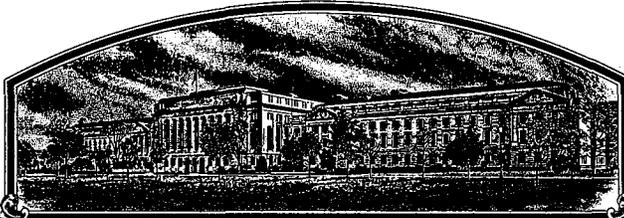


No.

9200087



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, 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 APPLICANT(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 LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (AT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'PHP85'

*In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D.C.
this 30th day of June in
the year of our Lord one thousand nine
hundred and ninety-two.*

Attest:

Kenneth Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madigan
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 242). Information is held confidential until a certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Pioneer Hi-Bred International, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.	3. VARIETY NAME PHP85
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) Plant Breeding Division North America Department of Corn Breeding P.O. Box 85 Johnston, IA 50131-0085		5. PHONE (Include area code) 515/270-3300	FOR OFFICIAL USE ONLY PVPO NUMBER 9200087
6. GENUS AND SPECIES NAME Zea mays	7. FAMILY NAME (Botanical) Gramineae		FILING Date Jan 31, 1992 Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
8. CROP KIND NAME (Common Name) Corn	9. DATE OF DETERMINATION February 1989		FEE Filing and Examination Fee. \$ 2150.00 Date Jan. 31, 1992
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation			RECEIVED Certificate Fee: \$ 250.- Date June 15, 1992
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Iowa	12. DATE OF INCORPORATION May 6, 1926		
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Dr. Bruce D. McBratney Plant Breeding Division Pioneer Hi-Bred International, Inc. P.O. Box 85 Johnston, IA 50131-0085		PHONE (Include area code): 515/270-3546	

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. Exhibit A, Origin and Breeding History of the Variety.
- b. Exhibit B, Novelty Statement.
- c. Exhibit C, Objective Description of Variety
- d. Exhibit D, Additional Description of Variety.
- e. Exhibit E, Statement of the Basis of Applicant's Ownership.
- f. Seed Sample (2,500 viable untreated seeds) Date Seed Sample mailed to Plant Variety Protection Office 1-29-92
- g. Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)
 YES (If "YES," answer items 16 and 17 below) NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
 YES NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
 FOUNDATION REGISTERED CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
 YES (If "YES," through Plant Variety Protection Act Patent Act Give date: _____)
 NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
 YES (If "YES," give names of countries and dates)
 NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s)) Pioneer Hi-Bred International, Inc.	CAPACITY OR TITLE	DATE
SIGNATURE OF APPLICANT (Owner(s)) <i>Bruce D. McBratney</i>	Technical Support Coordinator	1-28-92

14A. Exhibit A. Origin and Breeding History

Pedigree: PHK29/PHW52)X521112135X

Pioneer Line PHP85 Zea mays L., a yellow corn inbred, was developed by Pioneer Hi-Bred International, Inc. from the single cross PHK29 x PHW52 using the pedigree method of breeding. The progenitors of PHP85 are proprietary inbred lines of Pioneer Hi-Bred International, Inc. Selfing and selection were practiced within the above F1 cross for 5 generations in the development of PHP85 at Princeton, Illinois. During line development, crosses were made to inbred testers for the purpose of estimating the line's combining ability. Yield trials were grown at Princeton, Illinois, as well as other Pioneer research stations. After initial testing, additional hybrid combinations have been evaluated and subsequent generations of the line have been grown and hand-pollinated with observations made for uniformity.

JMS
6/15/92
PHP85 has shown uniformity and stability for all traits as described in Exhibit C - "Objective Description of Variety". It has been self-pollinated and ear-rowed a sufficient number⁽⁵⁾ of generations with careful attention paid to uniformity of plant type to assure genetic homozygosity and phenotypic stability. The line has been increased both by hand and in isolated fields with continued observations for uniformity.

No variant traits have been observed or are expected in PHP85.

