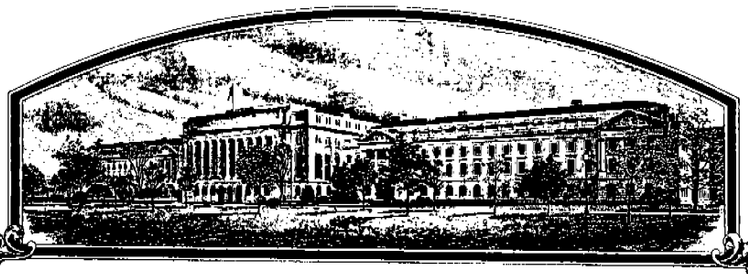

No. 7500064

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Funk Seeds International

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. 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

'W-335'

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* 14th *day of* May *in the year of our Lord one thousand nine hundred and* seventy-six

*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<br>W-335, CI 17350 | 2. KIND NAME<br>WHEAT | FOR OFFICIAL USE ONLY<br>PV NUMBER 7500064 |
| 3. GENUS AND SPECIES NAME<br>Triticum aestivum | 4. FAMILY NAME *(Botanical)*<br>Gramineae | FILING DATE 3·6·75 / TIME 10 A.M. |
| | 5. DATE OF DETERMINATION<br>June 1972 | FEE RECEIVED $ 250 / $ 250 / $ 250 / BALANCE DUE $ — / $ — / $ — |
| 6. NAME OF APPLICANT(S)<br>Funk Seeds International | 7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*<br>P.O. BOX 2911<br>1300 W. Washington<br>Bloomington, Illinois 61701 | 8. TELEPHONE AREA CODE AND NUMBER<br>309/829-9461 |
| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*<br>A Company of CIBA-GEIGY, Corporation | 10. STATE OF INCORPORATION<br>New York | 11. DATE OF INCORPORATION<br>1966 |

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

Koy E. Miskin, Manager
Wheat Research
1300 W. Washington
Bloomington, Illinois 61701

MAR 6 1975
U.S. DEPARTMENT OF AGRICULTURE
PVP

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.

3/3/75
(DATE)

Koy E. Miskin
(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.

7500064

## A. ORIGIN AND BREEDING HISTORY OF W-335

W-335 was selected from a cross composite obtained from Colorado State University. One hundred eleven heads were selected from F2 plants in 1968. These were observed in head rows in 1969 and in single plots in 1970. One hundred heads were selected from one of the promising lines and planted in head rows in 1971. Eighty-eight of these rows were composited to form the original seed of W-335. W-335 has been in preliminary and advanced yield tests since that time. It was entered in Kansas State University tests in 1973 and 1974 and was in the 1974 Southern Regional Performance Nursery. The exact parentage of W-335 in not known.

Heads of W-335 are somewhat lax, with long awns, and are usually nodding at maturity; however, up to 25% of the spikes will be inclined. Taller plants with a plant type similar to the other plants are sometimes observed. The frequency of tall plants should not exceed 2%.

The bulk of the 88 rows which formed the original variety was designated Breeder seed and was increased to produce Foundation seed. Future generations of Breeder's seed will be produced from approximately 200 individual progeny rows. These rows will be maintained as individual lines with any rows that deviate from the desired type being discarded. A bulk of these rows will be designated Breeder's seed and will be used to produce Foundation seed. Recognized seed classes will be Breeders, Foundation, Registered, and Certified. Certified seed will not be eligible for recertification.

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## B. BOTANICAL DESCRIPTION OF W-335

Seed of W-335 hard red winter wheat is elliptical with rounded cheeks. The crease is narrow and shallow. The brush is medium length and collared. W-335 has a midsized embryo and turns brown-black in response to the phenol reaction. Plant characteristics include a white culm with hollow internodes and solid nodes. The spike is middense, fusiform, awned, and usually nodding at maturity. Hairs are present on the last internode of the rachis. Observed spike length and width were 91 cm and 11 mm, respectively. Glumes are midlong and midwide with rounded shoulders. The beaks are acuminate, midwide, and range from 3 to 8 mm in length. W-335 has a white coleoptile and exhibits a semi-erect juvenile growth habit.

