No. 7700016

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Dunns Seed and Grain Limited

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

ITALIAN RYEGRASS

'Deltop'

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* 10th *day of* July *in the year of our Lord one thousand nine hundred and* eighty.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division

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 DELTOP	2. KIND NAME Italian ryegrass	FOR OFFICIAL USE ONLY PV NUMBER 7700016
3. GENUS AND SPECIES NAME Lolium multiflorum Lam.	4. FAMILY NAME *(Botanical)* Festuloliaceae	FILING DATE 11-30-76 / TIME 3:00 A.M. (P.M.)
	5. DATE OF DETERMINATION April 1976	FEE RECEIVED $250.00 / $250.00 / $ / BALANCE DUE $ 11-30-76 / $ 5/6/80 / $
6. NAME OF APPLICANT(S) Soil Fertility Dunns Ltd.	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* Hartham, Corsham, Wiltshire, SN13 OQA. ENGLAND.	8. TELEPHONE AREA CODE AND NUMBER 0249-712051

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Subsidiary to public company	10. STATE OF INCORPORATION United Kingdom	11. DATE OF INCORPORATION 1956

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

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? [ ] 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.

19/11/76
(DATE)

(SIGNATURE OF APPLICANT)
T. I. EMECZ
Head
Plant Breeding Station

(DATE)

(SIGNATURE OF APPLICANT)

EXHIBIT A

Origin and Breeding History of the Variety

Deltop Italian ryegrass originated from chromosome doubled material of British and Continental origin. The original material was collected from natural habitats in the form of seed and did not belong to bred varieties. Chromosome doubling was obtained through seed treatment. Plants established after treatment were subjected to chromosome checks and confirmed tetraploids were placed in individual performance tests. Positive selection was carried out primarily for earliness of ear emergence date. Selected genotypes were placed in a polycross. Progeny assessment was based on maternal lines and was carried out in competitive environment for yield. Final selection was based on general combining ability assessed on the maternal lines. Clonal propagates of parent plants were used to produce the first generation of the synthetic. Subsequent generations were produced from seed with negative selection in the early stage. The commercial material is the fourth generation. Pre-basic seed is always produced from the same foundation stock, consequently all fourth generation commercial material represent the same genetic structure and should be indistinguishable.

The variety is 5-6 days earlier than Tetila Tetrone and is the earliest tetraploid Italian known. The range of variation in ear emergence date within the variety is about 3-4 days. In morphological features no variants were observed.

The variety is a good yielder and it has been tried in many countries. In the United States it was included in trials in North Carolina and Florida and copies of the reports are enclosed. A photocopy is also provided with the data from the English National List trials.

EXHIBIT B

Botanical Description of Variety

Deltop is a tetraploid variety, the chromosome number being 4n = 28. It is a very early variety, its ear emergence preceding Tetila Tetrone by 5-6 days. Its growth habit is erect. Plant height at ear emergence is short, but it continues to grow and at full development is as tall as other varieties. Its colour is dark green. It has a very long and very wide flag leaf. It produces very few flowering heads in the year of sowing. Its persistence and winter hardiness is satisfactory, and it has a good general resistance to disease.

15. DISEASE (0 = NOT TESTED, 2 = HIGHLY SUSCEPTIBLE, 4 = MODERATELY SUSCEPTIBLE, 6 = MODERATELY RESISTANT, 8 = HIGHLY RESISTANT):

8	CROWN RUST (Puccinia coronata)	0	DOLLAR SPOT (Sclerotinia)	0	BROWN PATCH (Rhizoctonia)
6	LEAF SPOT (Helminthosporium)	8	MILDEW		OTHER *(Specify)*
0	SNOW MOLD (Typhula)	0	RED THREAD (Corticium)		

16. INSECT (0 = NOT TESTED, 2 = HIGHLY SUSCEPTIBLE, 4 = MODERATELY SUSCEPTIBLE, 6 = MODERATELY RESISTANT, 8 = HIGHLY RESISTANT):