DEVELOPMENTAL HISTORY FOR PHP85

SEASON/YEAR	INBREEDING LEVEL
Summer 1984	F0 (Cross Made)
Winter 1985	F1
Summer 1986	F2
Winter 1987	F3
Summer 1987	F4
Winter 1988	F5
Summer 1988	F6*
Winter 1989	F7
Summer 1989	F8
Summer 1990	F9
Winter 1991	F10
Summer 1991	F11**

* PHP85 was selfed and selected through F6 generation.

**PHP85 was selfed and ear-rowed from F7 through F11 generations.

14B. Exhibit B. Novelty Statement

PHP85 is most similar to the Pioneer Hi-Bred International, Inc. proprietary inbred line PHT10 (PVP Certification No. 8800214). PHP85 has one ear per stalk but PHT10 has a slight tendency to develop two ears per stalk. PHP85 has darker (dark versus light) green leaves, more (few versus none) marginal leaf waves and more (few versus absent) longitudinal leaf creases than PHT10. PHP85 has fewer (3 versus 11) lateral tassel branches and yellow anthers whereas PHT10 has purple anthers. PHP85 has salmon silk color, PHT10 green silk. PHP85 has a red cob whereas PHT10 has a white cob.

PHP85 has higher yield and grain harvest moisture than PHT10. PHP85 has fewer barren plants and is taller with lower ear placement compared to PHT10. PHP85 has better seedling vigor and a higher early stand count than PHT10. PHP85 and PHT10 silk (GDU silk) similarly but PHP85 sheds (GDU shed) earlier. PHP85 has better stay green and fewer brittle stalks than PHT10.

European Corn Borer-1 Leaf Damage (Pre-flowering): Susceptible
 European Corn Borer-2 (Post-flowering): Susceptible

The above descriptions are based on a scale of 1-9, 1 being highly susceptible, 9 being highly resistant.

S (Susceptible): Would generally represent a score of 1-3.

I (Intermediate): Would generally represent a score of 4-5.

R (Resistant): Would generally represent a score of 6-7.

H (Highly Resistant): Would generally represent a score of 8-9. Highly resistant does not imply the inbred is immune.

J. Variety Most Closely Resembling:

Character	Inbred
Maturity	PHT10
Usage	PHT10

PHT10 (PVP Certificate No. 8800214) is a Pioneer Hi-Bred International, Inc. proprietary inbred.

Data for Items B, C, D, E, F, and G is based primarily on a maximum of four reps from Johnston, Iowa grown in 1990 and 1991, plus description information from the maintaining station.

14D. EXHIBIT D. ADDITIONAL DESCRIPTION OF PHP85.
INBRED PER SE YIELD TEST COMPARISON OF PHP85 AND PH110 EVALUATED OVER THREE YEARS.

