No. 7600070

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 (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ORCHARDGRASS

'Orbit'

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* 7th *day of* December *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
(1-76)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
PLANT VARIETY PROTECTION OFFICE
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY	
	Orbit	PV NUMBER 7600070	
2. KIND NAME	3. GENUS AND SPECIES NAME	FILING DATE 4/28/76	TIME 4:00 P.M.
Orchardgrass	Dactylis glomerata (L.)	FEE RECEIVED $250.00	DATE 4/28/76
4. FAMILY NAME (BOTANICAL)	5. DATE OF DETERMINATION	$250.00	9/26/77
Gramineae	March 1976	$250.00	11-8-77

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
Northrup, King & Co.	P. O. Box 959 Minneapolis, MN 55440	612-781-8011

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*)	10. IF INCORPORATED, GIVE STATE AND DATE 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, MN 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, Novelty Statement.

[X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*

[X] 13D. Exhibit D, Additional Description of the Variety.

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.)* [ ] YES [X] NO

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

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

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal? [X] YES [ ] NO

16. The applicant(s) declare(s) 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) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) 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 Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

April 22, 1976
(DATE)

Allenby L. White
(SIGNATURE OF APPLICANT)

1

(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, National Agricultural Library, Beltsville, Maryland 20705. (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 Give the date the applicant determined that he had a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give (1), the genealogy, including public and commerical varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4), evidence of stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as; plant habit, plant color, disease resistance, etc.

14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of Practice.)

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EXHIBIT A

Origin and Breeding History of Orbit Orchardgrass

1. Development of Orbit orchardgrass began in 1957 with the establishment of a space-planted nursery containing large numbers of plants of diverse origin. Following a severe winter kill, surviving clones from PI 230116 I were allowed to intercross with other surviving clones within the nursery.

2. Seed from these crosses was used to establish a second nursery from which 12 clones were phenotypically selected on the basis of winter hardiness, vigor, maturity and disease reaction. These 12 clones were placed in a polycross nursery in 1966. On the basis of replicated polycross progeny performance (primarily for forage yield) 5 of these clones were eliminated. Polycross seed was produced on the remaining 7 clones, was bulked, and was used to establish a breeder's field.

3. Plants in the breeder's field were quite uniform with respect to plant type. Sufficient breeders seed has been produced from this field to last the expected life of the variety. Commercial Orbit seed will be produced the next generation beyond breeder's seed.

4. Spaced plantings of breeders and basic seed reveal few variants between these two generations.

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EXHIBIT B

Novelty Statement

Orbit is a medium late maturing variety which is most similar to Sterling orchardgrass but differs from that variety in having shorter, lighter seed, by being about six days later in maturity, by being more winter hardy and by having leaves which are more narrow and upright.

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ADDENDUM

EXHIBIT B

LEAF WIDTH

Variety	Leaf Width (mm)
Orbit	6.2
Boone	8.2
Sterling	7.2
Nordstern	7.1

L.S.D. (05) .09% as per letter of 11/16/77 11/21/77
C.V. 2.38% 11/21/77
Note: Data taken in June, 1977

SEED LENGTH

Variety	Seed Length (mm)
Orbit	4.51
Sterling	6.06
Potomac	5.37
Pennlate	5.07
Latar	5.06
Masshardy	5.08

L.S.D. (05) .15% as per letter of 11/16/77 11/21/77
C.V. 4.80% 11/21/77

SEED WEIGHT

No statistically significant data available because original samples were not replicated.

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FORM GR-470-40
(6-77)

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

FORM APPROVED: OMB NO. 40-R3712

OBJECTIVE DESCRIPTION OF VARIETY
ORCHARDGRASS
(Dactylis glomerata L.)

