No. 7200010

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pennington Grain & Seed, 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 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 (7 U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

RYE

'Wintergrazer 70'

PLANT VARIETY PROTECTION OFFICE U.S. DEPARTMENT OF AGRICULTURE

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 29th day of September in the year of our Lord one thousand nine hundred and seventy-eight

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(2-1-71)

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

FORM APPROVED
OMB. NO.

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1. VARIETY NAME OR TEMPORARY DESIGNATION Wintergrazer-70	2. KIND NAME Rye	FOR OFFICIAL USE ONLY PVPO NUMBER 72010	
3. GENUS AND SPECIES NAME ~~Cereale secale~~ 1/21/71 Secale Cereale	4. FAMILY NAME ~~Graminal~~ Graminae 1/21/71 5. DATE OF DETERMINATION May 1967	FILING DATE 7/21/71 FEE RECEIVED $750.00	TIME 3 P.M. CHARGES
6. NAME OF APPLICANT(S) Pennington Grain & Seed, Inc.	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 290 Madison, Georgia 30650		8. TELEPHONE AREA CODE AND NUMBER 404+342-1234
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation	10. STATE OF INCORPORATION Georgia		11. DATE OF INCORPORATION January 1953

12. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

[X] 12A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52, P.L. 91-577)*

[X] 12B. Exhibit B, Botanical Description of the Variety

[X] 12C. Exhibit C, Objective Description of the Variety

[X] 12D. Exhibit D, Particulars of Trial Performance

[X] 12E. Exhibit E, Statement of the Basis of Applicant's Ownership

The applicant declares that a viable sample of basic seed that is planted to produce the variety commercially will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable. *(See Section 52, P.L. 91-577).*

13A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 142, P.L. 91-577) (If "Yes," answer 13b and 13c below.)* [ ] YES [X] NO

13B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

13C. If "Yes" to 13B, how many generations of production beyond breeder seed? Three

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

Brooks Pennington, President
Pennington Grain & Seed, Inc.
P.O. Box 290
Madison, Georgia 30650

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is entitled to protection under the provisions of Section 42 and is distinct, uniform, and stable as required in Section 41 of the Plant Variety Protection Act (P.L. 91-577).

June 30, 1971
(DATE)

Pennington Grain & Seed, Inc
Brooks Pennington
President
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

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Exhibit A, Origin and Breeding History
of Wintergrazer-70

I. Wintergrazer-70 is a rye variety selected from a bulk population of S.C. 1030 rye. S.C. 1030 rye was developed by the Pennington Seed Grain Company and was used as one of the four strains to produce Wintergrazer, S.C. 1030 rye was selected from bulk material obtained by B. M. Pennington, Sr. of Madison, Georgia from the Oklahoma State University Experiment Station at Stillwater, Oklahoma. No records are available as to the pedigree of this original bulk material, however; Wintergrazer-70 was obtained by the breeding process of natural outcrossing and selection.

II. In 1961, 1962, and 1963, the original bulk material was screened and reselected each year. This selection program resulted in S.C. 1030. In 1963, a selection program was commenced to select from S.C. 1030. Five years later it was apparent that a distinct and novel variety of rye had been selected from S.C. 1030. In 1968, Wintergrazer-70 was increased each year since then. The increase fields of Wintergrazer-70 (Figures 1 and 2) have been completely isolated from any other variety of rye to maintain varietal purity.

III. Variants in the reproduction and multiplication of Wintergrazer-70 have been very scare. The main noticeable variant in the reproduction of this variety is the presence of awns of different lengths between and not within spikes

of Wintergrazer-70 (Figures 3 and 4). This is not an objectionable variant and is common to all rye varieties. The only variant that has been selected out is a plant with narrow leaves. During selection and reproduction of Wintergrazer-70, all plants with leaves narrower than 11.8 mm. have been discarded. In the present breeder's seed field, very few of these type plants have been found.

There are no distinct, objectionable variants in the present generation of Wintergrazer-70.

