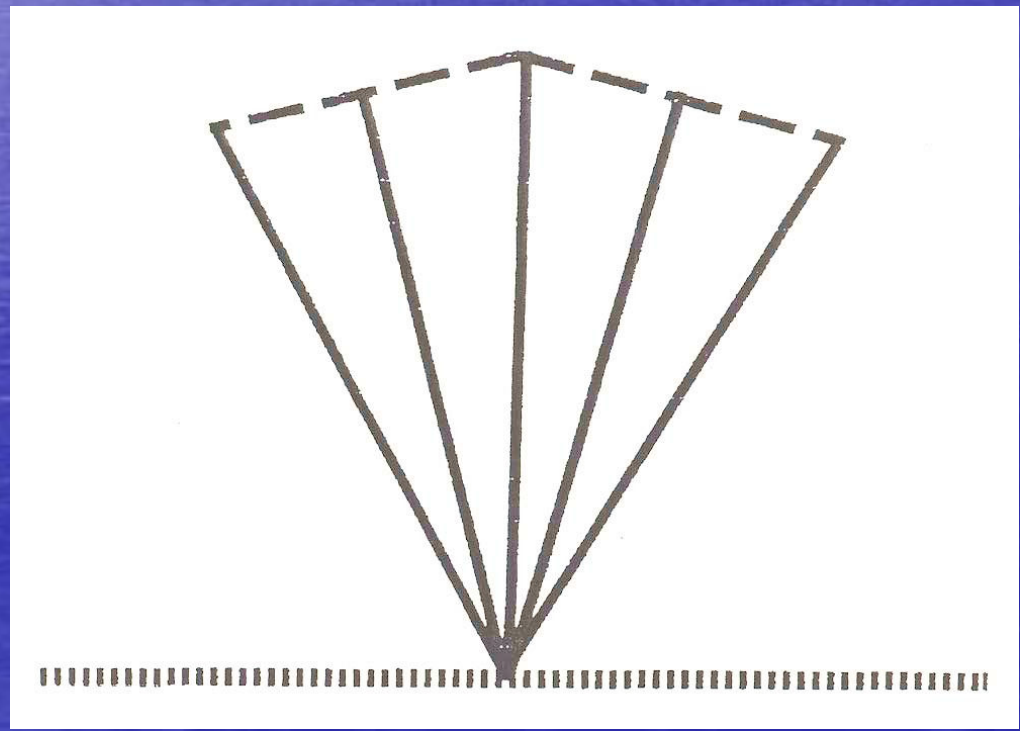
Plant Traits

- Growth Habit (60 – 70 DAP)
  - Bunch



Plant Traits

- Growth Habit (60 – 70 DAP)
  - Erect



Plant Traits

- Growth Habit (60 – 70 DAP)
  - Mixed

Plant Size (at Harvest)

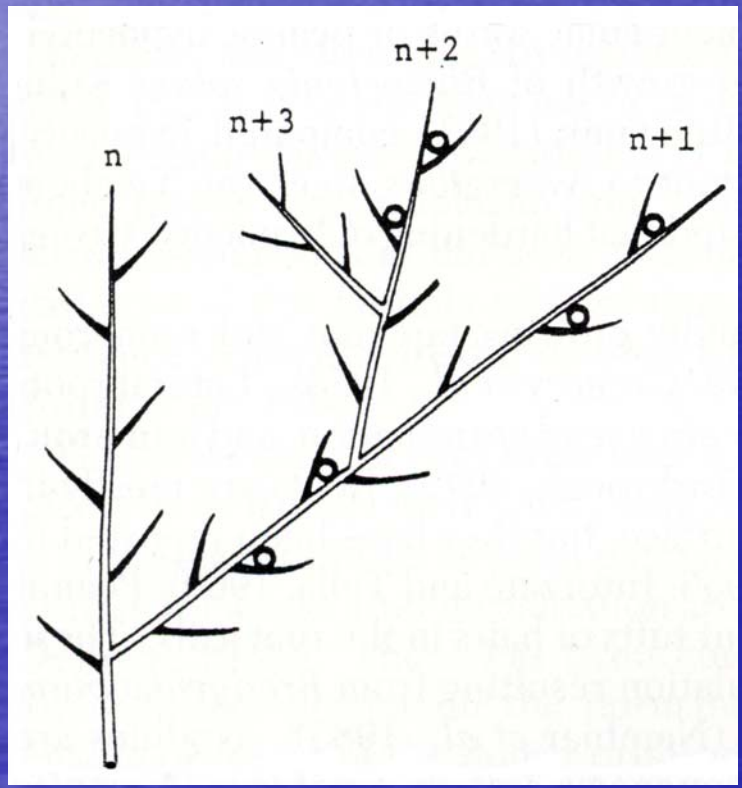
- Dwarf
- Small
- Medium
- Large
- Extra Large
- Mixed