NAME OF APPLICANT(S)	VARIETY NAME OR TEMPORARY DESIGNATION
NORTHRUP KING COMPANY	ORBIT
ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) P. O. Box 959 Minneapolis, MN 55440	FOR OFFICIAL USE ONLY PVPO NUMBER 7600070

Place the appropriate number that describes the varietal character of this variety in the boxes below. Fill unused columns with zeroes (e.g. [0|9|9] when number is 99). In comparisons to Potomac (standard variety) be sure to strike out the comparative term which does not apply [e.g. (~~shorter~~) (longer)]; the value [0|0] should only be used to indicate that the varieties are equal. The symbol ▲ indicates a decimal point. Characteristics described, including numerical measurements, should represent those which are TYPICAL for the variety. Measured data should be for SPACED PLANTS. Any recognized color fan, e.g. Royal Horticultural Colour Chart, may be used to determine plant colors; designate system used:_____. Give location of test area_____. Ranges of values are valuable and may be included with additional description elsewhere in the application.

NOTE: FOR SINGLE PLANT DATA A MINIMUM OF 100 PLANTS IS SUGGESTED.

1. PLOIDY:

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

2. ADAPTATION (for forage or pasture):

[4] 1 = NORTHEAST 2 = EAST CENTRAL 3 = SOUTHEAST 4 = NORTH CENTRAL
5 = SOUTH CENTRAL 6 = PACIFIC NW. 7 = SOUTHWEST 8 = OTHER (Specify)

3. WINTER HARDINESS:

[7] 3 = TENDER (HALLMARK) 5 = INTERMEDIATE (PENNLATE) 7 = HARDY (CHINOOK)

4. MATURITY:

[4] SEASON: 1 = VERY EARLY (BOONE) 2 = EARLY (STERLING) 3 = MIDSEASON (PENNMEAD)
4 = LATE (PENNLATE) 5 = VERY LATE (MASSHARDY)

FLOWERING DATE (50% BLOOM) COMPARED TO POTOMAC . . . [| 8] DAYS ~~(EARLIER)~~ (LATER)

BEGINNING OF SPRING GROWTH COMPARED TO POTOMAC . . . [|] DAYS (EARLIER) (LATER)

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

[0|9|0] CM. TALL; COMPARED TO POTOMAC . . . . [|] CM. (SHORTER) (TALLER)
11/21/77 as per letter 11/16/77

6. PLANT GROWTH TYPE (at maturity):

[2] TYPE: 1 = PROSTRATE (S-143) 2 = INTERMEDIATE (PENNMEAD) 3 = ERECT (BOONE)

PLANT WIDTH: DIAMETER ACROSS 2ND YEAR PLANT (TO TIPS OF OPPOSITE PANICLES). USE SAME OR COMPARABLE PLANTS AS FOR PLANT HEIGHT.

[| |] CM. PLANT WIDTH; COMPARED TO POTOMAC . . [|] CM. (NARROWER) (WIDER)

[2] EARLY LEAFINESS:
1 = PANICLE TILLERS EXSERTED BEFORE BARREN TILLERS 2 = PANICLE AND BARREN TILLERS EXSERTED TOGETHER

[| |] NO. PANICLE TILLERS AT MATURITY

[| |] NO. BARREN TILLERS AT MATURITY

LEAF ELEVATION DATA: (USE SAME OR COMPARABLE PLANTS FOR BOTH CHARACTERS)

[|] CM. LENGTH OF 5TH INTERNODE BELOW PANICLE (USUALLY 1ST NONCONTRACTED INTERNODE)

[|] CM. TOTAL STRAW LENGTH (TO LOWEST BRANCH OF PANICLE)

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7. LEAF:

1	CULM LEAF ATTITUDE (AT EARLY BOOT): 1 = ERECT (ORBIT) 2 = DROOPING (POTOMAC)
2	LEAF COLOR: 1 = YELLOW GREEN (LATAR) 2 = GREEN (STERLING) 3 = DARK GREEN (POTOMAC) 4 = BLUE GREEN (SUMAS)

LEAF HAIRINESS (% PLANTS WITH EACH SURFACE):

[ ] % GLABROUS [1 0 0] % SLIGHTLY PUBESCENT [ ] % PUBESCENT

4.4	MM. WIDTH (~~FIRST LEAF BLADE BELOW~~ FLAG LEAF); COMPARED TO POTOMAC . . . [ ] MM. (NARROWER) (WIDER)
15.1	MM. LENGTH (~~FIRST LEAF BLADE BELOW~~ FLAG LEAF); COMPARED TO POTOMAC [ ] MM. (SHORTER) (LONGER)