0 *(Specify)* _____

17. GIVE RESEMBLANCE VALUE IN LEFT COLUMN AND VARIETY CODE NUMBER IN RIGHT COLUMN FOR VARIETY WITH WHICH COMPARISON IS MADE (1 = LESS THAN, 2 = SAME AS, 3 = MORE ERECT, MORE RESISTANT, DENSER, MORE PERSISTENT, DARKER OR GREATER HEIGHT.):

RESEMBLANCE	CHARACTER	SIMILAR VARIETY	
2	PLANT HABIT (erectness)	1	1 = GULF
3	TILLERING	1	2 = WIMMERA 62
3	WINTER HARDINESS	1	3 = LINN
3	HIGH TEMP. STRESS RESISTANCE	1	4 = PELO
3	TURF PERSISTENCE	1	5 = NORLEA
3	PLANT COLOR	1	6 = ABERYSTWYTH S-23
3	VERTICAL SEEDLING GROWTH RATE	1	7 = MANHATTAN
	CROWN DENSITY		8 = PENNFINE
	MOWER SHREDDING RESISTANCE		

18. GIVE AREA OF ADAPTATION AND INTENDED USE: Hay, silage or grazing

19. GIVE AREA TEST RESULTS PRESENTED FROM: North Carolina, Florida, U.K., France

COMMENTS:

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.

Mc, 1/30/76
3 p.m.

EXHIBIT 'D'

Data indicative of novelty

Deltop is a tetraploid Italian ryegrass most similar to Tetrone. Distinctive features as are follows:

1. It is 5 to 6 days earlier in ear emergence than Tetrone. (Deltop is the earliest Italian ryegrass known).

2. Its seed size is slightly bigger.

3. It has a more pronounced Autumn growth than Tetrone (or any other Italian ryegrass).

A copy of the Plant Breeders Rights Certificate is enclosed as a supporting document.

Dr. Tibor I. Emecz
General Manager

Plant Breeders' Rights

Grant No. 1146

7700016

PLANT VARIETY RIGHTS OFFICE

Grant of Plant Breeders' Rights

Soil Fertility Dunns Ltd
Hartham
Corsham
Wiltshire

(hereinafter referred to as "the Applicant") having made application for a grant of Plant Breeders' Rights in respect of the following plant variety, that is to say, the variety of Italian ryegrass known as DELTOP, being a variety of the species or group prescribed by the Plant Breeders' Rights (Ryegrass) Scheme 1968 the Controller of Plant Variety Rights, being satisfied that the conditions laid down in section 2 of the Plant Varieties and Seeds Act 1964 have been fulfilled as respect the Applicant and the aforesaid plant variety, Hereby Grants to the Applicant PLANT BREEDERS' RIGHTS in respect of the aforesaid plant variety to be exercised and enjoyed by him subject to and with the benefit of the provisions of the said Plant Varieties and Seeds Act 1964 for a period of 20 years years from the date of the sealing of this Grant.

IN WITNESS whereof the Controller of Plant Variety Rights has hereunto caused the seal of the Plant Variety Rights Office to be affixed this twenty third day of April 1976.

Controller of Plant Variety Rights

7700016

EAR EMERGENCE DATES AT HARTHAM

	1969	1970	1971	1972
Deltop	21.5.	13.5.	17.5.	19.5.
Deltex	2.6.	26.5.	24.5.	31.5.
Deltonic	5.6.	31.5.	31.5.	5.6.
Tetila	28.5.	20.5.	20.5.	24.5.
S.22	2.6.	27.5.	25.5.	31.5.

TIE/SJB
23.1.73.

NATIONAL LIST TRIALS REPORT - ITALIAN RYEGRASS

AFP 13/106 DELTOP (Tet) - FINAL REPORT

Ear Emergence 6 days earlier than Tetila

Seasonal Growth Seasonal yield relative to control

	Deltop	Imperial	Deltop Higher than control	:	Deltop Lower than control
Spring	39	42	2	:	2
Early Summer	34	33	2½	:	1½
Late Summer	22	19	4	:	0
Autumn	7	6	2	:	2
Total	102	100	3	:	1
1st Cons Cut	68	63	4	:	0
2nd Cons Cut	18	18	1	:	3
3rd Cons Cut	11	11	2	:	2
4th Cons Cut	10	8	4	:	0
Total	107	100	4	:	0