Main Stem

- At 60 – 90 Days
  - Not Apparent
  - Somewhat Apparent
  - Apparent
  - Mixed
- At Harvest
  - Same Factors as 60/90 Days

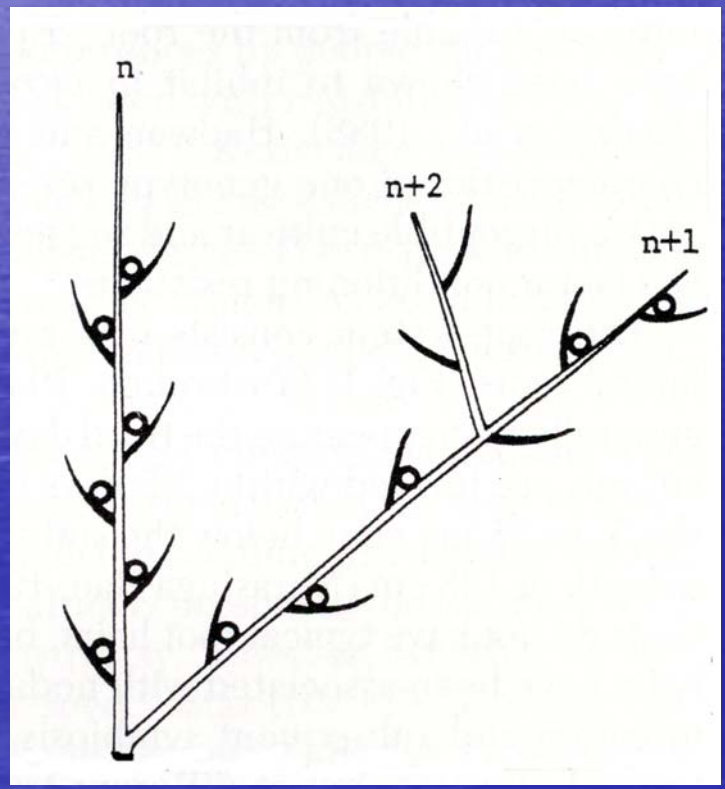
Flowers on Main Axis (at 60 – 90 Days)

- No



Flowers on Main Axis (at 60 – 90 Days)

- Yes



Flowers on Main Axis (at 60 – 90 Days)

- Mixed Plots

Leaf Color (at 60 – 90 Days)

- Very light green
- Light green
- Green
- Dark green
- Very dark green

Other Plant Traits include:

- Stem Pigmentation (at 60 -90 Days)
- Maturity (at Harvest)