C 8 11/23/77

8. PANICLE (from lowest panicle branch to tip of rachis):

13.2	CM. PANICLE LENGTH; COMPARED TO POTOMAC . . . . . [ ] CM. (SHORTER) (LONGER)
3.1	NO. PRIMARY BRANCHES [75] NO. SPIKELETS OF LOWEST GLOMERULE (SPIKELET CLUSTER)
4	CAST (SECONDARY COLOR) OF PANICLE: 1 = YELLOWISH 2 = BROWN 3 = PURPLE 4 = OTHER (*Specify*) Brown & Purple

PANICLE TYPE. IN THE TABLE BELOW GIVE PERCENTAGE OF PLANTS WITH EACH PANICLE TYPE. PANICLE TYPE IS DETERMINED BY THE ANGLES FROM THE VERTICAL FORMED BY (A) THE RACHIS TIP AND (B) THE LOWEST BRANCH.

		(A) ANGLE OF RACHIS TIP (FROM VERTICAL)		
		0° (ERECT)	< 45°	> 45°
(B) ANGLE OF LOWEST BRANCH (FROM VERTICAL)	(< 30°)	5 %		
	(30° – 90)	60 %	10 %	
	(> 90°)	10 %	10 %	5 %

9. LEMMA (first spikelet of lowest cluster):

LEMMA HAIRINESS (% PLANTS WITH EACH SURFACE):

[ ] % GLABROUS [1 0 0] % PUBESCENT

LEMMA KEEL HAIRINESS (% PLANTS WITH EACH SURFACE):

[ ] % GLABROUS [1 0 0] % CILIATE

075	% PLANTS WITH NOTCHED LEMMA APEX
100	% PLANTS WITH LEMMA AWNS

.025	MM. DEPTH APICAL NOTCH
1.03	MM. TYPICAL AWN LENGTH

10. SEED:

0.93	MM. WIDTH; COMPARED TO POTOMAC . . . . . 05 MM. (~~NARROWER~~) (WIDER)
4.57	MM. LENGTH; COMPARED TO POTOMAC . . . . . 80 MM. (SHORTER) (~~LONGER~~)
840	MG. PER 1,000 PURE SEED; COMPARED TO POTOMAC . . . . . 250 MG. (LIGHTER) (~~HEAVIER~~)

11. DISEASE AND INSECT RESISTANCE (rate resistance 0–9, Where 0 = not tested, 1 = 100% susceptible, and 9 = 100% resistant):

0	POWDERY MILDEW (ERYSIPHE GRAMINIS)	0	STRIPE SMUT (USTILAGO STRIIFORMIS)
0	ANTHRACNOSE (COLLETOTRICHUM GRAMINICOLA)		
	OTHER (*Specify*) _____		

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11. DISEASE AND INSECT RESISTANCE (Continued)

RUST AND LEAF SPOT: SPECIFY AS COMPLETELY AS POSSIBLE INCLUDING SPECIES AND RACES WHERE KNOWN. IF GENERALIZED RESISTANCE OR SUSCEPTIBILITY IS CLAIMED (FIRST BOX), INCLUDE OR APPEND EXPLANATION. (0 = NOT TESTED, 1–9 = 100% SUSCEPTIBLE TO 100% RESISTANT, RESPECTIVELY.

		COMMENTS:
	RUST	
5	STEM RUST (PUCCINIA GRAMINIS)	
0	CROWN RUST (P. CORONATA)	
0	LEAF RUST (P. RUBIGO VERA)	
0	STRIPE RUST (P. GLUMARUM)	

		COMMENTS:
	LEAF SPOT	
0	LEAF STREAK (SCOLECOTRICHUM GRAMINIS)	
0	LEAF BLOTCH (STAGONOSPORA ARENARIA)	
0	PURPLE LEAF SPOT (STAGONOSPORA MACULATA)	
9	SCALD (RHYNCHOSPORIUM ORTHOSPORIUM)	
0	LEAF SPOT (ASCOCHYTA GRAMINICOLA)	
0	LEAF SPOT (MASTIGOSPORIUM RUBICOSUM)	
0	LEAF SPOT (HELMINTHOSPORIUM SPP.)	
0	LEAF SPOT (SEPTORIA SPP.)	
	OTHER	

