No. 8700029

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 TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'2385'

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* 29th *day of* July *in the year of our Lord one thousand nine hundred and* eighty-eight.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

APPROVAL EXPIRES 2-28-88

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. Pioneer Hi-Bred International, Inc.
Plant Breeding Division
Dept. of Cereal Seed Breeding

2. TEMPORARY DESIGNATION: XW341

3. VARIETY NAME: 2385

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
P.O. Box 426
Windfall, IN 46076

5. PHONE *(Include area code)*: 317-945-7906

FOR OFFICIAL USE ONLY

PVPO NUMBER: 8700029

6. GENUS AND SPECIES NAME: Triticum aestivum L.

7. FAMILY NAME *(Botanical)*: Graminae

FILING
DATE: December 15, 1986
TIME: 2:00 ☐ A.M. ☑ P.M.

8. KIND NAME: Wheat

9. DATE OF DETERMINATION: October 1983

FEES RECEIVED
AMOUNT FOR FILING: $ 1800.00
DATE: December 2, 1986
AMOUNT FOR CERTIFICATE: $ 200.00
DATE: June 20, 1988

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION: Iowa

12. DATE OF INCORPORATION: May 1926

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. Mark Iwig
Pioneer Hi-Bred International, Inc.
P.O. Box 426
Windfall, IN 46076
PHONE *(Include area code)*: 317-945-7906

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
- a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- b. ☒ Exhibit B, Novelty Statement.
- c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
- d. ☒ Exhibit D, Additional Description of Variety.
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

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

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," give date)* ☒ No

19. HAS THE VARIETY BEEN RELEASED, 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: Mark M. Iwig — DATE: 11/26/86

SIGNATURE OF APPLICANT — DATE:

FORM LS-470 (3-86) *Edition of 7-84 obsolete.*

14a. Exhibit A, Origin and Breeding History of 2385 Hard Red Spring Wheat.

2385 was developed by Pioneer Hi-Bred International, Inc. The abbreviated parentage of 2385 is Dekalb Tala/W7735. W7735 is a Pioneer developed line with the pedigree Lark/3/Crim// Tzpp/Son. 64.

The procedure used to develop 2385 from the time of the final cross was as follows:

1979 - F_1 generation.

1980 - F_2 generation. Single heads selected at Yuma, Arizona.

1980 - F_3 generation. Headrows from Yuma single head selections were planted at Glyndon, Minnesota. Single head selections were taken from selected rows.

1980-81 - F_4 generation. Single head selections from each selected row were grown at Yuma. Individual rows were selected and cut separately in bulk.

1981 - F_5 generation. Selected bulk rows from Yuma were grown in a screening yield test at Glyndon. The selection, later to be 2385, was given the experimental number SBY073B.

1982 - F_6 generation. Planted at Glyndon and four off-station testing locations in preliminary yield tests.

1983 - F_7 generation. Grown in first year elite tests at Glyndon and 13 off-station testing sites and in small increase block at Glyndon. Two hundred (200) heads were selected from the increase block for purification.

1983-84 - F_8 generation. Two hundred headrows from individual heads were grown at Yuma. Off-type rows were discarded and the remainder were cut as single row bulks and sent to Glyndon.

1984 - F_8 generation was grown in second year elite tests at Glyndon and 15 off-station testing sites. Quality evaluations were done at the Pioneer Quality Lab and at the North Dakota

14a. Exhibit A (cont.)

State University Quality Lab in the Department of Cereal Chemistry and Technology. The experimental designation YW341 was assigned.

- F_9 generation. Twenty-six purity plots were grown at Glyndon from Yuma single row bulks. Agronomics, disease, and percent protein data were recorded. Fifty heads from each of the best two plots were sent to Yuma as individual headrows. Seed from the two selected plots was sent to the Pioneer Lab at Johnston, Iowa, for electrophoretic assay of gliaden and glutenin proteins.

1984-85 - F_{10} generation. Fifty heads from each of the two best plots at Glyndon were grown at Yuma. Based on electrophoretic assay, the purest selection was selected to be advanced. Off-type rows were discarded and the rest of the rows were cut as single row bulks and sent to Glyndon. A small breeder seed increase of the F_{10} bulk was also grown at Yuma.