Pod Traits

- Pod Shape (at Harvest)
  - Vulgaris

Pod Traits

- Pod Shape (at Harvest)
  - Fastigiata

Pod Traits

- Pod Shape (at Harvest)
  - Peruviana/aequatoriana

Pod Traits

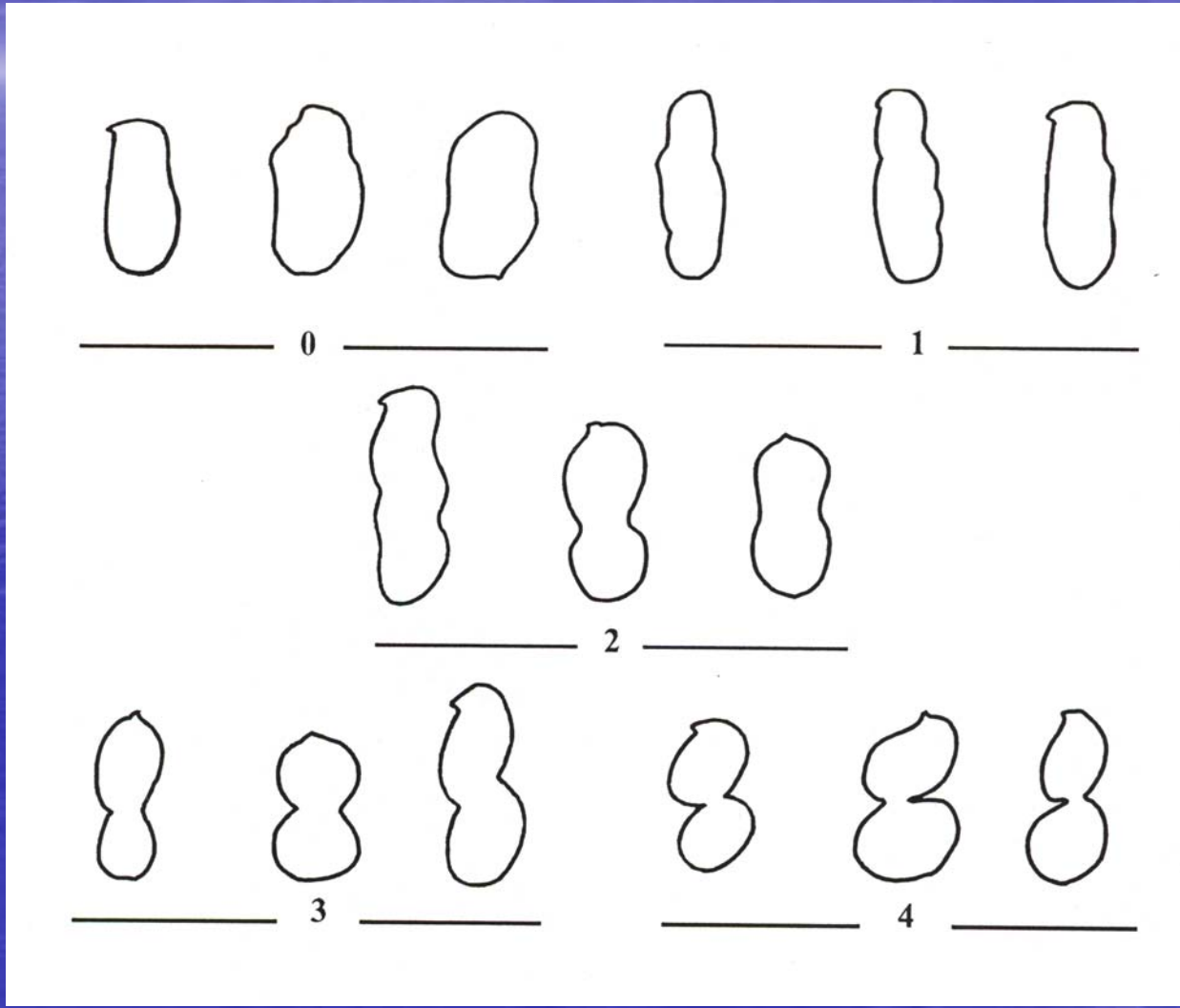
- Pod Shape (at Harvest)
  - Hypogaea

Pod Traits

- Pod Shape (at Harvest)
  - Hirsuta

Pod Constriction (at Harvest)

- None
- Slight
- Moderate
- Deep
- Very Deep



Other Pod Descriptors Include:

- Pod Reticulation (at Harvest)
- Seeds per Pod
- Pod Weight
- U.S. Pod Market Type
  - Spanish
  - Valencia
  - Runner
  - Virginia

Seed Traits

- Seed Coat Color Pattern (at Harvest)
- Seed Coat Color
- Seed Weight

Disease, Pests, or Stress Rating

- Use a Florida scale (1 – 9)
  - Very highly resistant (Immune)
  - Highly resistant
  - Slightly resistant
  - Intermediate
  - Slightly susceptible
  - Moderately susceptible
  - Highly susceptible
  - Very highly susceptible (Dead)

Wild Peanuts = S.A.

Peanut Collections

Era	#	Countries	Era	#	Countries
30's	3	Arg., Bra., Par., & Uru	70's	8	Arg., Bol., Bra., & Par.
40's	2	Arg., Bol., Bra., & Par.	80's	34	Arg., Bol., Bra., Ecu., & Per.
50's	5	Arg., Bol., Bra., & Par.	90's	17	Bol., Bra., Ecu., Gua., & Mex.
60's	3	Arg., Bra., Par., & Uru.	00's	3	Par.

Assessment of Diversity in Cultivated Peanut

- Transfer of markers
- SSR markers

Transfer of SSR markers across the legume family for germplasm characterization and evaluation

- 68 SSR markers selected from *Medicago* (Alfalfa specie), soybean, cowpea and peanut
- Species tested include: Medicago (1), soybean (2C&1W), peanut (4C&2W), clover (4W), Vigna (4C), Guar (4C), lablab (2C&2W)
- Primers tested for cross-species and cros-genus amplification

