No. 7700104

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

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

ROUGH BLUEGRASS

'Sabre'

PLANT VARIETY PROTECTION OFFICE · UNITED STATES 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* 15th *day of* February *in the year of our Lord one thousand nine hundred and* seventy-nine

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY PT4	1b. VARIETY NAME SABRE	FOR OFFICIAL USE ONLY PV NUMBER 7700104
2. KIND NAME ROUGH BLUEGRASS	3. GENUS AND SPECIES NAME Poa trivialis	FILING DATE 9-12-77 TIME 2:00 A.M. (P.M.) FEE RECEIVED $ 250.00 $ 250.00 250.00 DATE 9-12-77 9-12-77 1-9-79
4. FAMILY NAME (BOTANICAL) Gramineae	5. DATE OF DETERMINATION July 1976	
6. NAME OF APPLICANT(S) William K. Dickson C. Reed Funk	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* W. K. Dickson, 20 Kate Terrace, Piscataway, NJ 08854 C. R. Funk, 4 Delaware Dr., E. Brunswick, NJ 08902	8. TELEPHONE AREA CODE AND NUMBER 201-572-2452 201-254-6507
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

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

G. W. Pepin
International Seeds, Inc.
Box 168, Halsey, OR 97348

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? [X] YES [ ] NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? [X] FOUNDATION [ ] REGISTERED [X] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request 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 17, 1978 (DATE) — William K. Dickson (SIGNATURE OF APPLICANT)

April 17, 1978 (DATE) — C. Reed Funk (SIGNATURE OF APPLICANT)

1

FORM GR-470 (1-78)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, 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 commercial 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 uniformity and 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.

RECEIVED
APR 24 1978
U. S. DEPARTMENT
AMS-PVPO

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, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

Exhibit A

Origin and Breeding History of the Variety

The breeding program that produced Sabre *Poa trivialis* was initiated at the New Jersey Agricultural Experiment Station, New Brunswick, N. J. in 1961. Selections of *Poa trivialis* L. clones were made for a number of years from areas in the Northeastern U. S. The selections came from close cut, highly maintained turf areas including golf course putting greens and fairways, tennis courts, and lawns.

The clones were evaluated for a number of turfgrass characteristics including color, density, vigor, growth habit and shade tolerance. Ten clones were subsequently selected from this material for use as germplasm sources in further breeding work which ultimately led to the cultivar Sabre.

A number of different crosses were made between these ten clones in 1971 and 1972. Progeny from these crosses were established in a space plant nursery in 1972. A total of 232 plants were selected from this population in 1973 and placed in two isolated crossing blocks. Selection was based on uniformity of color, flowering time, growth habit, leafiness, and freedom from disease. Seed was harvested from each plant and a 20 plant progeny of each selection was established in a spaced-plant nursery in 1973. Plants from this nursery were selected in 1974 to establish another isolated crossing block. Selection was based on the same parameters as in 1973. Seed was again harvested from each plant and used to establish a space plant nursery in 1974. Undesirable plants were rogued from this nursery and in 1975 the seed from the remaining plants was bulked. This seed was designated PT4

and was used to plant a 3 acre foundation field in Hubbard, Oregon. The 1976 crop seed was used to plant about 100 acres of production for the 1977 crop.

Sabre is an open-pollinated, sexually reproducing variety. Every plant is different from all others. Thus Sabre and all other varieties of P. trivialis are much more variable than Kentucky bluegrass varieties.

Table 1 lists the mean values and the confidence intervals (C.I.) of these means for a number of different plant characters. The confidence interval gives a general idea of the variability one would expect to find in Sabre when grown under similar environmental conditions.

Turf plots and seed production fields established from first, second and third generation seed have demonstrated no noticeable performance differences.

EXHIBIT B

NOVELTY STATEMENT

Sabre more closely resembles the variety Polis (P.V. No. 760405). In 1977 Sabre was compared with Polis and a lot of uncertified Poa trivialis, variety not stated, from Denmark. This seed is listed as "Danish Common" in the tables.

In a spaced-plant nursery established in New Brunswick, N.J. (Table 1) Sabre was significantly different from Polis in the following respects.

1. Sabre was darker green in color and had more panicles per plant.
2. Sabre showed improvements in turf quality, color, and density when compared with Polis in turf trials conducted at North Brunswick, N.J. (Tables 2, 3 and 4).
3. Sabre showed a slower rate of vertical growth than Polis (Table 5).

Table 1. Morphological characteristics of *P. trivialis* cultivars. grown in a spaced-plant nursery at New Brunswick, New Jersey (1977).