1985 - F_{10} generation was grown in the third year elite tests at Glyndon and 14 off-station test sites. Quality evaluations were done at the Pioneer Quality Lab and also at the North Dakota State University Quality Lab in the Department of Cereal Chemistry and Technology. The experimental designation XW341 was assigned.

- F_{11} generation. A two acre breeder seed increase was grown at Kragnes, Minnesota. Individual plots from the Yuma single row bulks were planted with the bulk increase.

1985-86 - F_{12} generation. A five acre parent seed increase was grown at Yuma.

1986 - F_{12} generation was grown in fourth year elite tests at Glyndon and 16 off-station locations.

- F_{13} generation. A 210 acre parent seed increase was grown near Moorhead, Minnesota. Quality evaluations were conducted at the Pioneer Quality Lab and for the third year by the North Dakota State University Quality Lab. The commercial number 2385 was assigned, with the sale

14a. Exhibit A (cont.)

of commercial seed projected for the fall of 1987 and planting in the spring of 1988.

2385 has shown very good uniformity and stability for all traits as described in Exhibit C. It is moderately insensitive to short photoperiods (Table 1). Taller, photoperiod sensitive variants may be found at a frequency of about 1 in 25,000 plants. Breeder seed is being maintained at the Glyndon Cereal Seed Research Station.

14b. Exhibit B, Novelty Statement.

Exhibits C and D provide information that should aid in identifying 2385. In Item 20 of Exhibit C, 2369 is cited as the variety that most closely resembles 2385. The following characters would clearly differentiate 2385 from 2369:

1. On the average, 2385 is three days earlier in heading and one day earlier in physiologic maturity than 2369.

2. 2385 is about 5 cm. taller than 2369.

3. 2385 is resistant to local races of leaf rust while 2369 is moderately susceptible.

Also resembling 2385 in some characters are Butte and Guard. Characters clearly differentiating 2385 from Butte are:

1. 2385 is about 6 cm. shorter than Butte.

2. 2385 is resistant to local races of leaf rust while Butte is susceptible.

3. 2385 is white chaffed while Butte is brown chaffed.

Characters clearly differentiating 2385 from Guard are:

1. 2385 is about 5 cm. taller than Guard.

2. 2385 is susceptible to the Great Plains race of Hessian fly while Guard is resistant.

3. 2385 is about one day earlier heading than Guard.

2385 has shown uniformity and stability for all traits as described in Exhibit C (Form GR470-6), "Objective Description of Variety." Taller, short photoperiod sensitive variants may be observed at a frequency of about 1 in 25,000 plants.

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT *(TRITICUM SPP.)*

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Pioneer Hi-Bred International, Inc.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
Plant Breeding Division
Dept. of Cereal Seed Breeding
P.O. Box 426
Windfall, Indiana 46076

FOR OFFICIAL USE ONLY
PVPO NUMBER 8700029
VARIETY NAME OR TEMPORARY DESIGNATION 2385

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[1] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____

[2] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____

[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

[0][5][5] FIRST FLOWERING

[0][5][8] LAST FLOWERING

4. MATURITY *(50% Flowering)*:

[0][5] NO. OF DAYS *EARLIER* THAN .....

[ ][ ] NO. OF DAYS *LATER* THAN .....

[3] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT *(From soil level to top of head)*:

[0][8][5] CM. HIGH

[ ][ ] CM. TALLER THAN .....

[1][0] CM. SHORTER THAN .....

[3] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING *(See reverse)*:

[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

8. STEM:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[0][3] NO. OF NODES *(Originating from node above ground)*

[1] Waxy bloom: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[2][5] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

[2] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[0][9] MM. LEAF WIDTH *(First leaf below flag leaf)*

[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[2][1] CM. LEAF LENGTH *(First leaf below flag leaf)*:

FORM LPGS-470-6 (3-79) (Formerly Form GR-470-6 (2-73), which may be used)

8700029

11. HEAD:

[2] Density: 1 = LAX 2 = DENSE

[4] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) Oblong

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[2] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[0 6] CM. LENGTH

[1 3] MM. WIDTH

12. GLUMES AT MATURITY:

[2] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[2] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[4] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[2] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[3] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[4] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[0 6] MM. LENGTH

[0 3] MM. WIDTH

[3 0] GM. PER 1000 SEEDS

17. SEED CREASE:

[2] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI' Mid-wide

[2] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI' Mid-deep

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST (Races) 15 TNM,TLM 151 QSH,QFB

[2] LEAF RUST (Races) Local Races

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[0] POWDERY MILDEW

[0] BUNT

[2] OTHER (Specify) Pyrenophora tritici-repentis (Tan spot)

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID (Rydv.)