12. INDICATE THE VARIETY THAT MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
LEAFINESS	Penlate	SEEDLING VIGOR	
WINTER HARDINESS	Nordstern	SEED SIZE	
FROST RESISTANCE		% LIGNIN	
SUMMER DORMANCY		PERSISTENCE	
HEAT TOLERANCE		TILLERING	

REFERENCES:

R. G. STAPLEDON, COCKSFOOT GRASS (DACTYLIS GLOMERATA L.) ECOTYPES IN RELATION TO THE BIOTIC FACTORS. JOURNAL OF ECOLOGY 16:71–104 1928.

P.F. PARKER, GENETIC VARIATION IN DIPLOID DACTYLIS III PANICLE, SPIKELET AND FLORET CHARACTERS. HEREDITY 24:383–405 1969.

COMMENTS:

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EXHIBIT D

Additional Description of the Variety

I. Seed.

Variety	Seed Length (mm)	Seed Width (mm)	Notched Lemma Apex Percent	Wt/1000 Seeds 1/ (grams)	Pubescent Keel Percent of Plants None	Light	Medium	Heavy
Orbit	4.57	0.93	75	0.84	0	3	26	71
Sterling	6.06	0.99	5	1.04	0	13	24	63
Potomac	5.37	0.88	13	1.09	0	23	55	22
Pennlate	5.07	0.92	4	0.94	0	17	53	30
Latar	5.06	0.93	25	0.86	0	12	50	38
Masshardy	5.08	0.96	25	1.02	0	0	55	45

1/ Weight of seed after cleaning with air column under constant setting.

Orbit has a shorter seed, lighter seed weight and a higher percentage of seeds with a notched lemma apex than any check varieties. It also has a greater amount of pubescence on the seed keel.

II. Plant.

Variety	Height of Main Foliage Bulk Foliage Height (cm) 1/
Orbit	90
Potomac	101
Sterling	97
Pennlate	107
Latar	107
Masshardy	103

1/ Height of main foliage of spaced plants at maturity as described on Page 450 of the 1972 Proceedings of the International Seed ~~Trade~~ Testing Association.

Orbit can, under either sward or space planted conditions and under most environments, be easily distinguished from other orchardgrasses by the leaves alone which are narrow and tend to be in a more upright or stiff position as opposed to the more lax position of other varieties.

III. Flowering.

Orbit is a medium-late maturing variety with small panicles, of which 70% have three primary branches. Rarely does Orbit have a plant with less than 2 or more than 4 primary branches.

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IV. Agronomic Characteristics.

A. Yield Data - In % of Check.

Varieties	NK Trials 12 Harvest Yrs.	Minn.-Iowa 7 Harvest Yrs.	Ontario, Canada 19 Harvest Yrs.
Orbit	103	100	103
Frode	100		100
Nordstern	111	100	104

NK trials: Washington, Iowa and Stanton, Minnesota, 1969-1975.
Minn.-Iowa: Station Trials 1972-1974.
Ontario, Canada: Station Trials - 6 locations - 1972-1974.

B. Winter Survival Data.

	State Experiment Station Trials			NK Trials
Varieties	N. Dakota 1973-74	Iowa 1974	Minn. 1974	Stanton, MN 1972-75 Average
Orbit	16	12	8.5	3.1
Sterling	4			5.7
Frode	1		7.3	4.0
Latar	5	41		
Rideau	5	22		
	No. of Spaced Plants Surviving Out of 40	Percent Winter Injury	Injury 9 = least 1 = most	Injury 1 = least 9 = most

C. Disease Resistance .

	State Experiment Station Trials		NK Trials		
Varieties	Minn. Rust	Iowa Rust	MN-Iowa Rust	Minn. Scald	Minn. Gen. Leaf Disease
Orbit	2.3	2.0	3.9	4.5	2.5
Sterling			7.1		6.5
Frode		4.5	5.2		5.0
Boone			7.0	6.5	5.0
Rideau	4.8	3.4			
	1 = None 5 = Severe		1 = None 9 = Severe		

