No. 7500005

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Northrup, King and Company

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 seventeen 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, OR 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. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS ALLOWED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Prodax'

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 *this* 30th *day of* June *in the year of our Lord one thousand nine hundred and* seventy-five

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION Prodax	2. KIND NAME Common Wheat	FOR OFFICIAL USE ONLY PV NUMBER 7500005
3. GENUS AND SPECIES NAME Triticum aestivum	4. FAMILY NAME *(Botanical)* Gramineae	FILING DATE 7·26·74 / TIME 9 A.M.
	5. DATE OF DETERMINATION October 1973	FEE RECEIVED $250.00 / BALANCE DUE $ —
		$250.00 / $ —
		$250.00 / $ —
6. NAME OF APPLICANT(S) Northrup, King & Co.	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* 1500 Jackson Street N.E. Minneapolis, Minnesota 55413	8. TELEPHONE AREA CODE AND NUMBER 612-781-8011

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Minnesota	1896

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Allenby L. White
Northrup, King & Co.
P. O. Box 959
Minneapolis, Minnesota 55440

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

[X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

[X] 13B. Exhibit B, Botanical Description of the Variety

[X] 13C. Exhibit C, Objective Description of the Variety

[X] 13D. Exhibit D, Data Indicative of Novelty

[X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. 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). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED [X] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes 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 is informed that false representation herein can jeopardize protection and result in penalties.

July 11, 1974
(DATE)

Allenby L. White
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (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 self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

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1/12

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APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

EXHIBIT A

Origin and Breeding History of the Variety

Prodax was developed by hybridization and individual plant selection from the cross Calidad/Robin or:

Tezanos Pinto Precoz/Sonora 64/3/Lerma Rojo 64/Tezanos Pinto Predoz//Andes dwarf/4/2* Jaral//Mengavi/8156.

The pedigree of Prodax is II 30484-11I-3L-1I-1A-0I.

The cross Calidad/Robin was made in Mexico at the International Maize and Wheat Improvement Center followed by individual plant selection by Northrup, King & Co. in each of the F2 through F5 generations. Specifically, selections were made in the F2 generation at Orange County, California in the fall of 1969; in the F3 generation at Los Mochis, Mexico the following spring; in the F4 at Orange County, California in the fall of 1970; and in the F5 at Yuma, Arizona in the spring of 1971. The F6 selection was grown in Orange County, California in the summer of 1971. The F7 seed from this F6 row was harvested in bulk for trials and further increase. Prodax has been maintained subsequently as a pure-line.

Individual head selections for the establishment of a maintenance breeding program were first made in the pure-line increase grown at Yuma, Arizona in the 1972-73 season. These selections were grown as individual head-rows at Twin Falls, Idaho in the summer of 1972 and subsequently as individual head-row blocks at Yuma, Arizona in the 1973-74 season. Excellent uniformity was observed within and between selections at both locations. This suggests that Prodax exhibits little outcrossing and has good stability.

No describable or characteristic variants of the variety have been noted during reproduction and multiplication.

Application for review by the Small Grain Variety Review Board was submitted on May 31, 1974.

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EXHIBIT B

Botanical Description

The kernels of Prodax are free-threshing, mid-long, hard, red, and ovate. The cheeks are rounded with a deep, narrow crease. The brush is long and not collared. The phenol reaction of the pericarp is brown.

The coleoptile is white and seedling anthocyanine is absent. Juvenile growth habit is erect. Plant color at booting is blue-green. The flag leaf at booting is recurved and not twisted. Waxy bloom is present on the flag leaf sheaths and on the peduncle. Leaf blades and sheaths are not hairy. The auricles are not hairy and have no anthocyanine. The stem is hollow. Usually three stem-nodes originate from the node above ground. The lower rachis internode is hairy.

The spike is fully awned, oblong, lax, and inclined. Glumes are glabrous, white, long, and wide, with a well defined keel. Shoulders are elevated. Beaks are acuminate. The awns are white. The anthers are yellow.