Summary of Cross-genera Amplification and Polymorphism Detection

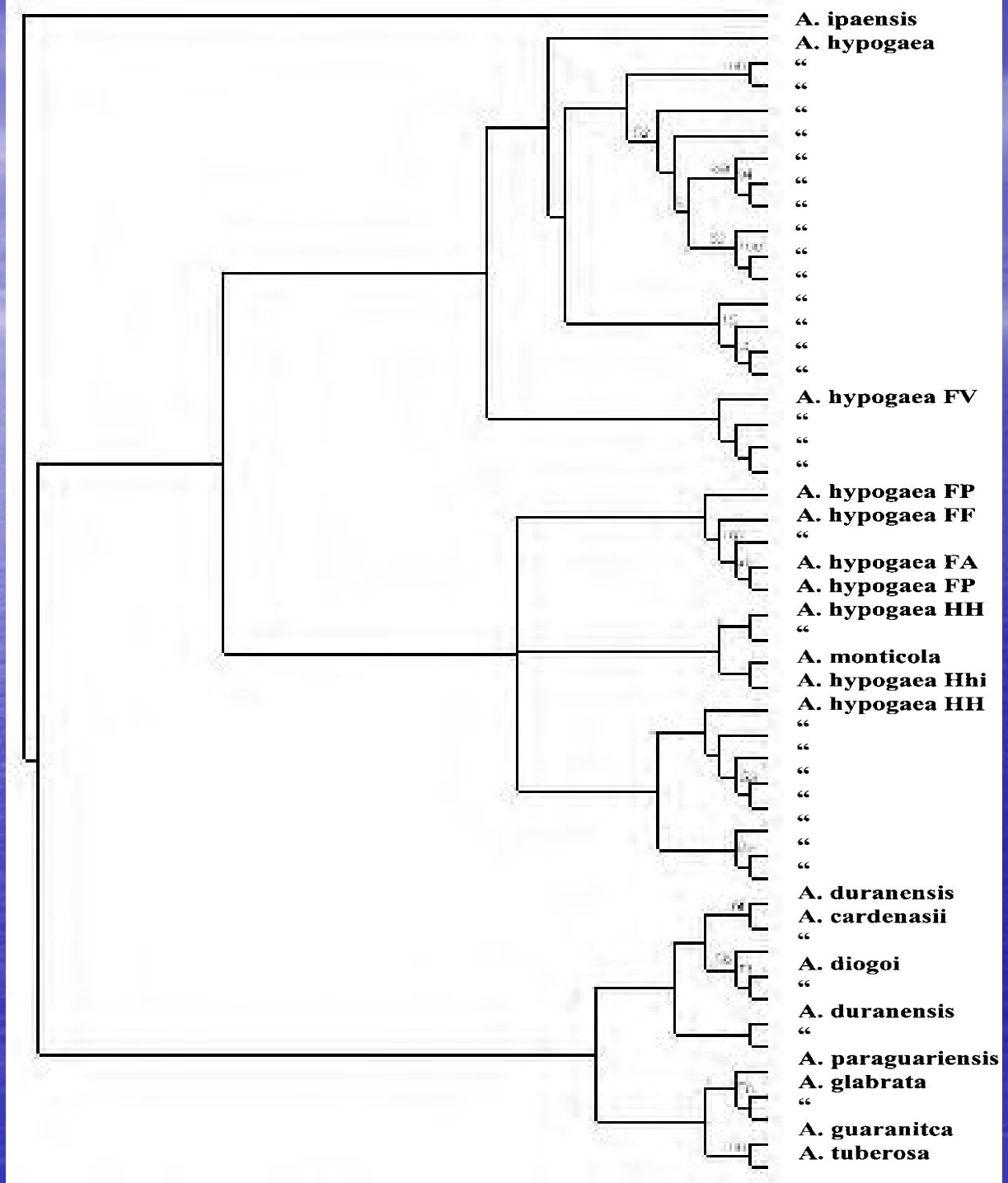
Primers	Set	Alfalfa	Soybean	Cowpea	Peanut
Medicago	38		55% (10)	31% (19)	21% (9)
Soybean	14	29%		21% (5)	16% (2)
Cowpea	10	30%	30% (2)		25% (4)
Peanut	6	17%	11% (1)	8% (2)	
Average (total)	68	27%	45% (13)	26% (26)	21% (15)

Summary of Cross-genera Amplification and Polymorphism Detection (2)

Primers	Set	Clover	Guar	Lablab	Average (total)
Medicago	38	28% (17)	47% (8)	36% (16)	36% (79)
Soybean	14	16% (2)	27% (1)	23% (4)	21% (14)
Cowpea	10	21% (3)	30% (0)	55% (9)	33% (18
Peanut	6	21% (2)	29% (1)	13% (0)	17% (6)
Average (total)	68	24% (24)	39% (10)	34% (29)	31% (117)

M13 Tail SSR Method: An Effective Method for Determining Diversity in Cultivated Peanut

- 31 peanut genomic SSR markers used to assess diversity using mini core, other cultivated, and wilds for a total of 141 accession
- 477 alleles detected; average 15.4 alleles per locus; cultivated produced 312 alleles and averaged 10.1 alleles per locus


A. ipaensis
A. hypogaea
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A. hypogaea FV
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“
“
A. hypogaea FP
A. hypogaea FF
“
A. hypogaea FA
A. hypogaea FP
A. hypogaea HH
“
A. monticola
A. hypogaea Hhi
A. hypogaea HH
“
“
“
“
“
“
“
A. duranensis
A. cardenasii
“
A. diogoi
“
A. duranensis
“
A. paraguariensis
A. glabrata
“
A. guaranitca
A. tuberosa

