No. 7500043

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Soils and Crops Department
## New Jersey Agricultural Experiment Station

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 OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CHEWINGS FESCUE

'Banner'

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* 28th *day of* September *in the year of our Lord one thousand nine hundred and* Seventy-seven

*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 |
|---|---|---|
| 'Banner' RU-45C) | Chewings-type fescue | PV NUMBER 7500043 |
| 3. GENUS AND SPECIES NAME: Festuca rubra L. subsp. commutata Guad. | 4. FAMILY NAME *(Botanical)*: Gramineae | FILING DATE 12.17.74 — TIME 3:00 P.M. |
| | 5. DATE OF DETERMINATION: January 1970 | FEE RECEIVED $250.00 $250.00 $250.00 — BALANCE DUE $ 12-17-74 $ 11-10-76 $ 6-27-77 |

| 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 |
|---|---|---|
| ~~Robert W. Duell~~ SOILS & CROPS DEPARTMENT NEW JERSEY AGRICULTURAL ~~Richard M. Schmit~~ EXPERIMENT STATION RWD 8/25/77 | Sunset Ave., R.D.1-401, Princeton, N.J. 08540 | (201) 932-9872 |
| | 1483 Huron Rd., North Brunswick, N.J. 08902 | (201) 932-9458 |

| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* | 10. STATE OF INCORPORATION | 11. DATE OF INCORPORATION |
|---|---|---|
| Rutgers University | New Jersey | |

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

Robert W. Duell
P. O. Box 231
Lipman Hall
Cook College
New Brunswick, N. J. 08903

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.

Nov 1, 74 (DATE) — Robert W. Duell (SIGNATURE OF APPLICANT)

(DATE) — (SIGNATURE OF APPLICANT)

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Exhibit A - Origin and Breeding History of Banner

Banner is a Chewings-type fescue originally produced in New Jersey in 1970. The source material consisted of clones selected from turf areas of the northeastern United States and the transitional zone to the south. Collected material was subjected to evaluation and selection under close, frequent mowing. Forty-five Chewings-types of similar maturity were selected based on phenotype and topcross performance to produce Banner.

Seed of Banner was increased in Oregon and tested in turf trials throughout the United States, in Canada and in Europe. Data from these variety trials indicate that the variety is distinct and has performed well.

Parental clones have been retained by the applicants to insure that Banner will remain uniform and stable for future commercial production. Syn 1 and syn 2 seed of Banner has produced seed of comparable quality and uniformity.

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Exhibit B - Botanical Description of Banner

Banner (2n = 6x = 42) is a Chewings-type (or non rhizomatous) fescue. The variety is medium dark green and is tolerant of close mowing (3/4 inch, twice weekly). Banner is moderately resistant to leaf blotch.

Seventy plants of Banner were grown for botanical description at the Soils and Crops Research Farm at Adelphia, New Jersey in a spaced plant nursery. Plants were grown from seed in peat pots in three foot cultivated rows on two foot centers. Plants remained small in the spring of 1973 and measurements for taxonomic description was delayed until plants had developed mature characteristics. Based on these measurements Banner may be described as follows:

The culms of Banner are typically semi erect, averaging 78.2 cm in height (s = 3.6, C.V. = 5%) with short basal leaves and two visible stem nodes. Leaves are open sheathed and medium textured. Panicles are compact*, averaging 11 cm (s = 1.5) with an average of 0.11 g seed (s = 0.0314 g) seed per panicle. Spikelets are oblong and 5-7 flowered. Lemmas range in length from 5-7 mm ($\bar{x}$ = 6.6). Length of the palea is 4-6 mm ($\bar{x}$ = 4.9). Length of the rachis is 0.7-1.3 mm ($\bar{x}$ = 1.0 mm). Length of the lemma awns are 1.0 to 2.5 mm long ($\bar{x}$ = 1.9 mm).

