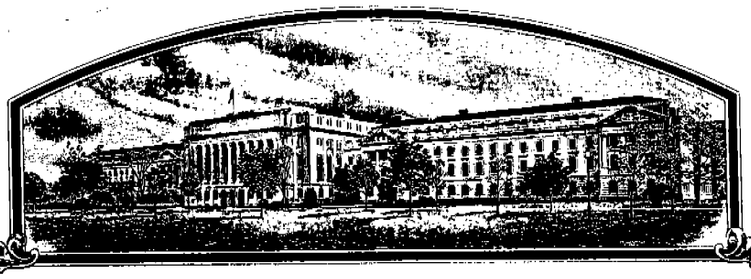

No. 7600028

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Turf-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, 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.)

PERENNIAL RYEGRASS

'Omega'

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* January *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 Omega	2. KIND NAME Perennial ryegrass	FOR OFFICIAL USE ONLY PV NUMBER 7600028
3. GENUS AND SPECIES NAME Lolium perenne L.	4. FAMILY NAME *(Botanical)* Gramineae	FILING DATE 1/12/76 TIME 11:00 A.M.
	5. DATE OF DETERMINATION Sept. 20, 1972	FEE RECEIVED $250.00 $250.00 $250.00 BALANCE DUE $ $ $
6. NAME OF APPLICANT(S) Turf-Seed, Inc.	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* 77 West G Street P.O. Box 250 Hubbard, Oregon 97032	8. TELEPHONE AREA CODE AND NUMBER (503) 981-9571
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Corporation	10. STATE OF INCORPORATION Oregon	11. DATE OF INCORPORATION July 15, 1970

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

1. R. H. Bailey, Turf-Seed, Inc. P. O. Box 250, Hubbard, Oregon 97032

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.)* [ ] 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

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.

January 8, 1976
(DATE)

R. H. Bailey
(SIGNATURE OF APPLICANT)

00001

(DATE)

(SIGNATURE OF APPLICANT)

EXHIBIT A

Origin and Breeding History of the Variety

1. 'Omega' perennial ryegrass is a 32 clone synthetic variety. The 32 parental clones were chosen on the basis of clonal performance and were evaluated in polycross progeny trials. Eighteen of the parental clones were selected from polycross progenies of plants obtained from NJE K-79 perennial ryegrass. Four of the parental clones were selected from the progeny of the cross of clone L4H x a selection from NJE K79. Three of the parental clones were selected from the polycross progeny of clone L4K. Two of the parental clones were selected from the progeny of the cross L4H x a selection from 'Pennfine' perennial ryegrass. Two of the parental clones were selected from the polycross progeny of a plant derived from Pennfine. One of the parental clones came from the progeny of the cross L4V x a selection from Pennfine. One of the parental clones originated from the progeny of the cross of a Pennfine selection x a clone selected in Central Park in New York City. One clone came from the polycross progeny of clone 61 which was selected in Central Park. NJE K79 is a germplasm source derived from 80 turf-type ryegrass clones. L4H was selected from an old turf area in Baltimore, Maryland. Clone L4K was selected from a different old turf area in Baltimore. L4V is one of the parental clones of Manhattan perennial ryegrass.

EXHIBIT A (CONTINUED)

2. Clonal propagules of the 32 parental clones were established in a randomized, replicated, isolated crossing block for the production of Syn I Breeders seed. Foundation increase fields were established from Breeders seed. Certified fields must be established from Breeders or Foundation seed.

3. No ~~objectionable~~ KS off-type plants or variants have been observed in the sexual reproduction and multiplication of this variety.

EXHIBIT B

Botanical Description of the Variety

'Omega' perennial ryegrass is a moderately dark green, fine-textured, turf-type variety. Ratings at New Brunswick, New Jersey show Omega to be somewhat darker green than either Manhattan or Pennfine at certain times of the year. Omega has produced turf of excellent quality with summer performance ratings being higher than those given Manhattan perennial ryegrass. Omega has maintained a more leafy turf during late May and early June than varieties such as Pennfine and Citation. Omega has shown moderate resistance to the late fall and winter brown blight disease caused by Helminthosporium siccans Drechsler. Turf produced by Omega was comparable in fineness and density to turf produced by Pennfine. Resistance to Rhizoctonia brown patch was superior to that observed in Manhattan and comparable to that exhibited by Pennfine and Citation. Omega is considerably earlier in maturity compared with Manhattan but a little later than Pennfine or Citation. Omega produces no fluorescent seedlings. Mowing quality of Omega has appeared to be comparable to that observed in Pennfine and Manhattan. Nursery observations at Adelphia, New Jersey indicated that Omega has good winterhardiness being comparable to Manhattan in this respect and significantly more winter hardy than Pennfine.