Sequence Comparison for ah041 SSR (292 bps +4) Substitutions

	3 4	5 8	6 0	7 0	1 6 3	1 6 7	1 8 7	2 1 9	2 2 5	2 4 3
A. hypogaea[3]	C	G	G	A	G	C	T	A	A	T
A. duraninsis	C	G	G	A	G	C	T	A	C	T
A. duraninsis	C	G	G	A	G	C	T	A	C	T
A. duraninsis	C	G	G	A	G	C	T	A	C	T
A. ipaensis	C	G	G	G	G	C	T	A	C	T
A. cardenasii	C	G	G	A	G	C	T	A	C	T
A. cardenasii	C	G	G	A	G	C	T	A	C	T
A. diogoi	C	G	G	A	G	C	T	A	C	T
A. diogoi	C	G	G	A	G	C	T	A	C	T
A. glabrata	G	A	A	G	T	C	C	G	C	A
A. glabrata	G	A	A	G	T	C	C	G	C	A
A. guaranitca	G	A	A	G	G	C	C	G	C	A
A. tuberosa	G	A	A	G	T	C	C	G	C	A
A. paraguariensis	G	A	A	G	G	T	C	G	C	A

Sequence Comparison for ah041 SSR (292 bps +4) InDels

	7 7 7	9 9 9 9 9 9 9 9 9 10	11 11 11 11 11 11
	7 8 9	2 3 4 5 6 7 8 9 0	4 4 4 4 5 5 6 7 8 9 0 1
A. hypogaea[3]	- - -	C T T G T T G T T	G A G - - -
A. duraninsis	- - -	C T T G T T G T T	G A G - - -
A. duraninsis	- - -	C T T G T T G T T	G A G - - -
A. duraninsis	- - -	C T T G T T G T T	G A G - - -
A. ipaensis	- - -	- - - - - - G T T	G A G - - -
A. cardenasii	- - -	C T T G T T G T T	G A G - - -
A. cardenasii	- - -	C T T G T T G T T	G A G - - -
A. diogoi	- - -	C T T G T T G T T	G A G - - -
A. diogoi	- - -	C T T G T T G T T	G A G - - -
A. glabrata	T T G	- - - - - - - - -	G A G - - -
A. glabrata	T T G	- - - - - - - - -	G A G - - -
A. guaranitca	- - -	- - - - - - - - -	G A G G A G
A. tuberosa	T T G	- - - - - - - - -	G A G - - -
A. paraguariensis	- - -	- - - - - - - - -	- - - - - -

Technology Transfer to

Researchers

Plant Breeders

Farmers


CENTRO EXPERIMENTAL (CEA - 2)
EXPO SOYA 2006
24 y 25 de marzo
ASOCIACION DE PRODUCTORES
DE OLEAGINOSAS Y TRIGO
¡ Al servicio del agricultor !


CAISY LTDA

ZONAS DE ACCIÓN

Apoyo a la Producción

Apoyo a la Cosecha y Poscosecha

COMPONENTES

Comercializa-ción

Fortalecimiento Institucional

EQUIPOS DE TRABAJO

Zona	Municipio	Equipo Técnico
Valles	Mairana Pampagrande Samaipata Quirusillas Comarapa Saipina	Nelson Ojeda (c) Arturo Saucedo Víctor Dionicio David Cortez
Intermedia	El Torno La Guardia	
Chaco	Gutiérrez	Macario Escobar (c) Wilson Montano Omar Romero
	Lagunillas	Gustavo Urquizo (c) Cristian Aguilera Delfín Barriga

MACROPARCELAS

- Parcela con oferta tecnológica
- Introducción de Líneas Promisorias
- Validación de Variedades
- Densidad de siembra para variedades locales
- Validación de agroquímicos
- Demostración de equipos de cosecha y poscosecha.

PRODUCCIÓN

CAPACITACIÓN

- Manejo agronómico del cultivo
- Control de malezas
- Control de insectos plagas y enfermedades
- Capacitación en Uso Seguro de Plaguicidas

- Asistencia técnica en:
  - Elección del terreno
  - Siembra mecanizada
  - Control de plagas

PRODUCCIÓN

RECOMENDACIONES SIEMBRA DE FLORMAN	
Espacio entre surcos:	60 a 70 cm
Plantas por metro lineal:	9 a 12 para tener buena cobertura de suelo
Profundidad de siembra:	5 a 8 cm
Cantidad de semilla:	50 a 60 kg/ha con 85 % de germinación
Tratamiento de semilla:	Con carboxin + thiran a razón de 2 cc/kg de semilla

Areas Needing Addressing in Peanuts

- **New regeneration sites for cultivated and wilds peanuts**
  - **Impacted by TSWV in SE**
  - **No significant increase for wilds**
- **Back up site for wild peanuts**
  - **Charles Simpson's retirement**