Prodax is of spring growth habit. It is well adapted to the southwestern, northwestern and northcentral spring wheat areas of the United States. Prodax is a mid-season variety in Arizona and California with a maturity slightly later than that of Cajeme. In the northwest, Prodax matures slightly later than the spring wheat varieties Protor and Prospur. In the midwest, Prodax has a maturity equal to or slightly earlier than Era.

Prodax is a short wheat slightly taller than Cajeme in Arizona and California, slightly shorter than Prospur in the northwest, and slightly shorter than Era in the northcentral region. The stems are strong and resistance to lodging is good. Prodax combines good resistance to shattering with good threshability.

Prodax is resistant to the race(s) of *Puccinia striiformis* Westend. prevalent in the Sacramento Valley of California in 1973; however, it is susceptible to the race which is avirulent for Chinese 166, Heine VII, Moro, Suwon 92/Omar, and Riebesel 4751, and virulent for Lemhi and Druchamp. This race was detected in the Sacramento Valley in 1973 and was prevalent there in 1974. Prodax is resistant in the field to the races of *P. recondita* f. sp. *tritici* Rob. ex Desm. prevalent in the northcentral and northwestern regions in 1973. Prodax also is resistant in the field to the races of *P. graminis* f. sp. *tritici* Eriks. & Henn. common in the northcentral region in 1973. Prodax has seedling resistance to the following races of *P. graminis* f. sp. *tritici*:

BBC	GHC	RSC
BCC	HFC	RHR
BCB	TBM	RHM
BFC	TNM	RCB
LBC	TMR	HDB
MBC	TDM	TLM
LCL	SBC	QCC
LFC	RKQ	QFB
MCB	RPL	MBC
HJC	RTO	RPL

and seedling susceptibility to races QSH, QTH, and QSC.

These race designations are based on the Cereal Rust Laboratory 1973 differentials which consist of:

Set 1	Set 2	Set 3
Sr 5	Sr 11	Sr Tt-1
Sr 9d	Sr 6	Sr 9b
Sr 9e	Sr 8	Sr 13
Sr 7b	Sr 9a	Sr 10

The measurement data in the objective description form are based on a date of emergence of December 10, 1973 at Yuma, Arizona from a seeding rate of 80/Kg/Ha with adequate irrigation and good fertilization.

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-6 (10-16-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (*TRITICUM - SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S): Northrup, King & Co.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*): 1500 Jackson Street N.E.
Minneapolis, Minnesota 55413

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7500005 RHE

VARIETY NAME OR TEMPORARY DESIGNATION: Prodax

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:

1 0 3 FIRST FLOWERING

1 1 2 LAST FLOWERING

4. MATURITY (50% Flowering):

0 2 NO. OF DAYS *EARLIER* THAN .....

0 0 NO. OF DAYS *LATER* THAN .....

7 — 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Siete Cerros 8=Cajeme

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

1 0 4 CM. HIGH

0 9 CM. TALLER THAN .....

0 4 CM. SHORTER THAN .....

8 — 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Siete Cerros 8=Cajeme

7

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

3 — 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

1 — 1 = YELLOW 2 = PURPLE

8. STEM:

1 — Anthocyanin: 1 = ABSENT 2 = PRESENT

1 — Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

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

2 — Waxy bloom: 1 = ABSENT 2 = PRESENT

1 — Internodes: 1 = HOLLOW 2 = SOLID

2 3 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

1 5 MM. LEAF WIDTH (*First leaf below flag leaf*)

1 — Flag leaf: 1 = NOT TWISTED 2 = TWISTED

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

3 5 CM. LEAF LENGTH (*First leaf below flag leaf*):

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NORTHRUP, KING & CO.
1500 JACKSON ST., N.E., MINNEAPOLIS, MINN. 55413

EXHIBIT D

Data Indicative of Novelty

Prodax is most similar to Cajeme. However, it is from 4 to 16 cms. taller than Cajeme. It heads at about the same time as Cajeme but takes 3 to 5 days longer to ripen. The glumes of Prodax have a prominent curved keel from the base of the glume to its apex, whereas Cajeme does not have this character. Prodax has a more pronounced blue-green color at the boot stage than Cajeme. In 1973, Prodax was resistant to the races of leaf rust prevalent in the Midwest, whereas Cajeme was susceptible.