Quality

9 cut management - no data

4 cut management

	1st Conservation Cut(7)		2nd Conservation Cut(5)	
	Deltop	RvP	Deltop	RvP
Crude Protein	7.7	7.2	13.0	12.2
Soluble Carbohydrate	25.9	29.3	19.4	18.5
D-value	63.5	62.5	62.5	59.8

Disease Resistance

No disease reported

Winter Hardiness

Adequate at all Regional Centres

Other Comments

None

11

EXHIBIT E

Statement of Applicants Ownership

Soil Fertility Dunns Limited, Hartham, Corsham, Wiltshire, England is the sole and original breeder of the Italian ryegrass variety, Deltop, for which it solicits a certificate of protection. The variety has been entered in the United Kingdom official trials in December, 1971, and it was put on the United Kingdom National List and has been granted Plant Variety Rights in 1976. Commercialisation in the United Kingdom will commence in 1977.

FORM APPROVED: OMB NO. 40-R3712

FORM GR-470-36
(9-76)

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

OBJECTIVE DESCRIPTION OF CULTIVARS
RYEGRASS
(Lolium spp.)

NAME OF APPLICANT(S): Soil Fertility Dunns Limited

VARIETY NAME OR TEMPORARY DESIGNATION: DELTOP

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code): Plant Breeding Station, Soil Fertility Dunns Ltd., Hartham, Corsham, Wiltshire, SN13 OQA. ENGLAND.

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7700016

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 if either 99 or less or 9 or less. Descriptions of characters should represent those that are typical for the variety. Ranges may be given also. Measured data should be for SPACED PLANTS. Give additional description for all characteristics that cannot be adequately described in the form below. Append all pertinent comparative trial and evaluation data.

1. SPECIES:

[1] 1 = L. MULTIFLORUM (annual or Italian: includes Westerwoldicum) 2 = L. PERENNE (perennial) 3 = L. RIGIDUM (includes Wimmera)
4 = HYBRID (of species) _____ 5 = OTHER (Specify) _____

2. PLOIDY:

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

3. DURATION:

[1] 1 = ANNUAL OR BIENNIAL 2 = SHORT LIVED PERENNIAL (3-4 years) 3 = PERENNIAL (more than 4 years)

STANDARD CULTIVARS

1 = GULF 2 = WIMMERA 62 3 = LINN 4 = PELO
5 = NORLEA 6 = ABERYSTWYTH S-23 7 = MANHATTAN 8 = PENNFINE

4. MATURITY (50% HEADED) Use standards from above for comparison:

[1] 1 = VERY EARLY 3 = EARLY
5 = MEDIUM 7 = LATE
9 = VERY LATE

[2][8] DAYS EARLIER THAN ..... [6] STANDARD CULTIVAR
[ ][ ] DAYS LATER THAN ..... [ ] STANDARD CULTIVAR

5. MATURE PLANT HEIGHT (Use standard cultivars from above):

[ ][8][5] CM. HIGH [ ][ ][ ] CM. SHORTER THAN ..... [ ] STANDARD CULTIVAR
[ ][ ][ ] CM. TALLER THAN ..... [ ] STANDARD CULTIVAR

6. PERCENT WINTER DAMAGE (estimated as percent of the area appearing dead). Use standard cultivars from above for comparison:

[ ][ ][ ] PERCENT DAMAGE OF APPLICATION CULTIVAR
[ ][ ][ ] PERCENT DAMAGE OF ..... [ ] STANDARD CULTIVAR

7. TURF DENSITY Use standard cultivars from above:

[ ][ ][ ] TILLERS PER 100 SQ. CM.
[ ][ ][ ] LESS TILLERS PER 100 SQ. CM. THAN .... [ ] STANDARD CULTIVAR
[ ][ ][ ] MORE TILLERS PER 100 SQ. CM. THAN ... [ ] STANDARD CULTIVAR

