No. 7400009

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, 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. 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 SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT
'Produra'

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	2. KIND NAME	FOR OFFICIAL USE ONLY
Produra	Durum Wheat	PV NUMBER 7400009
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 8·23·73 / TIME 3:00 P.M.
Triticum Durum	Gramineae	FEE RECEIVED $250·00 / BALANCE DUE $ —
	5. DATE OF DETERMINATION	$250·00 / $ —
	December 1969	$250·00 / $ —

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Northrup, King & Co.	1500 Jackson Street N.E. Minneapolis, Minn. 55413	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, Minn. 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.

August 21, 1973
(DATE)

Allenby L. White
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

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

7400009

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

EXHIBIT A
Origin and Breeding History of the Variety

Produra was developed by hybridization and individual plant selection from the cross:

Tremez Molle Dwarf/2* Tehuacan/3/Zenati/Bouteille/Wells/4/2*
Barrigon Yaqui Dwarf/Tehuacan/Tacur Tipo 125 Dwarf/2* Tehuacan

The pedigree is II 25609-IM-1Y-2M-OY-2I. The cross was made in Mexico at the International Maize and Wheat Improvement Center (CIMMYT). This was followed by individual plant selection there in the F2, F3 and F4 generations. The F5 generation was harvested in bulk in 1969 at Obregon, Mexico, and the F6 seed (from the F5) was included as entry 117 in the First International Durum Wheat Screening Nursery.

We planted this entry in a trial in Orange County, California in the fall of 1969 and noted that it contained both black and white-awned types. We separated the black and white-awned components at this time. Produra is a selection from a bulk of the black-awned component which proved to be both agronomically superior to the white-awned component and homozygous for awn color.

A portion of the F7 seed harvested in California in December 1969 was planted in Yuma, Arizona in the 1970-71 season to produce breeders seed. Part of the breeders seed thus produced was planted at Warren, Minnesota in May 1971, for further increase. This Minnesota-grown seedstock was subsequently planted at Yuma in the 1971-72 crop season and provided the seedstock which was planted in Arizona and California in the 1972-73 season for the production of certified seed.

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

Individual head selections for the establishment of a maintenance breeding program were first made within the 1971 Warren, Minnesota plot. These selections were grown as individual head rows in Yuma, Arizona in the 1971-72 crop season and subsequently as individual head-row blocks in Yuma in the 1972-73 season. That is, each block was derived from an individual head harvested in Minnesota in 1971. Excellent uniformity was observed both seasons within the individual head-rows and within each of the individual blocks. This suggests that, under normal conditions, Produra exhibits little outcrossing and has good stability.

Application for review by the Small Grain Variety Review Board was submitted on February 8, 1973. Approval for certification of Produra was given by this committee on March 23, 1973.

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EXHIBIT B
Botanical Description

The kernels of Produra are free threshing, long, hard and elliptical. They are normally vitreous and translucent and have a characteristic hard, amber durum appearance. This is a large seeded variety with a 1000 kernel weight of about 54 grams. The seed crease is narrow and shallow. The cheeks are usually angular but may be rounded. The brush is small and not collared. The phenol reaction of the pericarp is fawn.

The coleoptile color is mostly white, but some coleoptiles may show a light pink coloration in the apical portion.

Juvenile plant growth is semi-erect. Hairs are absent on first leaf sheath. Plant color at booting is ~~blue~~ yellow-green. The flag leaf sheath has a light waxy bloom. There is also a light waxy bloom on the stem. The stem is hollow and anthocyanin is absent. The last internode of the rachis is smooth but the node is hairy. Usually 3 peduncle nodes originate from the node above ground, but sometimes 4 may develop. There is no anthocyanin in the auricles; auricles are hairy. Flag leaves are erect at the boot stage.

The spike is fully-awned, fusiform, mid-dense and inclined. Glumes are pubescent, light tan, long and wide. Shoulders are wanting. Beaks are acuminate, awns are long, black and rough and tend to bleach from the apical end at maturity. The anthers are yellow.