Plant character		Cultivar: Sabre	Polis	Danish Common
Color 10 = darkest	MEAN	6.40	5.63	5.30
	*SEM	0.095	0.086	0.089
	**CI	6.21 - 6.59	5.46 - 5.80	5.12 - 5.48
Panicle length (cm)	MEAN	39.44	40.41	42.71
	SEM	0.44	0.60	0.48
	CI	38.57 - 40.31	39.22 - 41.60	41.76 - 43.66
Panicle number	MEAN	114.65	81.32	93.98
	SEM	4.30	3.72	2.95
	CI	106.14 - 123.16	73.92 - 88.72	88.14 - 99.82
Leaf angle at heading	MEAN	36.19	29.66	33.95
	SEM	1.37	1.72	1.56
	CI	33.48 - 38.90	26.27 - 33.08	30.86 - 37.04
Plant height at flowering (cm)	MEAN	30.31	30.92	30.38
	SEM	0.64	0.62	0.84
	CI	29.04 - 31.58	29.62 - 32.15	28.72 - 32.04
Plant width at flowering (cm)	MEAN	57.47	58.57	65.61
	SEM	1.12	1.47	1.00
	CI	55.25 - 59.69	55.65 - 61.49	63.63 - 67.59
Date of panicle emergence June 1977	MEAN	7.44	6.53	5.63
	SEM	0.34	0.32	0.24
	CI	6.77 - 8.11	5.89 - 7.17	5.14 - 6.11
Date of anther emergence June 1977	MEAN	20.84	20.74	20.05
	SEM	0.17	0.21	0.20
	CI	20.50 - 21.18	20.32 - 21.16	19.65 - 20.45

*SEM - Standard error of the mean
**CI = 95% confidence interval of the mean

Table 3. Color ratings of *P. trivialis* cultivars in turf trials at North Brunswick, N. J.*

Cultivar	Color (April, 1977)**
Sabre	6.8
Polis	4.0
Danish Common	3.6
LSD 0.05	0.7

*Test established in August 1976.

**Ratings on a 0-9 scale where 9 = darkest color

Table 4. Tiller density measurements of *P. trivialis* in turf trials at North Brunswick, N.J.*

Cultivar	Tillers/100 cm^2**
Sabre	405
Polis	339
Danish Common	268
LSD 0.05	47

*Test established in August 1976
**Tiller counts made on November 1977

Table 5. Rate of vertical growth of *P. trivialis* cultivars under greenhouse conditions*.

Cultivar	Vertical growth (cm)**
Sabre	3.17
Polis	4.18
Danish Common	4.34
LSD 0.05	0.36

*Measurements were made on plugs obtained from field test trials

**Values represent the vertical growth which occurred over a 14 day period

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-18
(1-15-73)

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

EXHIBIT C
(Bluegrass)

OBJECTIVE DESCRIPTION OF VARIETY

BLUEGRASS (*POA SPP.*)

NAME OF APPLICANT(S)

William K. Dickson C. Reed Funk

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)

20 Kate Terrace
Piscataway, N.J.
08854

4 Delaware Drive
East Brunswick, NJ
8902

FOR OFFICIAL USE ONLY

PVPO NUMBER 7700104

VARIETY NAME OR TEMPORARY DESIGNATION SABRE

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:

[3] 1 = POA COMPRESSA 2 = P. PRATENSIS 3 = P. TRIVIALIS 4 = OTHER (Specify) _____

2. REGION OF BEST ADAPTATION:

[1] 1 = NORTHEAST 2 = TRANSITIONAL ZONE 3 = NORTH CENTRAL 4 = PACIFIC N.W. 5 = OTHER (Specify) _____

3. MATURITY (At First Anthesis):

[1] 1 = EARLY (Delta) 2 = MEDIUM EARLY (Fylking) 3 = MEDIUM (Newport) 4 = LATE (Merion)

[ ][ ] NUMBER OF DAYS EARLIER THAN ..... [ ]
[ ][ ] NUMBER OF DAYS LATER THAN ..... [ ]

1 = NUGGET 2 = FYLKING
3 = DELTA 4 = MERION
5 = NEWPORT 6 = BARON

4. PLANT HEIGHT (Longest Shoot from Soil Surface to Top of Head):

[0][3][0] CM. HEIGHT

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

1 = NUGGET 2 = FYLKING
3 = DELTA 4 = MERION
5 = NEWPORT 6 = BARON

5. HABIT:

[2] 1 = PROSTRATE (Fylking) 2 = SEMI-PROSTRATE (Marion) 3 = ERECT (Delta)

6. VEGETATIVE REPRODUCTION (1 = Absent; 2 = Present):

[1] RHIZOMES [2] STOLONS

7. LEAF BLADE:

[3] Color: 1 = LIGHT GREEN (Rough Bluegrass) 2 = BLUE GREEN (Canada Bluegrass) 3 = MODERATELY DARK GREEN (Merion) 4 = DARK GREEN (Adelphi) 5 = OTHER (Specify) _____

[2] Upper Surface: 1 = SHINY 2 = DULL

[1] Lower Surface: 1 = SHINY 2 = DULL

[ ][ ] MM. WIDTH

[ ][ ] MM. LENGTH

8. LEAF SHEATH (Base):

[ ] Seedling Color: 1 = GREEN 2 = RED [ ][ ] MM. LENGTH

[2] Keel: 1 = NOT KEELED 2 = KEELED

Surface:

