No.



Dioneer Hi-Bred International, Inc.

Tethereas, there has been presented to the

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLI-CANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC seed of the variety in a public repository as provided by ${
m LAW}$, the right to ex-UDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, PORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT 542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

> SOYBEAN '3580'

8000026

In Testimony Winercot, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 27th day of January in the year of our Lord one thousand nine undred and eighty-three.

ennett H. Eve mission on

Plant Variety Protection Office Grain Division Agricultural Marketing Service

UNITED STATES DEPARTMENT OF AGRICULTURE		
GRAIN DIVISION	· ·	
PLANT VARIETY PROTECTION OFFICE NATIONAL AGRICULTURAL LIBRARY		
BELTSVILLE, MARYLAND 20705		
DELICATION FOR PLANT VARIETY PROTECTION CE	RTIFICATE	

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(1-76)

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 		FORM APPRO
	1.1	OMB NO. 40-R

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STRUCTIONS: See Reverse.	16. VARIETY NA	ME	FOR OFFICE	AL USE ONLY
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NAME OF APPLICANT(S)	Code)		ante desta	CODE AND
Pioneer-Hi-Bred	2 21/206 Mul		stice form for se	(515)
International, Inc.	Des Moir			245-3500
	CONCEPTION		•.	
• • • • • • •	A CONTRACTOR		ender og hende som	
• IF THE NAMED APPLICANT IS NOT A PER ORGANIZATION: (Corporation, partnership,	RSON, FORM OF association, etc.)	10. IF INCORPORA DATE OF INCO	TED, GIVE STATE AND RPORATION	11. DATE OF PORATIO
Corporation	ener per di se	i i lowa i	in is the case of	1926
Name and mailing address of applic	ant representati	ve(s), if any, to serve	e in this application a	nd receive all
the second second	DR CWAI	22 JENNINGS, D	IRECTOR	
Dale L. Porter	time A	SAUBERAN BREE	DIALE	
1206 Mulberry Street	DINGER	HI-BRED INT	ENATIONAL , INC.	
Des Moines, IA 50308 ancos	2011 H	LEST AIRLINE HIC	HWA4	abale.
	2061		701	4/24/80
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FORM GR-470 (Reverse)

GENERAL: Send an original copy of the application, exhibits and \$250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, National Agricultural Library, Beltsville, Maryland 20705. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are selfexplanatory unless noted below. A general component of sub-sectory and sector and the fibers

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Section 1. والمنفقات الأتراج والمراجع Give the date the applicant determined that he had and branches between a start a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.

م 1979، وي بالديجة في مائية معالي بي الد. محمد المراجع

1 Apr graphic to provide the based on watch to Give (1), the genealogy, including public and commerical varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages) 197 trips of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication where and state how these variants may be identified and (4), evidence of stability.

> Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.

The MERCENSON STRUCTURE AND ADDRESS AND E. D. Son Barry and いそのま ひし ぞんらけれひがんがく Describe any additional characteristics that are not described. or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as: plant habit, plant color, disease resistance, etc.

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14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of BETCHERE'S STRUCKS Practice.)

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PIONEER HI-BRED INTERNATIONAL, INC. PLANT BREEDING DIVISION

> DEPARTMENT OF SOYBEAN BREEDING 3261 WEST AIRLINE HIGHWAY • WATERLOO, IOWA 50701 PHONE (319) 234-0335

Amendment: 3580 Soybean (April, 1980)

Exhibit A. Variety 3580 evolved from a cross between Williams x Woodworth. It is an F_3 - derived variety which was advanced to the F_3 generation by direct single-seed descent. The F_4 plant row of 3580 was grown in Jamaica in the winter of 1974-75. Subsequently, 3580 has undergone four years of extensive testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation with no evidence of variants.

6 acres of 3580 (breeders seed) were grown in 1978 and 185 acres (foundation seed equivalent) were grown in 1979.

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Amendment: 3580 Soybean (September 14, 1982)

Exhibit B. Like Woodworth, Williams, and A4268, the varieties it is most similar to, 3580 has white flowers, tawny (brown) pubescence, tan pods, yellow seed coats, and black hila.

> 3580 most closely resembles Woodworth but uniformly differs from it in its electrophoretic zymogram profile of the enzyme <u>diaphorase</u> (Dia). Whereas, Woodworth has a <u>Type 2</u> banding pattern which is lacking band no. 5, 3580 exhibits a <u>Type 1</u> banding pattern, which contains band no. 5. (These zymogram profiles are described in <u>Soybean Genetics Newsletter</u>, Volume 9, April 1982).

> 3580 differs from Williams in that Williams has a high enzyme peroxidase (Ep) activity and 3580 has a low (Ep) activity. 3580 is also 2 days earlier than Williams.