Under turf conditions of close, twice weekly mowing at 3/4 inch, at New Brunswick, Banner has five prominent epidermal ridges on the third (fully expanded) leaves which range in width from 0.8 to 1.2 mm.

* INTERMEDIATE, letter 5/18/77. JJH. 5/26/77

FORM GR-470-37
(3-76)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

# OBJECTIVE DESCRIPTION OF VARIETY
## FESCUE
(Festuca spp.)

| NAME OF APPLICANT(S) | VARIETY NAME OR TEMPORARY DESIGNATION |
|---|---|
| Robert W. Duell | Banner |
| ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) | FOR OFFICIAL USE ONLY |
| P. O Box 231, Dept. of Soils & Crops<br>Cook College-Rutgers Univ.New Brunswick,NJ 08903 | PVPO NUMBER<br>7500043 |

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. Characteristics described, including numerical measurements, should represent those that are typical for the variety. Ranges may be given also. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors; designate system used: Munsell. Describe location of test area Adelphia, N.J.
All questions need not be answered, however, completeness should be striven for in order to establish the most adequate Variety Identification.

**1. SPECIES: (With comparison varieties for use below - use varieties within species of application variety)**

[~~4~~ 3] 1 = F. ARUNDINACEA (TALL) 11 = ALTA 12 = FAWN 13 = GOAR 14 = KENTUCKY 31
2 = F. PRATENSIS (MEADOW) 21 = ENSIGN 22 = TRADER
3 = F. RUBRA SSP. COMMUTATA (CHEWINGS) 31 = CASCADE 32 = HIGHLIGHT 33 = JAMESTOWN
4 = F. RUBRA SSP. RUBRA (RED) 41 = BOREAL 42 = PENNLAWN 43 = DAWSON
5 = F. OVINA VAR. OVINA (SHEEP)
6 = F. LONGIFOLIA (HARD) 61 = DURAR 62 = BILJART (C-26) 63 = SCALDIS
7 = OTHER (SPECIFY) F.

JJH 11/4/76

**2. CYTOLOGY**

[4|2] 2n CHROMOSOME NUMBER

**3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adaptad)**

[2] NORTHEAST [2] SOUTHEAST [2] NORTH CENTRAL [2] PACIFIC N.W. [2] OTHER (SPECIFY) Europe

**4. MATURITY: (50% Headed) Give Test Area** Adelphia, N. J

[0|2] DAYS EARLIER THAN . . . . . [3|3]
MATURITY SAME AS . . . . . [ | ]
[0|3] DAYS LATER THAN . . . . . [3|2]
} COMPARISON VARIETY

**5. PLANT HEIGHT: (At maturity to top of panicle)**

[7|8|2] mm HEIGHT
[2|3] mm SHORTER THAN . . . . . [3|3]
HEIGHT SAME AS . . . . . [ | ]
[4|2] mm TALLER THAN . . . . . [3|2]
} COMPARISON VARIETY

**6. GROWTH HABIT (Mature)**

[2] 1 = ERECT (KENTUCKY 31) 2 = SEMI-ERECT (HIGHLIGHT) 3 = PROSTRATE

**7. RHIZOMES**

[0|0] mm LENGTH [0|0] mm WIDTH

[0] 0 = ABSENT 1 = WEAKLY CREEPING (DAWSON) 2 = STRONGLY CREEPING (BOREAL) 3 = OTHER

**8. LEAF BLADE:**

[3] COLOR: 1 = LIGHT GREEN (GOLFROOD) 2 = MODERATELY LIGHT GREEN (HIGHLIGHT) 3 = MEDIUM GREEN (JAMESTOWN, KENTUCKY 31)
4 = DARK GREEN (CASCADE) 5 = BLUEGREEN 6 = GRAYGREEN 7 = OTHER(SPECIFY)

PV 7500043

Exhibit D - Novelty of the variety 'Banner'

Banner most closely resembles the variety, 'Jamestown' except it has at times displayed superior performance under close and frequent mowing compared to Jamestown, particularly after several years of evaluation and has higher seed yields in commercial production in the Willamette Valley. In addition, Banner is characterized by a slightly darker turf color.