Comparisons of Prodax and Cajeme in 1974

Location	Height in CM			Date of Heading			Relative Maturity	
	Prodax	Cajeme	Difference	Prodax	Cajeme	Difference in Days	Prodax	Cajeme
Yuma, Az.	104	95	9	80	80	0	Late	Semi-early
Phoenix, Az.	107	93	14	99	98	1	-	-
Holtville, Ca.	-	-	-	84	84	0	-	-
Bakersfield, Ca.	112	96	16	-	-	-	-	-
Woodland, Ca.	96	82	14	108	106	2	-	-
Tulelake, Ca.	88	74	14	-	-	-	-	-
Othello, Wa.	86	82	4	164	162	2	-	-

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Table 1. Comparative yields of Prodax and local check in small-plot trials

Location and Year	Check Variety	Yield of Check	Yield of Prodax	LSD .05	Trial C. V.
		Kg/Ha	Kg/Ha	Kg/Ha	
Yuma, Arizona					
1972	Cajeme	6646	7076	402	5.8
1973	Cajeme	5071	5838	954	8.4
Average		5858	6457		
Woodland, California					
1972	Cajeme	8288	8774	951	15.6
1973	Cajeme	5220	5276	660	8.1
Average		6754	7025		
Twin Falls, Idaho					
1972	Protor	5686	6302	897	16.2
1973	Protor	4562	5815	900	10.9
Average		5124	6058		
Othello, Washington					
1973	Protor	5737	6025	1325	18.9
Moorhead, Minnesota					
1972	Era	3973	4273	628	13.1
1973	Era	5049	4762	682	10.0
Average		4511	4518		

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FORM GR-470-6 (REVERSE)

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE

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

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

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

[1 4] CM. LENGTH

[2 4] MM. WIDTH

12. GLUMES AT MATURITY:

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

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

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

[3] 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

[3] 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)* _____

[7 0] MM. LENGTH

[3 5] MM. WIDTH

[0 4] GM. PER 100 SEEDS

17. SEED CREASE:

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

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

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

[2] STEM RUST *(Races)* 15B-2

[2] LEAF RUST *(Races)* ~~Not specified~~

[1] STRIPE RUST *(Races)* 1973 ~~2,3,4,5,7/1,~~ 6

[0] LOOSE SMUT

[0] POWDERY MILDEW

[0] BUNT

[ ] OTHER *(Specify)* _____

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

[0] SAWFLY

[0] APHID *(Bydv.)*

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[ ] OTHER *(Specify)* _____

HESSIAN FLY RACES: [ ] GP [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Cajeme	Seed size	Cajeme
Leaf size	Siete Cerros	Seed shape	Cajeme
Leaf color	Cajeme	Coleoptile elongation	
Leaf carriage	Cajeme	Seedling pigmentation	

* Letter of Sept. 13, 1974.

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. 28 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.

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Table 2. Representative quality characteristics of Prodax, World Seeds 1809, and Era spring wheats

Characteristic	Moorhead, Minnesota 1972		
	Prodax	WS 1809	Era
Test Weight	60.0	60.5	61.0
Protein	16.10	15.95	13.90
Extraction %	67.0	68.3	69.9
Farinograph Absorption	64.0	62.0	60.0
Farinograph Peak	8.25	9.00	6.25
Farinograph Stability	14.00	19.50	9.50
Farinograph M T I	20	20	45
Farinograph Val	71	75	63
Alveograph P/G	2.1	3.8	2.9
Alveograph W	342	196	188
Flour Ash	0.413	0.367	0.405
Flour Protein	14.85	14.75	12.80
Bake Absorption	67.0	64.5	63.0
Mixing Time	4.50	4.75	4.25
Dough Characteristics	6	5	5
Loaf Volume	925 G-	925 G-	815 F
Loaf Grain	5 G-	5 G-	4 F
Loaf Texture	5 G-	5 G-	4 F
Crumb Color	97 Cr	97 Sl Dull	96 Sl Dull
Bake Score	29 G-	29 G-	23 F
Total Score	60 G-	58 G-	47 F