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Exhibit B, Botanical Description of Winteggrazer-70

I. The seed of Wintergrazer-70 are shown in Figures 5 and 6. The seed is typically long, narrow and pointed at the embryo end. The seed has a very small embryo but when maintained under proper temperature and humidity will retain a very high germination percentage. Under adequate moisture and soil temperatures above 50° F, seed will germinate immediately and seedlings will appear in less than 4 days. During the early seedling stage (2 leaf stage), the seedlings are quite uniform in color as shown in Figure 7. The upper part of the coleoptile and from 15 to 20 mm. above the coleoptile on the lower stem is characterized by a deep purple color. The first and second leaf then develop into a deep, dark blue-green color. This color characterizes the plant as it passes from the seedling to the vegetative (Figures 8 and 9) and to the mature plant stage (Figure 10). The seed head or spike emerges from the leaf sheath (Figures 11 and 12) when the plant is approximately 100 cm tall. The fruiting stage occurs after the peduncle has elongated from 23-30 cm (Figures 13 and 14) and the plant is approximately 190-195 days old. Fruiting continues for 4-5 days and an abundance of pollen is produced for assuring high seed set.

II. Wintergrazer-70 matures from ~~1-3~~ 7 days later than Wrens Abruzzi and 1 day earlier than Elbon. The mature plant is approximately 172 cm in height. This is essentially the same height as Wrens Abruzzi and Elbon. The leaves of ~~Wrens Abruzzi~~ Wintergrazer-70 (Figures 15, 16, 17, and 18) are wider and slightly longer than Wrens Abruzzi and Elbon.

An increase field of mature Wintergrazer-70 is much more uniform in appearance than Wrens Abruzzi or Elbon (Figure 19).

NOTICE ON FIGURES AND TABLES

Figures and tables which were not considered essential to substantiate claims for novelty are not included in the sealed enclosures in the certificate even though they were cited. They are maintained in the original application folder.

REFERENCE: PATENT APPLICATION NO. 72010, "Wintergrazer-70" Rye -

EXHIBIT D - ~~ADDENDUM~~ 7/25/78

(amended 7/78)

Statement and data indicating of novelty.

A. Wintergrazer-70 most closely resembles Wrens Abruzzi Rye with the following exceptions:

1. Matures 7 days later than Wrens Abruzzi Rye.

2. The leaves of Wintergrazer-70 are 1 mm wider and 3 cm longer than Wrens Abruzzi Rye.

3. Wintergrazer-70 consistently outyields Wrens Abruzzi Rye as a forage producer based on experiment station data from controlled and measured clippings. See official experiment station results attached.

4. Wintergrazer-70 produces 15% greater tillers than Wrens Abruzzi Rye.

Data to substantiate above items.

Item 1 - Reference Photo of Auburn University Experiment Station data indicating maturity. Also University of Georgia Experiment Station at Tifton, Georgia, and Pennington Seed, Inc. data W-G-70-3.

Item 2 - Reference Figure 10 - page 36 of patent application and Pennington Seed Co. data W-G-70-2 and data W-G-70-2A.

Item 3 - Reference photo of University of Georgia College of Agriculture Experiment Station results 1974-75-76, 3 year average Coastal Plains station and pages 11 through 26 of the patent application.

Item 4 - Pennington Seed Co. data W-G-70-5.

MATURITY DATES - VARIOUS RYES
(In Two Locations For 5 Years)

	1970 - 71		1971 - 72		1972 - 73		1973 - 74		1974 - 75	
	VID	MAD	VID	MAD	VID	MAD	VID	MAD	VID	MAD
WRENS ABRUZZI	3-21	3-23	3-23	3-24	3-22	3-24	3-21	3-22	3-20	3-22
WINTERGRAZER 70	3-28	3-30	3-30	3-31	3-30	4-1	3-28	3-30	3-27	3-29
ELBON	3-23	3-25	3-24	3-26	3-24	3-27	3-23	3-20	3-20	3-22
EXPLORER	3-22	3-24	3-22	3-24	3-20	3-22	3-22	3-24	3-24	3-22
WESER	3-24	3-26	3-24	3-29	3-22	3-24	3-23	3-25	3-23	3-24
FLORIDA BLACK	3-14	3-17	3-18	3-19	3-20	3-22	3-13	3-17	3-13	3-15

Madison Location - in Morgan County, Georgia, on Lake Pennington Experimental Farm

Vidalia Location - in Toombs County, Georgia, on Pennington Seed, Inc., plots

Dates shown above are average date headed.