Banner differed from Jamestown in that its seedheads were not suppressed to the same extent as those of Jamestown when treated with several chemical growth retardants (See Exhibit C-18a - additional characteristics).

INSTRUCTIONS

Color: Nickerson's or any recognized color fan may be used to determine plant colors of the described variety.

Color determinations were made on October 31, 1974 under uniform cloud cover. Turf had been maintained at 3/4 inch cut with fertilization at approximately 1 lb./$1000^2$ in three applications per year.

Banner may be characterized as to color on the Munsell color scale as 2.5 G 4,4. This is in contrast to Jamestown fescue which has its color described as 10 GY 4,4 on the same scale.

18a. Additional Characteristics - Exhibit C

Several grasses were treated in the spring of 1975 with various growth retardants. Banner differed significantly from Jamestown in that its seedheads were not suppressed to the extent of those of 'Jamestown' by several chemical agents. See table below.

Percent seedhead control of Banner vs. Jamestown by three growth retardants.

| Growth retardant | Rate | Banner | Jamestown |
|---|---|---|---|
| Vel. 3793 | ¼# a.i./A | 5 | 28 |
| Hoe. 22870 | 4# a.i./A | 1 | 28 |
| Hoe. 23408 | 1½# a.i./A | 3 | 22 |
| | Means* | 3 | 26 |

*Difference between means is significant at the 1% level of probability.

Table 2. Seedhead counts of Banner, Jamestown and Highlight at Adelphia.

| | Seedheads/d $cm^2$ June 19,1974 |
|---|---|
| Banner | 2.0 |
| Jamestown | 0.6 |
| Highlight | 3.9 |

Table 3. Tear strength of sod of fescue varieties.

| Variety | Pounds |
|---|---|
| K-31 tall fescue | 82.0 |
| Pennlawn | 118.9 |
| Fortress | 116.9 |
| C-26 | 129.9 |
| Jamestown | 121.6 |
| Banner | 160.2 |

LSD @ 5% = 29.4
" 1% = 40.6

75-43

Exhibit E - Statement of the Applicant's Ownership

The applicant, the Soils and Crops Department, New Jersey Agricultural Experiment Station, is the sole owner of 'Banner'. Furthermore, the original clones and breeders seed is produced as required by the applicant to insure the stability and uniformity of 'Banner'.

AGREEMENT 75-43

This agreement was made and entered into by and between New Jersey Agricultural Experiment Station, Rutgers University, the State University of New Jersey, New Brunswick, New Jersey, 08903; Robert W. Duell, Sunset Avenue, R. D. 1-401, Princeton, New Jersey, 08540; Cyril R. Funk, Jr., 4 Delaware Drive, East Brunswick, New Jersey 08816; and Richard M. Schmit, 1483 Huron Road, North Brunswick, New Jersey, 08902.

WHEREAS, the above named individuals, being employed by New Jersey Agricultural Experiment Station, have together developed a Chewings fescue variety identified with the experimental number RU45-C, and a spreading fescue variety identified with the experimental number RU6-S, and have full ownership of these varieties under the provisions of the patent policy of the New Jersey Agricultural Experiment Station and Rutgers University,

NOW THEREFORE, IT IS AGREED AS FOLLOWS:

The above named individuals do hereby donate the above varieties to the Soils and Crops Department of the New Jersey Agricultural Experiment Station, which donation is hereby acknowledged. For purposes of crediting contributions of individuals we agree to the following ratios:

Robert W. Duell, 60;
Cyril R. Funk, Jr., 5; and
Richard M. Schmit, 35.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed and seals affixed the 31st day of August 1974.