G = Good
F = Fair
Cr = Creamy
Sl = Slightly

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Table 2. Continued

Characteristic	Moorhead, Minnesota 1973		
	Prodax	WS 1809	Era
Test Weight	57.5	60.5	61.5
Protein	16.80	16.40	13.90
Extraction %	67.6	66.3	70.5
Farinograph Absorption	60.0	61.0	59.5
Farinograph Peak	9.00	7.75	6.25
Farinograph Stability	14.00	18.00	13.00
Farinograph M T I	35	20	35
Farinograph Val	75	70	67
Alveograph P/G	1.8	2.7	2.3
Alveograph W	341	453	246
Flour Ash	0.400	0.325	0.378
Flour Protein	15.60	15.10	12.90
Bake Absorption	63.0	64.0	62.0
Mixing Time	4.75	4.50	3.75
Dough Characteristics	6	6	6
Loaf Volume	1000 VG	1000 VG	1000 VG
Loaf Grain	6 G	6 G	5 G-
Loaf Texture	6 G	6 G	5 G-
Crumb Color	97 Cr	97 Cr	97 Cr
Bake Score	34 G+	33 G+	30 G-
Total Score	63 G	60 G-	57 G-

VG = Very good
G = Good
Cr = Creamy

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EXHIBIT E

Statement of the Basis of Applicant's Ownership

Ownership is predicated upon selection within each of the F2 through F5 generations followed by testing and evaluation of the pure-line maintained since the F6 generation.

Northrup, King & Co. is the sole, original and first breeder of the Prodax variety of wheat as a result of rigorous selection pressure applied to the original Calidad/Robin cross within each of the F2 through F5 generations. The new pure-line selection was fixed in the F6 generation.

ASSIGNMENT OF UNITED STATES PLANT VARIETY PROTECTION CERTIFICATES

In consideration of One Dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Northrup King Co., a Delaware corporation having an office at 1500 Jackson Street N.E., Minneapolis, Minnesota 55413, does hereby sell, assign, transfer and convey to Rohm and Haas Seeds Inc., a Delaware corporation, Independence Mall West, Philadelphia, Pennsylvania 19105, the entire right, title and interest in and to the following United States Plant Variety Protection Certificates together with all the rights described and claimed therein:

Certificate Number	Variety	Date Issued
7500005	Prodax	June 30, 1975
7800010	Solar	March 29, 1979
8200002	Walera	June 17, 1982
8100013	711	December 10, 1981
	715	Applied for in 1983
8200033	817	June 17, 1982
8200094	830	September 23, 1982
8200006	835	March 11, 1982
7200038	McNair 701	February 26, 1974
7700084	McNair 1003	August 10, 1978
7500006	McNair 1813	May 1, 1975
7200037	McNair 4823	April 8, 1975
	RHS 8232	Applied for in 1984

the same to be held and enjoyed by said Rohm and Haas Seeds Inc. for its own use and benefit, and for the use and benefit of its successors, assigns or other legal representatives, for the full term or terms for which said Certificates are or may be granted or reissued, as fully and entirely as the same would have been held and

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ASSIGNMENT

WHEREAS, Rohm and Haas Seeds Inc., a Delaware corporation, with its principal offices at Independence Mall West, Philadelphia, Pennsylvania 19105 ("Rohm and Haas Seeds"), is the owner of the entire right, title and interest to the following varieties, U.S. Plant Variety Certificates and applications therefore:

Variety	Certificate No.	Grant Date
Prodax	7500005	06/30/75
Solar	7800010	03/29/79
711	8100013	12/10/81
Walera	8200002	06/17/82
715	8300068	01/31/86
835	8200006	03/11/82
817	8200033	06/17/82
830	8200094	09/23/82
Norak	8500105	03/11/88