Seed Stock Source - Pennington Seed, Inc.

LEAF WIDTHS

Various Ryes In One Year Test Conducted At Lake Pennington Experimental Farms in 1976.

	Average Length	Average Width
Wintergrazer 70	28 cm	11.8 mm
Wrens Abruzzi	25 cm	9.8 mm
Elbon	24 cm	8.0 mm
Emory	24 cm	8.6 mm
Weser	23 cm	8.6 mm

Length and Width Measurements Taken On Average Date Of Heading For All Ryes In Test Which Was March 23, 1976.

Planting Date October 2, 1975.

Plot Irrigated

Fertilized with 800 pounds of 12-12-12 equivalent.

DATA ON LEAF LENGTH AND LEAF WIDTH OF VARIOUS RYES IN TWO YEAR TEST CONDUCTED AT LAKE PENNINGTON EXPERIMENTAL FARMS.

	LENGTH		WIDTH	
	1974 -	1975	1974 -	1975
Wintergrazer 70	28 cm	27 cm	7 mm	7 mm
Wrens Abruzzi	26 cm	25 cm	6 mm	6 mm
Elbon	25 cm	25 cm	6 mm	6 mm
Emory	23 cm	23 cm	6 mm	5 mm
Weser	22 cm	22 cm	6 mm	5 mm

Length and Width measurements taken on average date of heading for all ryes in test which was:

1974 - March 21
1975 - March 25

Test replicated four times -

Planting Dates were -

1974 - October 20
1975 - October 2

Plots irrigated

Fertilizer - 600 pounds per acre of 8-8-8

Statistical Data Indicating Tillers Per Plant Differentials On Various Ryes In Observations Taken At 3 Locations Using Wrens Abruzzi Rye As A Norm.

	Location Showing -		
	Madison, Ga.	Vidalia, Ga.	Pennington, Ga.
Wrens Abruzzi Rye	check	check	check
Bonel	109%	110%	110%
Emory	95%	92%	94%
Maton	96%	95%	94%
Weser	102%	103%	100%
~~Athens Abruzzi~~ WINTERGRAZER-70	116%	115%	115%

Est 8/28/78 per telephone conversation.

Readings Have Been Converted to % Of Tillers As Compared With Wrens Abruzzi Rye And Figures Rounded Off To Nearest %.

Planting Date - October 3, 1975

Observation Date - May 3, 1976

(1) a. Madison, Ga. is located in Morgan County, Georgia, which lies 60 miles east of Atlanta in the Piedmont section of the southern United States.

b. Vidalia, Ga. is located in Toombs County, Georgia, which lies 90 miles northwest of Savannah, Ga. in the Coastal Plains section of Georgia.

c. Pennington, Ga. lies in Morgan County, Georgia, 50 miles southeast of Atlanta in the Piedmont section of Georgia.

(2) Weather conditions during growing seasong -

Average Temperature 6° below normal during period

Average Rainfall was 2" above normal for period

REFERENCE: PATENT APPLICATION NO. 72010, "Wintergrazer-70" Rye

EXHIBIT E

The variety of rye known as Wintergrazer-70 is the property of Pennington Seed, Inc., a Morgan County, Georgia, corporation which is successor to Pennington Grain & Seed, Inc.

Brooks Pennington Pres.

Pennington Grain & Seed, Inc.

Brooks Pennington Pres.

Pennington Seed, Inc.

FORM GR-470-41
(7-77)

FORM APPROVED: OMB NO. 40-R3712

EXHIBIT C
(Rye)

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

OBJECTIVE DESCRIPTION OF VARIETY

RYE *(Secale cereale L.)*

NAME OF APPLICANT(S)	VARIETY NAME OR TEMPORARY DESIGNATION
Pennington Seed, Inc.	Wintergrazer-70
ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code)*	FOR OFFICIAL USE ONLY
P.O. Box 290 Madison, Ga. 30650	PVPO NUMBER

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [0|8|9] or [0|9]) when number is either 99 or less or 9 or less. The symbol ▲ indicates a decimal point. Characteristics described, including numerical measurements should represent those that are typical for the variety. All questions need not be answered, however, the more complete the information given the more adequate the variety will be identified.