Appendix 3

DR. JOHN ERPELDING

SORGHUM GENETIC RESOURCE MANAGEMENT

Sorghum Genetic Resource Management

John Erpelding
Research Geneticist
USDA-ARS-TARS


Germplasm
Characterization


Seed
Regeneration


Sorghum Anthracnose
Research

Resistant

Susceptible

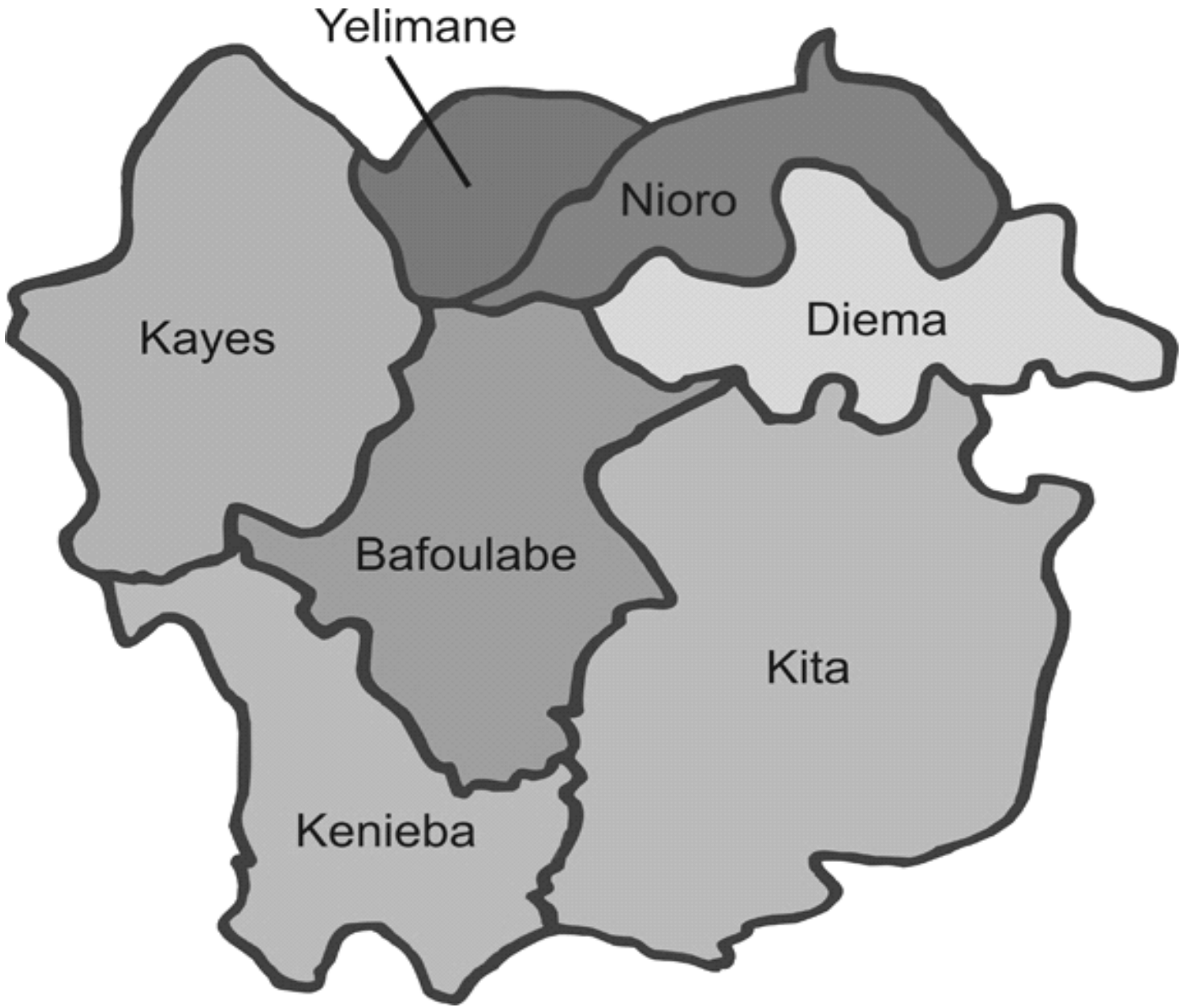

Anthracnose
Evaluation of the
Sorghum Germplasm
Collection from Mali,
West Africa


Mali
International boundary
Region boundary
National capital
Region capital
Railroad
Road
Track
ALGERIA
MAURITANIA
TOMBOUCTOU
KIDAL
GAO
MOPTI
KAYES
KOULIKORO
SEGOU
SIKASSO
NIGER
BURKINA
SENEGAL
GUINEA
SIERRA LEONE
LIBERIA
COTE D'IVOIRE
GHANA
TOGO
BENIN
NIGERIA
Bamako
Ouagadougou
Niamey
Monrovia
Yamoussoukro
Lomé
Porto-Novo
NORTH ATLANTIC OCEAN
Bight of Benin

Anthracnose Evaluation Kayes Region

Reaction	Season			Combine
	1	2	3	
R	139	131	188	100
S	67	112	42	145
Variable	71	34	47	32