	Application No.	Filing Date
Bighorn	8500109	04/12/85
Pony	8500107	04/12/85
Rodeo	8500106	04/12/85

WHEREAS, HybriTech Seed International, Inc., a Delaware corporation and wholly-owned subsidiary of Monsanto Company, with its principal offices at 800 North Lindbergh Boulevard, St. Louis, Missouri 63167 ("HybriTech") is desirous of acquiring the entire interest in the aforementioned varieties, certificates and applications;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Rohm and Haas Seeds does hereby sell, assign and transfer unto HybriTech, the entire right, title and interest in and to the varieties, certificates and applications for its use and benefit and for its successors and assigns.

IN TESTIMONY WHEREOF, Rohm and Haas Seeds intending to be legally bound has caused this assignment to be executed by its duly authorized officer.

ROHM AND HAAS SEEDS INC.

By Howard C. Mayhew Jr.

Title Vice President

COMMONWEALTH OF PENNSYLVANIA)
) SS
COUNTY OF PHILADELPHIA)

On this 25 day of July, 1988, before me appeared Howard A. Mergelkamp Jr of Rohm and Haas Seeds Inc., the person who signed this instrument, who acknowledged that he signed it as a free act on behalf of Rohm and Haas Seeds, Inc. with authority to do so.

Elaine Sherman
Notary Public

ELAINE SHERMAN
Notary Public, Phila., Phila. Co.
My Commission Expires June 1, 1992

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Plant Variety
Protection Ofc

(375R/371R)

ASSIGNMENT OF UNITED STATES PLANT VARIETY PROTECTION CERTIFICATES

In consideration of One Dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Northrup King Co., a Delaware corporation having an office at 1500 Jackson Street N.E., Minneapolis, Minnesota 55413, does hereby sell, assign, transfer and convey to Rohm and Haas Seeds Inc., a Delaware corporation, Independence Mall West, Philadelphia, Pennsylvania 19105, the entire right, title and interest in and to the following United States Plant Variety Protection Certificates together with all the rights described and claimed therein:

Certificate Number	Variety	Date Issued
7500005	Prodax	June 30, 1975
7800010	Solar	March 29, 1979
8200002	Walera	June 17, 1982
8100013	711	December 10, 1981
	715	Applied for in 1983
8200033	817	June 17, 1982
8200094	830	September 23, 1982
8200006	835	March 11, 1982
7200038	McNair 701	February 26, 1974
7700084	McNair 1003	August 10, 1978
7500006	McNair 1813	May 1, 1975
7200037	McNair 4823	April 8, 1975
	RHS 8232	Applied for in 1984

the same to be held and enjoyed by said Rohm and Haas Seeds Inc. for its own use and benefit, and for the use and benefit of its successors, assigns or other legal representatives, for the full term or terms for which said Certificates are or may be granted or reissued, as fully and entirely as the same would have been held and

enjoyed by said Northrup King Co. if this assignment and sale had not been made; together with all claims for damages by reason of past infringement of said Certificates, including the right to sue for and collect the same for its own use and benefit, and for the use and benefit of its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, Northrup King Co. has caused this assignment to be executed by its duly authorized officer, effective the 20TH day of JULY, 1984.

NORTHRUP KING CO.

By: George L. Jones

(CORPORATE SEAL)

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

On this 20TH day of JULY, 1984, before me, a Notary Public in and for the county and state aforesaid, personally appeared GEORGE L. JONES, to me personally known, who, being by me duly sworn, did say that he is the PRESIDENT of Northrup King Co.; that the seal affixed to the foregoing assignment is the corporate seal of Northrup King Co. and that the assignment was executed in behalf of Northrup King Co. by authority of its board of directors; and did acknowledge the assignment to be the free act and deed of Northrup King Co.

Witness my hand and seal the day and year set forth above.

Edward C. Resler
Notary Public

EDWARD C. RESLER
NOTARY PUBLIC - MINNESOTA
HENNEPIN COUNTY
My Commission Expires Nov. 2, 1990