RUTGERS UNIVERSITY

By Walter A. Mueller
Title, Director, N.J. Ag. Expt. Sta.

Title, Chairman, Soils & Crops Dept.

Robert W. Duell

Cyril R. Funk, Jr. Cyril R. Funk

Richard M. Schmit

FORM GR-470-37
(3-76)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
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(Festuca spp.)

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| P. O Box 231, Dept. of Soils & Crops<br>Cook College-Rutgers Univ.New Brunswick NJ 08903 | PVPO NUMBER<br>7500043 |

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[~~4~~ 3] JJH 11/4/76

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MATURITY SAME AS . . . . . [ ][ ]
[0][3] DAYS LATER THAN . . . . . [3][2]
} COMPARISON VARIETY

**5. PLANT HEIGHT: (At maturity to top of panicle)**

[7][8][2] mm HEIGHT
[2][3] mm SHORTER THAN . . . . . [3][3]
HEIGHT SAME AS . . . . . [ ][ ]
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} COMPARISON VARIETY

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[2] 1 = ERECT (KENTUCKY 31) 2 = SEMI-ERECT (HIGHLIGHT) 3 = PROSTRATE

**7. RHIZOMES**

[0][0] mm LENGTH [0][0] mm WIDTH

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**8. LEAF BLADE:**

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4 = DARK GREEN (CASCADE) 5 = BLUEGREEN 6 = GRAYGREEN 7 = OTHER(SPECIFY)

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**8. LEAF BLADE:**

[0] ANTHOCYANIN: 0 = ABSENT 1 = PRESENT [0] HAIRS (BASAL): 0 = ABSENT 1 = PRESENT [2] MARGINS: 1 = SMOOTH 2 = SEMI-ROUGH 3 = ROUGH

[ ] mm LENGTH (FIRST LEAF BELOW FLAG LEAF) [1 2] mm WIDTH

[ ] mm SHORTER THAN . . . . [ ] [0 2] mm NARROWER THAN [3 3]

LENGTH SAME AS . . . . . [ ] COMPARISON VARIETY WIDTH SAME AS . . [ ] COMPARISON VARIETY

[ ] mm LONGER THAN . . . . [ ] [ ] mm WIDER THAN . . [ ]

**9. LEAF SHEATH (Plant Base):**

[2] COLOR: 1 = WHITE (HIGHLIGHT) 2 = RED [ ] AURICLE HAIRINESS: 0 = ABSENT 1 = PRESENT

**10. PANICLE (Mature plant)**

[6 3 2] NUMBER OF PANICLES PER PLANT (FIRST YEAR OF PRODUCTION - FALL OR SPRING PLANTING SPECIFY Fall

[1 1 0] mm LENGTH [0 0 9] GRAMS OF SEED PER PANICLE

[1 6] mm SHORTER THAN . . . [3 3] [ ] GRAMS LESS SEED THAN [ ]

LENGTH SAME AS . . . [ ] COMPARISON VARIETY WEIGHT SAME AS . . [ ] COMPARISON VARIETY

[0 4] mm LONGER THAN . . . [3 2] [ ] GRAMS MORE SEED THAN [ ]

[3] SHAPE: 1 = NARROW-TAPERING 2 = EGG SHAPE 3 = OBLONG 4 = OTHER (SPECIFY) _____

[2] TYPE: 1 = OPEN 2 = INTERMEDIATE 3 = COMPACT

[1] HABIT: 1 = ERECT 2 = NODDING

[1] BRANCHES: 1 = SMOOTH 2 = ROUGH

[4] COLOR (At 50% flowering): 1 = YELLOWISH GREEN 2 = GREEN 3 = BLUISH GREEN 4 = PURPLISH 5 = REDDISH 6 = OTHER (SPECIFY) _____

**11. PALEA:**

[1] HAIRS (ON KEELS): 0 = ABSENT 1 = SHORT (OLDS) 2 = LONG (RAINIER)