Kayes Region



Administrative Districts Kayes Region

District	R	S	Total
Nioro	30 (33%)	61 (67%)	91
Kayes	18 (31%)	40 (69%)	58
Bafoulabe	18 (49%)	19 (51%)	37
Kita	37 (71%)	15 (29%)	52
Kenniba	29 (74%)	10 (26%)	39

Rainfall Pattern
Kayes Region

Rainfall (mm)	R	S	Total
350-599	12 (23%)	40 (77%)	52
600-799	43 (38%)	69 (62%)	112
800-1100	54 (64%)	30 (36%)	84
>1100	14 (88%)	2 (12%)	16

Durra

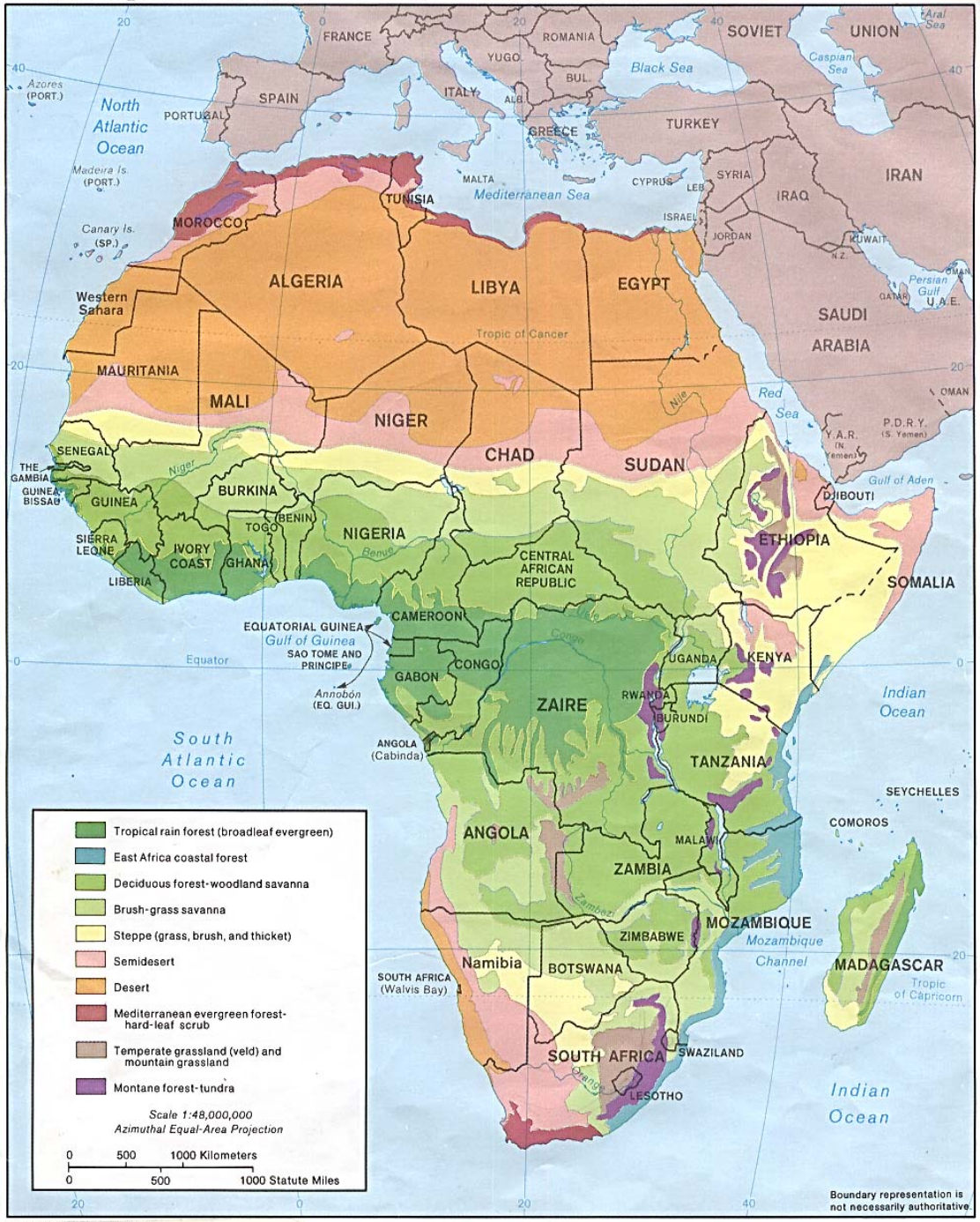
Guinea

Race Classification
Kayes Region

Race	R	S	Total
Durra	25 (36%)	44 (64%)	69
Guinea	101 (51%)	96 (49%)	197


Mali
International boundary
Region boundary
National capital
Region capital
Railroad
Road
Track
ALGERIA
MAURITANIA
TOMBOUCTOU
KIDAL
GAO
MOPTI
KAYES
KOULIKORO
SEGOU
SIKASSO
NIGER
BURKINA
SENEGAL
GUINEA
SIERRA LEONE
LIBERIA
COTE D'IVOIRE
GHANA
TOGO
BENIN
NIGERIA
Bamako
Niamey
Ouagadougou
Yamoussoukro
Monrovia
Lomé
Porto-Novo
NORTH ATLANTIC OCEAN
Bight of Benin