[ ] 1 = GLABROUS 2 = PUBESCENT [2] 1 = SMOOTH 2 = ROUGH

[1] 1 = NON-GLAUCOUS 2 = GLAUCOUS

9. LEAFINESS (At First Anthesis):

[ ] Number of leaves per tiller or shoot: 1 = FEW (1 - 3) 2 = INTERMEDIATE (4 - 6) 3 = MANY (More than 6)

10. PANICLE:

[0][3][9] MM. LENGTH

[ ][ ][ ] MM. LONGER THAN ..... [ ]
[ ][ ][ ] MM. SHORTER THAN ..... [ ]

1 = NUGGET 2 = FYLKING
3 = DELTA 4 = MERION
5 = NEWPORT 6 = BARON

9

Exhibit D

In appearance and growth habit, Sabre is different from Kentucky bluegrass. The ligule is much longer and more pointed, and vegetative spread is by above ground stolons rather than underground rhizomes.

Sabre is diploid (2N = 14) as opposed to the much higher ploidy levels characteristic of P. pratensis (i.e. 2N = 28-150). Sabre is completely sexual in reproduction as opposed to most commercial varieties of P. pratensis which are moderately to highly apomictic.

Sabre is moderately early in maturity. Prior to heading, plants often exhibit a rank, course appearance. Many plants will have a purple coloration at the base of the leaf sheaths. The leaf sheaths have a rough texture, thus accounting for the name "rough" or "roughstalk" bluegrass.

PV# 7700104 SABRE

FORM GR-470-18 (Reverse)

10. PANICLE (Cont.):

[1 1 5] NUMBER OF PANICLES PER PLANT [ ] MILLIGRAMS SEED PER PANICLE

[ ] Branches LOWEST WHORL: 1 = DROOPING (Prato) 2 = HORIZONAL (Merion) 3 = OTHER (Specify) _____

[2] Panicle Habit: 1 = NODDING (Newport) 2 = UPRIGHT (Nugget) [ ] MM. SPIKELET LENGTH

11. LEMMA

[ ] KEEL
[ ] LATERAL NERVES
} 1 = GLABROUS 2 = SLIGHTLY PUBESCENT 3 = PUBESCENT 4 = OTHER (Specify) _____

[ ] Intermediate Nerves: 1 = DISTINCT 2 = OBSCURE [ ] Basal Webbing: 1 = NONE 2 = SCANT 3 = COPIOUS

12. SEED:

[3] Apomictin Percentage: 1 = MORE THAN 95 2 = 85 TO 95 3 = LESS THAN 85

[ ] Phenol Reaction: 1 = NONE - LEMMA REMOVED (Merion) 2 = BEIGE (Cougar) 3 = BROWN (Windsor) 4 = BLACK (Delta - 2 hours) 5 = BLACK (Anheuser - 24 hours)

[ ] MM. WIDTH [ ] MM. LENGTH [ ] GRAMS PER 10,000 SEEDS [1 4] CHROMOSOME NO. (2n)

13. TURF DENSITY MAINTENANCE AT ONE INCH CUT:

[2] 1 = POOR 2 = MODERATE (Merion) 3 = SUPERIOR (Nugget) 4 = EXCELLENT

14. VERTICAL GROWTH RATE:

[2] 1 = SLOW (Nugget) 2 = MEDIUM (Merion) 3 = FAST (Delta) 4 = OTHER (Specify relation to a standard) _____

15. SPRING GREEN UP:

[1] 1 = EARLY (Windsor) 2 = MEDIUM (Fylking) 3 = LATE (Nugget)

16. FALL DORMANCY: (1 = Not Dormant; 2 = Intermediate; 3 = Dormant)

[ ] NORTHERN (42° 30' ± 30' Lat.) [1] INTERMEDIATE (40° ± 30' Lat.) [ ] SOUTHERN (37° 30' ± 30' Lat.)

17. SEEDLING VIGOR (Growth Rate):

[3] Seedling: 1 = SLOW 2 = MEDIUM 3 = FAST

18. ENVIRONMENTAL RESISTANCE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[2] COOL TEMPERATURE (Winter color)	[2] COLD (Injury)	[1] HEAT	[1] DROUGHT
[2] SHADE	[0] POOR FERTILITY	[0] ACID SOIL	[0] ALKALINITY
[0] SALINITY	[0] SOIL COMPACTION	[2] POOR DRAINAGE	[0] AIR POLLUTION
[ ] OTHER (Specify) _____			

19. DISEASE, INSECTS, AND NEMATODE RESISTANCE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] HELMINTHOSPORIUM VAGANS	[2] H. SOROKINIANUM	[0] H. DICTYOIDES	[0] RHIZOCTONIA SOLANI
[0] ERYSIPHE GRAMINIS	[2] USTILAGO STRIIFORMIS	[0] FUSARIUM NIVALE	[0] F. ROSEUM
[0] TYPHULA IOTANA	[1] SCELEROTINIA HOMEOCARPA	[2] PUCCINIA GRAMINIA	[2] P. STRIIFORMIS
[0] PYTHIUM ULTIMATUM	[0] CRAMBUS BONIFATELLUNS	[ ] OTHER (Specify) _____	

REFERENCE

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