**12. LEMMA:**

[1] HAIRS: 0 = ABSENT 1 = PRESENT [1] TEXTURE: 1 = SMOOTH 2 = ROUGH

[4 9] mm LEMMA LENGTH [9 4] mm LEMMA WIDTH

[ ] mm SHORTER THAN . . . . [ ] [ ] mm NARROWER THAN [ ]

LENGTH SAME AS . . . . . [ ] COMPARISON VARIETY WIDTH SAME AS . . . [ ] COMPARISON VARIETY

[ ] mm LONGER THAN . . . . [ ] [ ] mm WIDER THAN. . . [ ]

[1] AWNS: 0 = ABSENT 1 = PRESENT

[~~1 0~~] mm AWN LENGTH

1.9 letter 5/18/77 JJ

 PV 75000 BANNER

**12. LEMMA:**

mm SHORTER THAN . . . .

LENGTH SAME AS . . . .

mm LONGER THAN . . . .

COMPARISON VARIETY

**13. SEED:**

49 mm LENGTH

94 mm WIDTH

mm SHORTER THAN . . .

LENGTH SAME AS . . .

mm LONGER THAN . . .

COMPARISON VARIETY

mm. NARROWER THAN

WIDTH SAME AS . .

mm WIDER THAN . .

COMPARISON VARIETY

0914 GRAMS PER 1000 SEED

GRAMS LESS THAN . .

WEIGHT SAME AS . .

GRAMS MORE THAN .

COMPARISON VARIETY

**14. DISEASE, INSECT, AND NEMATODE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):**

| | | | | | |
|---|---|---|---|---|---|
| 2 | HELMINTHOSPORIUM VAGANS | 0 | H. SOROKINIANUM | 0 | H. DICTYOIDES |
| 0 | RHIZOCTONIA SOLANI | 1 | ERYSIPHE GRAMINIS | 0 | USTILAGO STRIIFORMIS |
| 1 | FUSARIUM NIVALE | 0 | F. ROSEUM | 0 | TYPHULA IOTANA |
| 0 | PUCCINIA GRAMINIS | 0 | P. STRIIFORMIS | 0 | P. POAE-NEMORALIS |
| 0 | P. CORONATA | 0 | PYTHIUM ULTIMUM | 2 | CORTICIUM FUSCIFORME |
| 1 | SCLEROTINIA HOMEOCARPA | 0 | INSECT | 0 | NEMATODE |
| | OTHER | | OTHER | | OTHER |

**15. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY.** For the following characteristics indicate degree of resemblance (D.R.) by placing in the column marked, D.R., one of the following numbers:

1 = Application variety is less than comparison variety 2 = Same as

3 = More than, better, greater, darker, more disease resistant, etc.

| CHARACTER | VARIETY | D.R. | CHARACTER | VARIETY | D.R. |
|---|---|---|---|---|---|
| RHIZOME LENGTH | Jamestown | 2 | GROWTH HABIT | Jamestown | 2 |
| LEAF WIDTH | " | 2 | LEAF COLOR | " | 2 |
| PANICLE COLOR | " | 2 | PANICLE SHAPE | " | 2 |
| WINTER COLOR | " | 3 | COLD INJURY | " | 2 |
| SHADE TOLERANCE | " | 2 | HEAT | " | 2 |
| DROUGHT | " | 2 | DISEASE* | " | 2 |
| | | | | | |

*Specify each disease evaluated.

**16. ADDITIONAL DESCRIPTION: (Use additional sheets as required)**

Describe all characteristics that cannot be adequately described in the form above. Comparative varieties should be used as may be appropriate, such as for disease. Append all comparative trial and evaluation data, including measured characters, environmental, and disease tests.

See previously submitted separate pages for Exhibit C.

U. S. DEPARTMENT OF AGRICULTURE
AMS, ... FVPO
RECEIVED
OCT 26 1976



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