As compared to A4268 variety, 3580 is significantly earlier maturing by 6 days (see Table 2). 3580 is a Group III variety; A4268 is a Group IV variety.

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> PIONEER HI-BRED INTERNATIONAL, INC. PLANT BREEDING DIVISION

> > WATERLOO SOYBEAN RESEARCH STATION 3261 WEST AIRLINE HIGHWAY * WATERLOO, IOWA 50702 , , , PHONE (319) 234-0335

EXHIBIT B RAS 12/3/80

TABLE 1. PAIRED COMPARISON (Days to Maturity) 1977-1979

					• • • • • •
	YR/EXP/LOG#	3580(X))	WOODWORTH(x_2)	$(x_{1}^{-}-x_{2}^{-})$	$(x_1 - x_2)^2$
5	77/WEA3/4 77/WEA3/35 77/WEA3/39 77/WEA3/40 77/WEA3/41	140 126 133 126 117	137 124 131 124 116	3 2 2 2 1	9 4 4 1
13	78/WEA3/38 78/WEA3/39 78/WEA3/41 78/STV/39 78/SJB/4 78/SJB302/40 78/SJB302/41 78/SJB303/40 78/SJB303/41	114 119 105 115 129 101 106 101 106	113 118 104 114 128 97 105 100 105	1 1 1 1 4 1 1 1 1	1 1 1 1 16 1 1 1
• .	78/SJC302/40 78/SJC307/66 78/SJC308/66 78/SJD304/66	103 119 118 118	101 118 117 117	2 1 1 1	4 1 1 1
STATE TRIALS	79/IOWA/SOUTH 79/IOWA/SOUTH (narrow rows) 79/OHIO/WEST 79/OHIO/N-WEST 79/ILL/MACOMB 79/ILL/MACOMB 79/IND/LAFAYETTE 79/IND/RANDOLPH	120 120 137 137 134 124 129	117 118 135 135 128 122 126	3 2 2 2 6 2 3	9 4 4 36 4 9
	∑ ¯x	2,997	2,950	47	123
	$s_{\overline{d}} = \sqrt{\frac{123 - \left[\frac{47}{25}\right]}{25(2)}}$ $t_{(.05)} = \overline{d}_{\overline{s}} = \frac{120 - 1}{0.24}$	$\frac{(2)^2/25]}{(24)} = 0$ $\frac{18}{0} = 8.33$			4

HELPING AGRICULTURE GROW THROUGH GENETIC RESEARCH



PIONEER HI-BRED INTERNATIONAL, INC. PLANT BREEDING DIVISION

> WATERLOO SOYBEAN RESEARCH STATION 3261 West Airline Highway • Waterloo, Iowa 50702

> > $\sum_{i=1}^{n}$

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S261 WEST AIRLINE HIGHWAT WATERLOO, TOWA 50/02 PHONE (319) 234-0335

TABLE 2. PAIRED COMPARISON (Days to Muturity) 1979-1980

YR/TEST/LOCATION	A4268(X ₁)	3580(X ₂)	(X ₁ -X ₂)	$(x_1 - x_2)^2$
80/PVP Comp/39-1	127	121	6	36
80/PVP Comp/39-2	129	121	8	64
79/IOWA STATE/SOUTH		120	5	25
79/ILLINOIS/BROWNSTOWN(30		118	7	49
79/ILLINOIS/BROWNSTOWN(7		118	8	64
79/ILLINOIS/BELLEVILLE		121	6	36
79/MISSOURI/NORTH		120	5	25
Σ	884	839	45	299
<u></u>	126	120	6	
$s_{d} = \sqrt{\frac{299 - [(45)^2/7]}{7(6)}} 0.481$,	