W-335 is shorter than most hard red winter wheats available but not as short as some. Observed heights were as follows: Scout 66-37 in.; Parker-35 in.; Sturdy-31 in.; W-335-34 in.; Satanta is of similar height; however, W-335 does not have the soilborne mosaic virus resistance that Satanta possesses. W-335 is later than Parker and Sturdy and usually matures at about the same time as Gage or Lancer, both standard height varieties.

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AMS, Grain Div.
PVPO

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

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

# OBJECTIVE DESCRIPTION OF VARIETY
## WHEAT (*TRITICUM SPP.*)

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FORM APPROVED OMB NO. 40-R3712

EXHIBIT C (Wheat)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
FUNK SEEDS INTERNATIONAL

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
P.O. Box 2911
1300 W. Washington
Bloomington, Illinois 61701

FOR OFFICIAL USE ONLY
PVPO NUMBER 7500064
VARIETY NAME OR TEMPORARY DESIGNATION
W-335

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:**
[2] 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:**
[ ][ ][ ] FIRST FLOWERING
[ ][ ][ ] LAST FLOWERING

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

**5. PLANT HEIGHT** (*From soil level to top of head*):
[0][8][6] CM. HIGH
[ ][ ] CM. TALLER THAN .....
[0][8] CM. SHORTER THAN .....
[ ] [2] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

**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
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[0][5] NO. OF NODES (*Originating from node above ground*)
[ ] 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:**
[2] 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
[1][1] MM. LEAF WIDTH (*First leaf below flag leaf*)
[3][0] CM. LEAF LENGTH (*First leaf below flag leaf*):

## D. DATA INDICATIVE OF NOVELTY

W-335 is shorter than most hard red winter wheats but is taller than Sturdy and Caprock. Its height is between that of Parker and Satanta. It is usually shorter than Parker and differs from Parker in response to Hessian fly, mixing time as determined by the mixograph, flour yield, and maturity (see attached tables). W-335 is later maturing than Sturdy and Caprock and similar to Gage and Lancer, both taller varieties. ~~Because of its height,~~ KEM W-335 would be considered most similar to Satanta. It can be distinguished from Satanta by two major characteristics; it does not have the erect flag leaf nor soilborne mosaic virus resistance possessed by Satanta. The following tables present yield data, agronomic data, and quality data for W-335 and some widely used check varieties:

changed 12/2/75 KEM

### YIELD DATA FOR W-335

#### Funk Seeds International Data

| 1973 | Yield, bu/a. | | | |
|---|---|---|---|---|
| | W-335 | Scout 66 | Sturdy | LSD .05 |
| Hart, Texas | 64.7 | 61.6 | ---- | 15.8 |
| Lahoma, Oklahoma | 58.8 | 51.2 | ---- | 4.8 |
| Pratt, Kansas | 53.1 | 45.7 | ---- | 6.8 |
| Lindsborg, Kansas | 71.4 | 51.6 | ---- | 8.3 |
| Valmeyer, Illinois | 54.3 | 44.9 | ---- | 5.5 |
| Bloomington, Illinois | 54.0 | 37.3 | ---- | 11.1 |
| **1974** | | | | |
| Lahoma, Oklahoma | 19.7 | 21.9 | 19.9 | 2.2 |
| Lindsborg, Kansas | 30.0 | 40.0 | 36.8 | 8.0 |
| Garden City, Kansas | 38.2 | 47.4 | 41.2 | 3.8 |
| Kenesaw, Nebraska | 70.2 | 71.1 | 73.5 | 9.8 |
| Bloomington, Illinois | 21.6 | 20.3 | 33.5 | 5.4 |