1. PLOIDY:

[1] 1 = DIPLOID (2N = 14) 2 = TETRAPLOID (2N = 28) 3 = OTHER *(Specify)* _____

2. ADAPTATION:

[2] 1 = NORTH 2 = SOUTH

3. GROWTH HABIT:

[3] 1 = SPRING 2 = INTERMEDIATE 3 = WINTER

[1] PHOTOPERIOD: 1 = Insensitive 2 = Sensitive

[1] JUVENILE PLANT GROWTH: 1 = Erect 2 = Intermediate 3 = Prostrate

4. EAR EMERGENCE:

[0|1] DAYS EARLIER THAN . . . . . [6]

EMERGENCE SAME AS . . . . . [ ]

[ ] DAYS LATER THAN . . . . . [ ]

1 = Von Lochow 2 = Frontier 3 = Cougar
4 = Rymin 5 = Florida Black 6 = Weser
7 = Gator

5. MATURITY:

[3] 1 = VERY EARLY 2 = EARLY 3 = MIDSEASON 4 = LATE 5 = VERY LATE

[ ] DAYS EARLIER THAN . . . . . [ ]

MATURITY SAME AS . . . . . [6]

[ ] DAYS LATER THAN . . . . . [ ]

1 = Von Lochow 2 = Frontier 3 = Cougar
4 = Rymin 5 = Florida Black 6 = Weser
7 = Gator

6. HEIGHT *(from soil level to top of spike)*:

[1|7|2] CM. HIGH *(at maturity)* . . . . . [5]

1 = Dwarf 2 = Semidwarf 3 = Short
4 = Midtall 5 = Tall

[ ] CM. SHORTER THAN . . . . . [ ]

HEIGHT SAME AS . . . . . [5]

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

1 = Von Lochow 2 = Frontier 3 = Cougar
4 = Rymin 5 = Elbon 6 = Weser
7 = Gator

7. STEM:

[0|4] MM. STEM DIAMETER *(4 inches above ground)* [1] NODES: 1 = Solid 2 = Intermediate 3 = Hollow

[3] NECK HAIRINESS: 1 = Glabrous 2 = Slightly Hairy 3 = Moderately Hairy 4 = Densely Hairy

[1] ANTHOCYANIN IN UPPERMOST NODE: 1 = Absent 2 = Present

7. STEM *(Cont'd)*

0 1 8	CM. INTERNODE LENGTH *(Between flag leaf and leaf below)*
13	MORE TILLERS THAN 2
	SAME NO. TILLERS AS 2
	FEWER TILLERS THAN . . . . .
2	RESISTANCE TO LODGING: 1 = Good *(Seldom lodged)* 2 = Fair *(Often lodged)* 3 = POOR *(Usually lodged)*

Eat 8/10/78 as per letter dt'd 8/7/78

1 = Von Lochow 2 = Weser 3 = Frontier
4 = Tetra Petkus

8. LEAVES:

1 8 0	CM. LEAF LENGTH *(Ist leaf below flag leaf)*
1 2	MM. LEAF WIDTH *(Ist leaf below flag leaf)*
1	FLAG LEAF: 1 = Not Twisted 2 = Twisted
5	NO. LEAVES ORIGINATING FROM NODES ABOVE GROUND
2	WAXY BLOOM ON LEAF *(at boot)*; 1 = Absent 2 = Slightly Waxy 3 = Waxy
1	UPPER LEAF SURFACE *(at boot)*: 1 = Glabrous 2 = Lightly Spinous 3 = Pubescent
1	LEAF COLOR *(at boot)*: 1 = Dark Green *(Frontier, Weser)* 2 = Light Green *(Florida Black)* 3 = Other *(specify)* _____
1	MAIN STEM LEAF HABIT *(during tillering)*: 1 = Upright 2 = Recurved 3 = Drooping
1	MAIN STEM LEAF HABIT *(at boot)*: 1 = Upright 2 = Recurved 3 = Drooping
1	LEAF SHEATH *(at boot)*: 1 = Glabrous 2 = Lightly Spinous 3 = Pubescent
1	ANTHOCYANIN IN AURICLES: 1 = Absent 2 = Present