VARIETY #1 - PHP85
VARIETY #2 - PH110

* = 10% SIG + = 5% SIG # = 1% SIG

YEAR	VAR #	BU ACR	BU ACR	BU MST	BAR	PLT	FLT	HCM	PLT	HCM	EAR	HCM	ABS	SDG	EST	DRP	GDU	SHD	ABS	GRN	APP	GRN	STA	GRN	LDG	ABS	RT	LDG	ABS	BRT	STK	LDG	ABS	
89	1	72.8	114	23.5	77.5	217.2	85.7	6.2	31.7	1435	1468	4.8	6.5	1453	1465	5.0	4.0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	2	68.5	107	21.3	86.5	209.5	87.0	5.2	33.1	13	13	2	4.0	15	15	4	2	15	15	4	4	2	2	2	2	2	2	2	2	2	2	2	2	
	LOCS	2	2	4	5	4	4	5	7	13	13	2	2	13	13	2	2	13	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	REPS	4	4	6	5	6	6	5	10	15	15	4	2	15	15	4	2	15	15	4	4	2	2	2	2	2	2	2	2	2	2	2	2	
	PROB	.734	.727	.386	.541	.092*	.761	.034+	.442	.186	.847	.795	.126																					
90	1	90.7	126	21.6	94.6	214.1	75.9	6.3	38.3	100.0	1516	1557	7.9	6.6	86.9	97.4	98.1	1516	1557	7.9	6.6	86.9	97.4	98.1	1516	1557	7.9	6.6	86.9	97.4	98.1	1516	1557	
	2	59.9	81	18.9	91.2	201.4	77.2	3.5	35.1	99.5	1555	1587	6.6	3.2	86.5	94.7	79.8	1555	1587	6.6	3.2	86.5	94.7	79.8	1555	1587	6.6	3.2	86.5	94.7	79.8	1555	1587	
	LOCS	13	13	15	10	13	13	19	28	2	18	18	6	13	13	4	4	18	18	6	6	13	13	4	4	18	18	6	13	13	4	4	4	
	REPS	25	25	27	14	27	27	28	67	4	30	30	12	23	25	6	6	30	30	12	12	23	25	6	6	30	30	12	23	25	6	6		
	PROB	.000#	.000	.000#	.329	.000#	.652	.000#	.002#	.500	.000#	.004#	.017+	.000#	.899	.619	.345	.000#	.004#	.017+	.000#	.899	.619	.345	.000#	.899	.619	.345	.000#	.899	.619	.345		
91	1	75.5	126	23.2	86.6	206.1	76.3	5.6	38.3	100.0	1514	1566	5.2	6.2	92.9	94.1	1514	1566	5.2	6.2	92.9	94.1	1514	1566	5.2	6.2	92.9	94.1	1514	1566	5.2	6.2	92.9	94.1
	2	44.9	73	19.7	79.0	203.4	82.4	5.2	38.5	99.4	1531	1569	5.7	3.8	93.6	95.3	1531	1569	5.7	3.8	93.6	95.3	1531	1569	5.7	3.8	93.6	95.3	1531	1569	5.7	3.8	93.6	95.3
	LOCS	12	12	12	19	19	19	14	26	5	22	20	6	10	12	8	8	22	20	6	6	10	12	8	8	22	20	6	10	12	8	8		
	REPS	24	24	24	28	29	29	20	57	10	25	21	12	16	23	15	15	25	21	12	12	16	23	15	15	25	21	12	16	23	15	15		
	PROB	.001#	.002	.000#	.028+	.372	.004#	.260	.872	.213	.057*	.832	.646	.007#	.748	.711		.057*	.832	.646	.007#	.748	.711			.057*	.832	.646	.007#	.748	.711			
TOTAL SUM	1	82.6	125	22.5	87.6	210.2	77.2	6.1	37.6	100.0	1495	1538	6.3	6.4	89.8	95.2	1495	1538	6.3	6.4	89.8	95.2	1495	1538	6.3	6.4	89.8	95.2	1495	1538	6.3	6.4	89.8	95.2
	2	53.9	79	19.5	83.7	203.4	81.1	4.3	36.3	99.4	1520	1549	6.0	3.5	89.9	95.1	1520	1549	6.0	3.5	89.9	95.1	1520	1549	6.0	3.5	89.9	95.1	1520	1549	6.0	3.5	89.9	95.1
	LOCS	27	27	31	34	36	36	38	61	7	53	51	14	25	25	12	12	53	51	14	14	25	25	12	12	53	51	14	14	25	25	12	12	
	REPS	53	53	57	47	62	62	53	134	14	70	66	28	41	48	21	21	70	66	28	28	41	48	21	21	70	66	28	41	48	21	21	21	
	DIFF	28.7	46	3.0	3.9	6.9	3.9	1.7	1.3	0.6	25	11	0.3	2.9	0.1	0.1	18.4	25	11	0.3	2.9	0.1	0.1	0.1	18.4	25	11	0.3	2.9	0.1	0.1	18.4		
	PROB	.000#	.000	.000#	.179	.001#	.015+	.000#	.042+	.105	.000#	.108	.541	.000#	.939	.966	.345	.000#	.108	.541	.000#	.939	.966	.345	.000#	.939	.966	.345	.000#	.939	.966	.345		

∞

DEFINITIONS

In the description and examples, a number of terms are used herein. In order to provide a clear and consistent understanding of the specification and claims, including the scope to be given such terms, the following definitions are provided:

BAR PLT = BARREN PLANTS. This is the percent of plants per plot that were not barren (lack ears).