#### Kansas State University Data

| | Yield, bu/a. | | | |
|---|---|---|---|---|
| | Eastern Kansas | | Western Kansas | |
| Variety | 1973 6-sta. avg. | 1974 5-sta. avg. | 1973 5-sta. avg. | 1974 5-sta. avg. |
| Parker | 41 | 28.6 | 33 | 40.6 |
| Eagle | -- | 28.4 | -- | 41.2 |
| W-335 | 48 | 31.2 | 36 | 37.4 |

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## AGRONOMIC DATA FOR W-335

| Variety | Hessian Fly Response | Leaf Rust Response | Date Headed from Jan 1 | Test Wt. lb./bu. |
|---|---|---|---|---|
| Parker | R | S | 143 | 58.9 |
| Eagle | S | S | 144 | 55.7 |
| W-335 | MS | MR | 149 | 56.9 |

## QUALITY DATA FOR W-335

| | flour yield % | Protein % | Sed. Value | Mixing time min-sec | Corrected loaf Volume CC |
|---|---|---|---|---|---|
| 1973 Composite | | | | | |
| Parker | 72.6 | 13.1 | 48.0 | 3-10 | 730 |
| W-335 | 70.9 | 12.1 | 49.0 | 4-30 | 855 |
| 1972 Bloomington, Ill. | | | | | |
| Parker | 73.8 | 13.0 | 60.5 | 3-40 | 860 |
| W-335 | 69.8 | 11.3 | 54.5 | 4-30 | 880 |

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E. STATEMENT OF THE BASIC OF APPLICANTS' OWNERSHIP

W-335

The novel plant variety described herein was developed by employees of applicant whose scope of employment included the development of new varieties of wheat.

PV# 7500064

'W-335' wheat novelty

'W-335' is most similar to 'Satanta' [~~because of its height~~] 'W-335' differs from 'Satanta' by having a recurved flag leaf and susceptibility to soil-borne mosaic virus. 'Satanta' has an erect flag leaf and resistance to soil-borne mosaic virus.

Issued

The novelty statement needs revision, based on the reply we rec'd from ltr. 11.21.75

12.5.75

reply received in letter of Dec. 2

Ready for certificate fee request

FORM GR-470-6 (REVERSE) 7500064

**11. HEAD:**

[1] Density: 1 = LAX 2 = DENSE

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

[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 9] CM. LENGTH

[1 1] 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.)*

[1] 1 = Glabrous 2 = Pubescent

[2] 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

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

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

[2] 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 [2 8] 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'

[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)**

[0] STEM RUST *(Races)* _____ [2] LEAF RUST *(Races)* _____ [0] STRIPE RUST *(Races)* _____ [0] LOOSE SMUT

[1] POWDERY MILDEW [0] BUNT [1] OTHER *(Specify)* _____

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

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

[0] 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 | Satanta | Seed size | Satanta |
| Leaf size | | Seed shape | Satanta |
| 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.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
Grain Division
6525 Belcrest Road
Hyattsville, Maryland 20782

rec. 5/28/76

MAY 20 1976

Subject: Seed Sample of Protected Variety
Certificate No. 7500044
Kind and Variety - Wheat - 'W-335'
Breeder - Funk Seeds Int.

To: National Seed Storage Laboratory
Fort Collins, CO 80521

18716

Attached is the above-identified sample and an Objective Description of Variety from in accordance with our Memorandum of Understanding and as agreed upon during my visit with Dr. Louis Bass on June 12, 1972.

One copy of this duplicate form showing the result of your germination test on 100 seeds of pure seed of this sample should be returned to this Office. Return of the duplicate form will serve as acknowledgement of receipt of the sample.

Germination: 95 % Date: 10/15/76

S. J. Ballin

Commissioner
Plant Variety Protection
Office, Grain Division

Attachment

In duplicate

76-406