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NORTHRUP KING CO.
1500 JACKSON STREET N.E., MINNEAPOLIS, MN 55413

Seedsmen since 1884

ALLENBY L. WHITE - VICE PRESIDENT RESEARCH & MARKET DEVELOPMENT

TELEX 29-0143
TWX 910-576-3420
PHONE 612-781-8011

Mr. Larry W. Dosier
Examiner
Plant Variety Protection Office
Agricultural Marketing Service
Grain and Seed Division
National Agricultural Library Building
Beltsville, Maryland 20705

September 23, 1977

Subject: Orchardgrass Application No. 7600070, "Orbit"

Dear Mr. Dosier:

This letter is in response to your letters of May 10, July 21 and August 15, 1977.

Objective Description Form

You will find enclosed the completed objective description form for Orbit.

Statistical Verification of Characters

You will find enclosed an addendum to Exhibit B in which the statistical evidence requested in your May 10 letter for the claims for "more narrow leaves" and "shorter, lighter seed" is presented. As indicated on the addendum, we have not provided data on seed weight because we did not replicate our samples when the seed was weighed, so therefore cannot provide a statistical analysis. While we believe that Orbit truly does have smaller and lighter seed than many other orchardgrass varieties, we also find that this character can be environmentally influenced so are inclined to drop this claim for novelty.

Clarification of Terms in Exhibit A

The term "plant type" in Exhibit A was used in the broadest sense to indicate that, in general, overall appearance of the plants were similar in type. In the objective description form, we describe this type as being "intermediate." That is, the plants are not tussocky like those of S.143 or erect, or distinctly "hay types," such as those of Boone. They are, however, uniform "intermediate" types.

NOTICE: Northrup King Co. warrants that seeds sold have been labeled as required under State and Federal Seed Laws and that they conform to the label description. No liability hereunder shall be asserted unless the buyer or user reports to the warrantor within a reasonable period after discovery (not to exceed 30 days), any conditions that might lead to a complaint. OUR LIABILITY ON THIS WARRANTY IS LIMITED IN AMOUNT TO THE PURCHASE PRICE OF THE SEEDS.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF.

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We used the term "few variants" in item 4 of Exhibit A to avoid the absolute and to support the phrase, "quite uniform," in item 3. Orbit is, of course, a synthetic variety and, as such, contains a certain range of plant types. We find this range to be very narrow in the case of Orbit, but since we cannot claim that all plants are identical, we felt we should use such adjectives as "few" and "quite" in our application. We do not find "variants" in Orbit if the word "variant" may in this instance be defined as describing plants which are clearly and obviously unlike actual Orbit plants. We can easily see how, in our effort to avoid the absolute, and in our use of the words "few" and "quite" the question of stability would arise, but we hope this commentary on the terms used in Exhibit A provides the necessary assurance.

Pubescence Percentage

Your observation that the figures shown for the keel pubescence for Orbit total only 98 percent is correct. This discrepancy results from the fact that we rounded off the figures. The actual figures were 3.4, 25.8, and 70.8. We should, therefore, have rounded these figures off to 3, 26, and 71, respectively.

Claim for "lax" Leaves

In your letter of August 15, you request more information for the claim for "lax" leaves.

It is true that all orchardgrasses, including Orbit, have lax leaves. However, those of Orbit are less lax than those of Potomac, Pennlate, Latar, Masshardy, Boone, and Nordstern, for example. Sterling, by contrast, is intermediate in this respect. That is, it falls in between the just-named varieties and Orbit in this respect. The lax leaf character of Orbit is most pronounced during the period 10-21 days after cutting. This is a difficult character to analyze statistically, but it is a nonetheless unique characteristic of Orbit.

I believe this answers the questions asked in the earlier-referenced letters, but we shall be happy to provide additional information if needed.

Sincerely,

NORTHRUP KING CO.

Allenby L. White

sam
Enclosures