8. FLAG LEAF (at full growth) Use standard cultivars from above:

[ ][2][7] CM. LENGTH (from ligule to tip) [ ][1][2] MM. WIDTH (at widest point)
[ ][ ][ ] CM. SHORTER THAN ..... [ ] STANDARD CULTIVAR
[ ][ ][ ] CM. LONGER THAN ..... [ ] STANDARD CULTIVAR
[ ][ ][ ] MM. NARROWER THAN ..... [ ] STANDARD CULTIVAR
[ ][ ][ ] MM. WIDER THAN ..... [ ] STANDARD CULTIVAR

[3] FLAG LEAF AT BOOT STAGE: 1 = DEFLEXED 3 = RECURVED 5 = HORIZONTAL 7 = SEMI-ERECT 9 = ERECT

STANDARD CULTIVARS

1 = GULF 2 = WIMMERA 62 3 = LINN 4 = PELO
5 = NORLEA 6 = ABERYSTWYTH S-23 7 = MANHATTAN 8 = PENNFINE

9. LEAVES:

[1] VERNATION: 1 = LEAVES ROLLED IN YOUNG SHOOTS
2 = LEAVES SEMI-ROLLED (folded with rolled edges)
3 = LEAVES FOLDED IN YOUNG SHOOTS

[1 0 0] % PLANTS WITH ANTHOCYANIN IN LOWER LEAF SHEATH [3] FOLIAGE COLOR: 1 = YELLOW GREEN 2 = MEDIUM GREEN 3 = BLUE GREEN

10. SPIKE:

[ ] MM. SPIKE LENGTH (tip to internode below lowest floret)

[ ] MM. SHORTER THAN ..... [ ]
[ ] MM. LONGER THAN ..... [ ]
} USE STANDARD CULTIVARS FROM ABOVE

[ ] MG. PER TEN SPIKES (trimmed to internode below lowest floret)

[ ] MG. LIGHTER PER TEN SPIKES THAN ..... [ ]
[ ] MG. HEAVIER PER TEN SPIKES THAN ..... [ ]
} USE STANDARD CULTIVARS FROM ABOVE

[ ] FLORETS PER SPIKELET

PERCENTAGE OF PLANTS WITH:

RACHIS: [ ] % SMOOTH [ ] % ROUGH

SPIKE COLOR: [1 0 0] % GREEN [ ] % PURPLE

LEMMA: [ ] % AWNED [6] MM. AWN LENGTH

[ ] MM. GLUME LENGTH [ ] 1 = SPIKELET LENGTH NEARLY EQUAL TO OUTER GLUMES
2 = SPIKELET LENGTH MUCH LONGER THAN OUTER GLUMES

11. COLEOPTILE:

[1 0 0] % PLANTS WITH ANTHOCYANIN IN COLEOPTILE

12. ANTHER COLOR:

[ ] % PLANTS WITH WHITE ANTHERS [ ] % PLANTS WITH YELLOW ANTHERS

[ ] % PLANTS WITH PURPLE ANTHERS

13. ROOT AND PLANT CHARACTERS:

[ ] % PLANTS WITH PROSTRATE GROWTH HABIT [1 0 0] % PLANTS WITH FLUROESCENT ROOTS

[1 0 0] % PLANTS WITH UPRIGHT GROWTH HABIT

14. SEED:

[6] MG. PER 1,000 SEED [7 0] MM. TOTAL LENGTH OF 10 SEEDS [2 0] MM. TOTAL WIDTH OF TEN SEEDS

ITALIAN RYEGRASS
(Lolium multiflorum Lam.*)*

7700016

DELTOP

Breeder: Soil Fertility Dunns Ltd., Hartham, Corsham, Wiltshire, England.

Origin: Selected from treated seed of British and Continental commercial material.

CLASSIFICATION:

Ploidy	:	Tetraploid
Ear emergence	:	Very early
Habit of growth	:	Erect
Height at ear emergence	:	Short
Length of flag leaf	:	Very long
Width of flag leaf	:	Very wide
Tendency to flower in year of planting	:	Very little

DIFFERENCES FROM SIMILAR VARIETIES:

About 5 days earlier than Terli in ear emergence; so far it is the earliest variety in the tetraploid group.