BRT STK = BRITTLE STALKS. This is a measure of the stalk breakage near the time of pollination, and is an indication of whether a hybrid or inbred would snap or break near the time of flowering under severe winds. Data are presented as percentage of plants that did not snap.

BU ACR = YIELD (BUSHEL/ACRE). Actual yield of the grain at harvest adjusted to 15.5% moisture. ABS is in absolute terms and % MN is percent of the mean for the experiments in which the hybrid or inbred was grown.

DRP EAR = DROPPED EARS. This is a measure of the number of dropped ears per plot and represents the percentage of plants that did not drop ears prior to harvest.

EAR HCM = EAR HEIGHT. The ear height is a measure from the ground to the top developed ear node attachment and is measured in centimeters.

EST CNT = EARLY STAND COUNT. This is a measure of the stand establishment in the spring and represents the number of plants that emerge on a per plot basis for the hybrid or inbred.

GDU SHD = GDU TO SHED. The number of growing degree units (GDUs) or heat units required for an inbred line or hybrid to have approximately 50 percent of the plants shedding pollen and is measured from the time of planting. Growing degree units are calculated by the Barger Method, where the heat units for a 24-hour period are:

$$\text{GDU} = \frac{(\text{Max. temp.} + \text{Min. temp.})}{2} - 50$$

The highest maximum temperature used is 86°F and the lowest minimum temperature used is 50°F. For each inbred or hybrid it takes a certain number of GDUs to reach various stages of plant development.

GDU SLK = GDU TO SILK. The number of growing degree units required for an inbred line or hybrid to have approximately 50 percent of the plants with silk emergence from time of planting. Growing degree units are calculated by the Barger Method as given in GDU SHD definition.

GRN APP. = GRAIN APPEARANCE. This is a 1 to 9 rating for the general quality of the shelled grain as it is harvested based on such factors as the color of the harvested grain, any mold on the grain, and any cracked grain. High scores indicate good grain quality and low scores indicate poor grain quality.

MST = HARVEST MOISTURE. The moisture is the actual percentage moisture of the grain at harvest.

PLT HCM = PLANT HEIGHT. This is a measure of the height of the plant from the ground to the tip of the tassel in centimeters.

RT LDG = ROOT LODGING. Root lodging is the percentage of plants that do not root lodge; plants that lean from the vertical axis at an approximately 30° angle or greater would be counted as root lodged.

SDG VGR = SEEDLING VIGOR. This is the visual rating (1 to 9) of the amount of vegetative growth after emergence at the seedling stage (approximately five leaves). A higher score indicates better vigor and a low score indicates poorer vigor.

STA GRN = STAY GREEN. Stay green is the measure of plant health near the time of black layer formation (physiological maturity). A high score indicates better late-season plant health.

STK LDG = STALK LODGING. This is the percentage of plants that did not stalk lodge (stalk breakage) as measured by either natural lodging or pushing the stalks and determining the percentage of plants that break below the ear.

TST WT = TEST WEIGHT UNADJUSTED. The measure of weight of the grain in pounds for a given volume (bushel).

CLARIFICATION OF DATA IN EXHIBITS C AND D

Please note the data presented in Exhibit C, "Objective Description of Variety," is data collected primarily at Johnston, Iowa plus description information from the maintaining station. The data in Exhibit D, "Additional Description of Variety," is data from comparisons of inbreds grown in the same tests in the adapted growing area of PHP85.

14E. EXHIBIT E. Statement of the Basis of Applicant's Ownership

Pioneer Hi-Bred International, Inc., Des Moines, Iowa, is the employer of the plant breeders involved in the development and evaluation of PHP85. Pioneer Hi-Bred International, Inc. has the sole rights and ownership of PHP85.