Natural Vegetation in Africa



800630 (547147) 6-86


Genetic Evaluation
of Resistance

Resistant Parent
(RR or rr)

X

Susceptible Parent
(rr or RR)

or

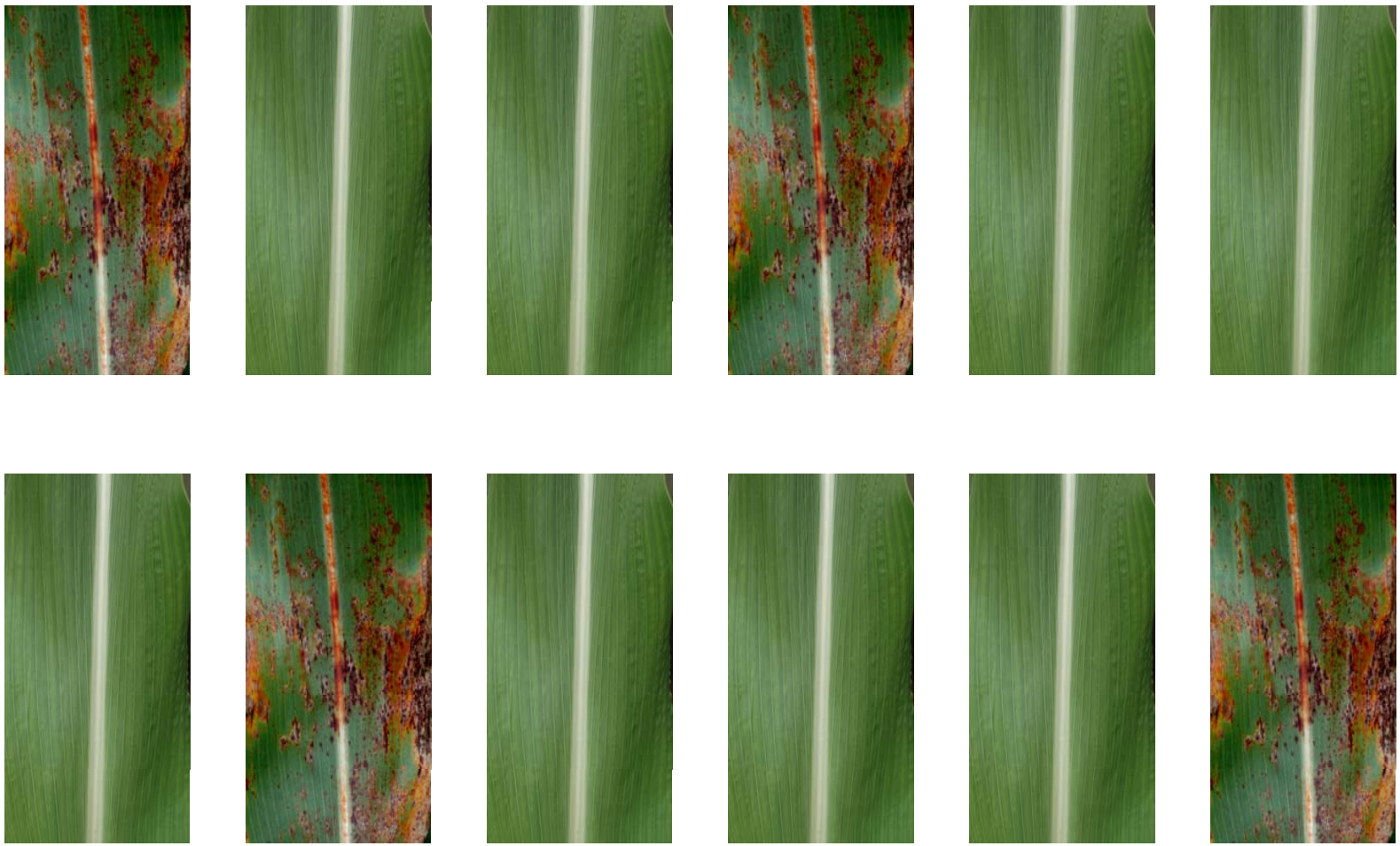
Rr **Rr**

F_1 Generation

F_2 Generation
(Single Plant Evaluations)

Susceptible Plants = rr

Resistant Plants = RR or Rr



F_3 Generation
(Single Row Evaluations)