 $t(:05) = \frac{d}{s} = \frac{126 - 120}{0.481} = 12.5 \text{ ** for 6 df}$

HELPING AGRICULTURE GROW THROUGH GENETIC RESEARCH

FORM GR-470-2 UNITED STATES DEPARTM (6-15-72) AGRICULTURAL MAR	RETING SERVICE	URE EXHIBIT C (Soybean)
GRAIN DI HYATTSVILLE, MA		
OBJECTIVE DESCRI		TY I I I I I I I I I I I I I I I I I I I
INSTRUCTIONS: See Reverse. SOYBEAN (GL	YCINE MAX)	
Pioneer Hi-Bred International, Inc		FOR OFFICIAL USE ONLY
ADDRESS (Street and No., or R.F.D. No.; City, State, and ZIP Code)	•	8000026
1206 Mulberry Street		VARIETY NAME OR TEMPORARY DESIGNATION
Dec Maines IA 5000		250
Des Moines, IA 50308 Place the appropriate number that describes the varietal cha	racter of this varie	3580 ty in the boxes below.
1. SEED SHAPE:		
1 = SPHERICAL 2 = SPHERICAL 3 = ELONGA	te 4 = other	(Specify)
2.5 SEED COAT COLOR: 10 10 10 10 10 10 10 10 10 10 10 10 10	ten particular a second	'SHADE:
1 = YELLOW 2 = GREEN 3 = BROWN	4 = BLACK	I = LIGHT 2 = MEDIUM 3 = DARK
5 = OTHER (Specify) At a state of the second seco	4. SEED SIZE	<u>, L1, , , , , , , , , , , , , , , , , , </u>
	RbJ	4/21/80
$\begin{array}{ c c c } 1 = \text{DULL} & 2 = \text{SHINY} \end{array}$	GRAMS PE	R 100 SEEDS
5. HILUM COLOR: 10 	15 - 1943년 A 종태주 1	ISHADE:
1 = BUFF 2 = YELLOW 3 = BROWN 4 = GRAY	5 = IMPERFECT BLACK	1 3 1 = LIGHT 2 = MEDIUM 3 = DARK
6 = BLACK 7 = OTHER (Specify)		
6. COTYLEDON COLOR:	7. LEAFLET SIZE (See Reverse):
1 = YELLOW 2 = GREEN	2 1 = SMALL	2 = MEDIUM 3 = LARGE
8. LEAFLET.SHAPE:	in the second	a material lastest and the format
1 = OVATE 2 = OBLONG 3 = LANCEOLATE 4 =	ELLIPTICAL 5	OTHER (Specify)
9. LEAF COLOR (See reverse):		10. FLOWER COLOR:
		3 = OTHER (Specify)
11. POD COLOR:	12: POD SET:	
$1 = TAN \qquad 2 = BROWN \qquad 3 = BLACK \qquad 3 = BLACK \qquad 3 = BLACK \qquad 3 = BLACK \qquad 3 = BROWN \qquad 3 = BLACK \qquad 3 = BROWN \qquad 3 = BLACK \qquad 3 = BL$	SCATTE	RED CONCENTRATED CONCENTRATED
13. PLANT PUBESCENCE COLOR:	a kasa nganga makan kesa ngas	SHADE:
$2 = GRAY \qquad 2 = BROWN \qquad 3 = OTHER (Specify)$		1 = LIGHT 2 = MEDIUM 3 = DARK
14. PLANT TYPES (See Reverse):	15. PLANT HABIT:	
1 = SLENDER 2 = BUSHY 3 = INTERMEDIATE	1 = DETERM 2 = 3 = OTHER	
16. HYPOCOTYL COLOR:	17. SEED PROTEIN:	
1 = GREEN 2 = PURPLE	1 = A	2= =
18. NUMBER OF DAYS TO FLOWERING 19. MATURITY GROUP:		- <u>1</u>
(Place a zero in first box (e.g. $0 ext{ 9}$) when $1 ext{ = } 00 ext{ 2}$	2 = 0 3 = 1	4 = 11 5 = 111 ·
	.=V: sector 1,8 ≓.V	Be and a second s
20. SIZE OF 10 DAY OLD SEEDLING GROWN UNDER CONSTANT LIGH (e.g. 0 2) when size is 9 mm. or less.)	Growth Chamber) AT	25° C. (Place a zero in first box - Classic lease Received: Controller (Classic)
MM. LENGTH OF SEEDLING OF COTYLEDON	· · · · · · · · · · · · · · · · · · ·	MM. WIDTH OF.COTYLEDON
21. DISEASE: (Enter 0 =Not Tested; 1 = Susceptible; 2 = Resistant)		
2 BACTERIAL SOYBEAN DOWNY PUSTULE CYST MILDEW	PURPLE STAIN	POD AND STEM BLIGHT
O FROGEYE O STEM PHYTO- O CANKER PHYTO-	BROWN STEM ROT	TARGET BROWN SPOT
0 BLIGHT 2 WILDFIRE 0 RHIZOCTONIA 0	OTHER (Specify)	ан тараалаан алаар жанаан тараалаан алаан тараалаан тараалаан тараалаан тараалаан тараалаан тараалаан тараалаан

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2. INDICATE WHICH V			SEMBLES TH	HATSUBM				occurrence The second se	
CHARACTER		AME OF VAL	RIETY		CHARA		1.14133	NAME OF VAR	IETY
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Leaf shape		odworth	Pagada -	· · · · · · · · · · · · · · · · · · ·	Seed :		6797 <u>4 19</u> 19	Woodworth	2.2.
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VARIETY	NO. OF DAYS		CRLANT HEIGHT	LEAF Width	SIZE Length	CON Protein	Oil	AVERAGE NO. OF PODS PER PLANT	
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ame of similar variety Woodworth	108	2.0	41			¥	e ar		•
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