9. HEAD:

3	DENSITY: 1 = Lax *(Frontier)* 2 = MIDDENSE *(Tetra Petkus)* 3 = Dense *(Cougar)*
2	ATTITUDE: 1 = Erect 2 = Slightly Curved 3 = Inclined
1	SHAPE: 1 = Fusiform *(Tapering)* 2 = Parallel 3 = Oblong 4 = Elliptical 5 = Clavate 6 = OTHER *(Specify)* _____
2	WAXY BLOOM: 1 = Absent 2 = Slightly Waxy 3 = Waxy
1	ANTHOCYANIN: 1 = Absent 2 = Present
1	RESISTANCE TO SHATTERING: 1 = Good 2 = Fair 3 = Poor
2	HEAD LENGTH: 1 = Long 2 = Mid-Long to Long 3 = Mid-Long 4 = Short to Mid-Long 5 = Short
1 0 5	CM. HEAD LENGTH *(Excluding awns)*
0 3 5	CM. AWN LENGTH
1 8	MM. HEAD WIDTH
2	ANTHOCYANIN IN AWNS: 1 = Absent 2 = Slightly Pigmented 3 = Strongly Pigmented

10. COLEOPTILE COLOR:

2 — 1 = Green 2 = Red *(Purple)* 3 = Mixed white at first then change to purple

11. SEED:

COLOR *(Total = 100%)*

0 1 0 *% Black*	*% Gray*	*% Blue*	*% Blue-Green*
% Green	*% Olive-Green*	*% Yellow*	*% Tan*
0 9 0 *% Brown*	% Other *(Specify)* _____		*% Other (specify)* _____

1	ALEURONE COLOR: 1 = Colorless *(White)* 2 = Blue
1 5 5	GRAMS PER 1000 SEEDS
1	ENDOSPERM: 1 = Light 2 = Dark 3 = Mixed
1	SHAPE: 1 = Elliptical 2 = Fusiform 3 = Other *(Specify)* _____

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11. SEED *(Cont'd)*

[2] SIZE: 1 = Small *(Caribou)* 2 = Medium *(Puma)* 3 = Large *(Rymin)* 4 = Very Large *(Tetra Petkus)*

[1 9] MM. WIDE [0 6 2] MM. LONG [X] SURFACE: 1 = Smooth 2 = Other *(Specify)* 1 Est 6/12/78 as per letter dt'd 5/29/78.

12. DISEASE AND INSECT RESISTANCE (O = Not Tested, 1 = Susceptible, 2 = Resistant. Indicate as completely as possible including species and races where known):

		COMMENTS
Est 7/25/78*		
2/1	Leaf rust - *Puccinia recondita*	
2	Stem rust - *P. graminis secalis*	
NA	Stripe rust - *P. glumarum*	
2	Powdery mildew - *Erysiphe graminis secalis*	
Est 7/25/78*		
2/1	Anthracnose - *Colletotrichum graminicola*	
2	Scald - *Rhyncosporium secalis*	
2	Ergot - *Claviceps purpurea*	
Est 7/25/78*		
1	Other disease SEPTORIA	
	Other disease	
	Insect	
	Insect	

13. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
Growth Habit	Wrens Abruzzi	Tillering	Elbon
Leaf Width	Wider than any other	Ear Emergence	Weser
Leaf Length	Wrens Abruzzi	Area of Adaptation	Wrens Abruzzi
Leaf Color	Wrens Abruzzi	Winter Hardiness	Elbon
Leaf Carriage	Wrens Abruzzi	Drought Resistance	Weser
Seed Shape	Wrens Abruzzi	Lodging	Wrens Abruzzi
Seed Size	Wrens Abruzzi	Shattering	Wrens Abruzzi

14. ADDITIONAL DESCRIPTION *(Use additional sheets as required)*: **Describe all characteristics that cannot be adequately described in the form above. Comparative varieties should be used where appropriate, such as for disease. Append all comparative trial and evaluation data.**

Main difference in this variety is its wider leaves and higher yields.

* as per letter dt'd 7/19/78.