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[ ] OTHER (Specify) _____

HESSIAN FLY RACES:

[1] GP [0] A [0] B [0] C

[0] D [0] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Guard	Seed size	Pioneer Cultivar 2369
Leaf size	Pioneer Cultivar 2369	Seed shape	Pioneer Cultivar 2369
Leaf color	Butte	Coleoptile elongation	Pioneer Cultivar 2369
Leaf carriage	Pioneer Cultivar 2369	Seedling pigmentation	Pioneer Cultivar 2369

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 38 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

RECEIVED USDA AMS DEC 2 1986 Plant Variety Protection Ofc.

14d. Exhibit D, Additional Description of Variety.

2385 is a common Hard Red Spring Wheat, Triticum aestivum L.

Over the three year period 1984-1986 at Glyndon, Minnesota, 2385 averaged three days earlier from planting to first flowering than 2369 (60.1 vs. 63.5 days) and five days earlier than Marshall (60.1 vs. 65.0 days) (Table 2). The corresponding days from planting to physiologic maturity were 95.8, 97.0, and 98.4 days for 2385, 2369, and Marshall, respectively.

2385 is a semidwarf variety with an average height of 85 cm., about 5 cm. taller than 2369 and 6 cm. shorter than Butte.

At boot stage the plant color of 2385 is green and anthocyanin is not present in the stems. No waxy bloom is present on the stems at late boot stage. Auricles are glabrous and no anthocyanin is present. Anther color is yellow. Internodes of 2385 are hollow, stems are strong and yellow at harvest. Normally three nodes are present above ground and the internode between the flag leaf and the leaf below averages 25 cm.

Leaves are green at the booting stage and the flag leaf is recurved and twisted. There is no waxy bloom on the flag leaf sheath and hairs on the first leaf sheath are absent. The first leaf below the flag leaf averages 9 mm. wide and 21 cm. long.

Heads are mid-dense, oblong, awned, yellow, and average 6 cm. in length and 13 mm. in width. Glumes at maturity are of medium length and medium width with square shoulders and the beak is acute.

Coleoptile color is white and seedling anthocyanin is absent. Juvenile growth habit is erect.

Kernels are red in color, ovate in shape with rounded cheeks, and a mid-deep crease. Seeds average 6 mm. long, 3 mm. wide and have a 1000 kernel weight of about 30 grams. The brush is medium and not collared. Phenol reaction is brown.

14d. Exhibit D (cont.)

2385 is resistant to the major stem rust races but will periodically show a tR-5MS reaction, possibly due to one of the race 151 strains. It is resistant to the local races of leaf rust and has excellent tolerance to tan spot (*Pyrenophora tritici-repentis*). It has also shown field tolerance to bacterial leaf blight (*Xanthomonas translucens* f. sp. *undulosa*). 2385 has not been tested for loose smut resistance but shows good field tolerance. It has not been tested for powdery mildew, bunt, or stripe rust resistance.

2385 is susceptible to the Great Plains race of Hessian fly and has not been tested for sawfly, aphids, greenbugs, or cereal leaf beetle, although it is assumed to be susceptible to all of these.

2385 has a very good yield record when compared with the current commercial hard red spring wheat varieties (Table 2). It is well adapted over a wide range of environments and offers the advantages of early heading and maturity, very good leaf rust, stem rust, and leaf blight resistance or tolerance, and good straw strength.

2385 has satisfactory milling and baking characteristics. Flour yield and water absorption are better than 2369 and better than or equal to Len. Grain and flour protein are higher than 2369 but lower than Len. Loaf volume is lower than Len but better than 2369, and dough and loaf characteristics are adequate. These data are provided in Tables 3 and 4.

Table 1. Classification of 2385 and standard HRS wheat varieties for photoperiod response based on the effects of a five-hour night interruption by a field lighting system at Yuma, Arizona, 1984-85 and 1985-86.