Produra is of spring growth habit. It is best adapted to the high yield areas of Arizona and California. It is a mid-season to late variety with a relative maturity slightly later than Cajeme 71 and slightly earlier than Siete Cerros from fall or winter seedings under irrigation in Arizona and California. It is slightly shorter than Siete Cerros. Stems are strong and resistance to lodging is better than that of Siete Cerros and equal to or slightly poorer than that of Cajeme 71. Resistance to shattering is excellent. Produra is resistant to the races of leaf rust, Puccinia recondita f. sp. tritici Rob ex Desm. and stem rust, P. graminis f. sp. tritici Eriks. and Henn. prevalent in the United States in 1973. It is also resistant to powdery mildew, Erysiphe graminis f. sp. tritici E. Marchal. in the Western United States.

Plant height, maturity and leaf and internode measurements are obviously strongly influenced by environmental conditions. The representative measurements of Produra given in the Objective Description form were based on plants produced in an early December planting at Yuma, Arizona, seeded at the rate of 100 kgs/ha., well fertilized and well watered.

*KHE-letter of Dec. 3, 1973

U. S. DEPARTMENT OF AGRICULTURE
AUG 23 1973
RECEIVED

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.

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

FORM APPROVED. OMB NO. 40-R3712

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 7400009
VARIETY NAME OR TEMPORARY DESIGNATION

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:
[2] 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)* _____
[3] 1 = WHITE 2 = RED 3 - OTHER *(Specify)* Amber Durum

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:
[1][1][1] FIRST FLOWERING
[1][2][4] LAST FLOWERING

4. MATURITY *(50% Flowering)*:
[0][4] NO. OF DAYS *EARLIER* THAN .....
[ ][ ] NO. OF DAYS *LATER* THAN .....
[7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7 = Siete Cerros

5. PLANT HEIGHT *(From soil level to top of head)*:
[0][9][6] CM. HIGH
[ ][ ] CM. TALLER THAN .....
[1][5] CM. SHORTER THAN .....
[ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7 = Siete Cerros

6. PLANT COLOR AT BOOTING *(See reverse)*:
[1] 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][1] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:
[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____
[1] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[2][2] MM. LEAF WIDTH *(First leaf below flag leaf)*
[3][4] CM. LEAF LENGTH *(First leaf below flag leaf)*:

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11. HEAD:

[2] Density: 1 = LAX 2 = DENSE

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

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

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

[0 8] CM. LENGTH [1 8] 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.)*

[1] 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:

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

16. SEED:

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

[2] Cheek: 1 = ROUNDED 2 = ANGULAR

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

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

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

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

[7 5] MM. LENGTH [3 5] MM. WIDTH [~~0~~ 5 ~~5~~ 4 KE] GM. PER 1000 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'

[1] 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 KE] LEAF RUST *(Races)* UNK [2] STRIPE RUST *(Races)* UNK [0] LOOSE SMUT

[2] POWDERY MILDEW [0] BUNT [ ] OTHER *(Specify)*

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

[0] SAWFLY [1] APHID *(Bydv.)* [0] GREEN BUG [0] CEREAL LEAF BEETLE

[ ] OTHER *(Specify)* HESSIAN FLY RACES: [0] 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		Seed size	
Leaf size		Seed shape	
Leaf color		Coleoptile elongation	
Leaf carriage		Seedling pigmentation	

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.

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

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EXHIBIT D
Data Indicative of Novelty

PRODURA DURUM WHEAT
Application No. 7400009

Produra is a semi-dwarf durum wheat and differs from the other semi-dwarf wheat varieties, Jori C69, Cocorit, Wandell and Durtal, by having dark-colored awns and pubescent glumes.

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

7400009

EXHIBIT D
Data Indicative of Novelty

PRODURA DURUM WHEAT
Application No. 7400009

Produra is a semi-dwarf durum wheat which differs from Jori C-69 in that Produra heads about 10 days earlier than Jori C-69 in Arizona and has light tan glumes while Jori C-69 has white glumes.

Submitted June 4, 1974

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

7400009

EXHIBIT E

Statement of the Basis of Applicant's Ownership

The durum wheat variety, Produra, was developed by Northrup, King & Co.'s breeding staff from germ plasm sources cited in Exhibit A of this application. Northrup, King & Co. believes that Produra is a novel variety as defined in the U.S. Plant Variety Protection Act and, therefore, that Northrup, King & Co. is the sole owner of the variety.