Variety	Delay (Days) Due to Absence of Lights* 50% Heading	Phys. Maturity
	1984-85	
2385	5	7
2369	6	4
Waldron	21	12
Olaf	23	17
Era	19	16
	1985-86	
2385	10	12
2369	6	4
Waldron	34	22
Era	36	18
Olaf	34	25
Butte	12	12
Guard	18	11

* Night interruption commenced three weeks after seeding.

- Simulated "long day" = 5 hours of illumination, 9:30 p.m.-2:30 a.m.
- Short day = no lights, about a 12 hour normal day length.

Table 2. Performance of 2385 and standard varieties grown in elite yield tests for 46 location-years during the period 1984-1986.

Variety	Days to 50% Head*	Days to Maturity*	Height Cm	Lodging Score*	Yield - Bu/Acre Region I**	Yield - Bu/Acre Region II**	Test Wt. (Lbs/Bu)	Harvest Moist (%)	Leaf Rust	Stem Rust	Leaf Blight*
2385	60.1	95.8	85	7.8	71.2	56.5	57.9	13.9	R	R	5.1
2369	63.5	97.0	80	7.3	70.0	57.6	57.9	14.4	MS	R	5.0
Marshall	65.0	98.4	78	8.0	73.1	57.5	56.6	14.7	MR-MS	R	5.5
Butte	60.9	95.8	91	6.9	64.4	54.4	56.9	13.9	MS-S	R	3.6
Len	64.6	98.2	82	7.8	67.1	52.9	56.4	14.2	R-MR	R	5.0

* Number of days from planting to 50% heading.
Number of days from planting to physiologic maturity.
Scale of 1-9 where 9 = excellent and 1 = poor.

** Region I: Minnesota and Red River Valley locations in North Dakota.
Region II: Locations west of the Red River Valley in North Dakota and South Dakota.

8700029

Table 3. Results of quality testing of 2385 by Pioneer Quality Laboratory, 1984-1985.

Variety	TKW (grams)	Grain Protein (%)	Flour Protein (%)	Flour Yield (%)	Water Abs. (%)	Loaf Volume (cc)	Mix* Time	Mixing* Tolerance
2385	30.7	16.1	13.5	71.6	63.7	70.6	3.6	3.7
2369	32.0	16.0	13.3	70.9	62.7	71.3	5.8	8.2
Marshall	28.3	15.6	13.0	70.4	62.2	69.8	3.3	2.8
Butte	30.3	15.9	13.3	70.3	63.0	69.1	3.1	3.2
Len	31.6	16.9	13.9	69.7	63.9	77.4	4.2	6.4

* Mix time and mixing tolerance were determined with a mixograph. Time = minutes; tolerance = scale of 1-9 where 3-7 is satisfactory.

Notes: 1. Data are averages of 1984 and 1985.
2. Quality tests were conducted on 15 location composite samples in 1984 and 14 location composite samples in 1985.

87000029

Table 4. Results of quality testing of 2385 by North Dakota State University, Fargo, North Dakota, 1984-1986.

Variety	Test Wt. (Lb/Bu)	Grain Pro. (%)	Flour Pro. (%)	Flour Yield (%)	Ash (%)	Water Abs. (%)	Loaf Vol. (cc)	Grain* Text.	Crumb* Color	Farin.** Class	Peak+ Time	Mix+ Tol.	MTI++
2385	59.8	14.6	13.6	70.3	.45	66.7	914	8.2	8.7	7.0	11.8	14.2	13
2369	59.8	13.9	13.2	69.5	.46	61.0	903	8.2	8.5	6.0	8.2	13.5	17
Len	59.4	15.0	14.2	69.2	.49	65.9	1007	8.3	7.5	6.3	10.0	12.2	25

* Score of 1-10 with higher number more desirable.
** Score of 1-8 with 5-8 considered satisfactory.
\+ Peak time and mix tolerance were determined with a farinograph. Time = minutes, tolerance = time in mnutes that curve remains horizontal.
++ Relatively low value more desirable.

Notes: 1. Data are 1984 and 1985 averages.
2. A 15 location composite was used in 1984 and a 14 location composite was used in 1985.

87000029

14e. Exhibit E, Statement of the Basis of Applicant's Ownership.

Pioneer Hi-Bred International, Inc., Plant Breeding Division, believes it is the sole, original and first breeder of the 2385 variety of hard red spring wheat for which it solicits a certificate of protection.