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.

Table D. Leaf Width of Perennial Ryegrass Cultivars and Selections Grown in a Spaced Plant Nursery at Adelphia, New Jersey during 1974.

Entry	Width of leaf immediately below flag leaf ~~cm~~ mm	Standard error of mean
1. Citation	3.4	± 0.09
2. Pennfine	3.5	± 0.07
3. Omega	3.9	± 0.10
4. Diplomat	3.9	± 0.09
5. Oregon Perennial	4.0	± 0.07
6. Linn	4.0	± 0.08
7. Ensporta	4.4	± 0.09
8. S-23	4.6	± 0.09
9. Yorktown	4.7	± 0.15
10. NK-100	4.7	± 0.13
11. Syn F	4.8	± 0.08
12. Manhattan	5.3	± 0.12
13. Sprinter	5.4	± 0.11
14. NK-200	5.6	± 0.10
15. Pelo	5.7	± 0.11
16. Norlea	6.8	± 0.13
17. Eton	7.0	± 0.11

Table A. Date of Anthesis of Perennial Ryegrass Selections and Cultivars Grown in a Spaced-Plant Nursery at Adelphia, New Jersey during 1974.

Entry	Mean date of anthesis	Standard error of mean
1. Linn	May 23	± 0.77
2. Pennfine	May 25	± 0.64
3. Oregon perennial	May 26	± 0.80
4. Citation	May 27	± 0.71
5. Game	May 27	± 1.01
6. G. Arika	May 28	± 0.83
7. Omega	June 1	± 0.72
8. Yorktown	June 4	± 0.55
9. NK100	June 5	± 0.65
10. Diplomat	June 8	± 0.65
11. Combi	June 10	± 0.99
12. Caprice	June 12	± 0.63
13. Sportiva	June 12	± 0.69
14. Manhattan	June 12	± 0.51
15. Ensporta	June 12	± 0.37
16. Lofts Syn F	June 12	± 0.44
17. Norlea	June 13	± 0.47
18. Pelo	June 13	± 0.63
19. S-23	June 15	± 0.88
20. Compas	June 15	± 0.86
21. Syn G	June 16	± 0.49
22. Servo	June 16	± 0.68
23. NK200	June 16	± 0.48
24. Eton	June 20	± 0.97
25. Splendor	June 20	± 1.17
26. Perma	June 21	± 1.14
27. Lamora	June 22	± 1.16
28. Sprinter	June 28	± 1.07
29. Barenza	June 28	± 1.28
30. Paramount	June 28	± 1.50
31. Endura	June 29	± 1.16
32. Athletic	June 30	± 2.20

Table B. Plant Height and Length of Spike of Perennial Ryegrass Selections and Cultivars Grown in a Spaced-Plant Nursery at Adelphia, New Jersey during 1974.

Entry	Plant Height (cm)	Length of Spike (cm)
1. Citation	51	18
2. Yorktown	53	21
3. Pennfine	54	19
4. Omega	56	20
5. Ensporta	57	20
6. Diplomat	58	20
7. Manhattan	63	23
8. Sprinter	63	24
9. Linn	63	21
10. Syn F	63	23
11. Oregon perennial	64	20
12. Eton	64	23
13. S-23	67	25
14. NK-100	69	24
15. NK-200	70	24
16. Pelo	72	24
17. Norlea	76	26

C

Table 3. Maturity Ratings of Perennial Ryegrass Varieties Grown at Adelphia, New Jersey.

Variety	Date at which 50% of plants initiated anthesis 1974
Pennfine	May 25 ± 0.6
Linn	May 26 ± 0.8
Citation	May 27 ± 0.7
Game	May 27 ± 1.0
Omega	June 1 ± 0.7
Yorktown	June 4 ± 0.6
Diplomat	June 8 ± 0.7
Manhattan	June 12 ± 0.5
Pelo	June 13 ± 0.6
Eton	June 20 ± 1.0
Sprinter	June 28 ± 1.1
Atheletic	June 30 ± 2.0

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Table 2. Performance of Perennial Ryegrass Varieties at New Brunswick, N. J.
Test seeded August 1972

Variety	Turf quality 9=best average	Color rating 9 = darkest Oct. 1972	Aug. 1973	Nov. 1973	Avg.	Brown blight percent brown Dec. 1972	Brown patch 9=most disease June '73	Tillers per 100 sq.cm. Nov. '73	Leaf width mm Nov. '73
1. Yorktown	7.4	7.5	7.0	8.0	7.5	9	5.0	308	1.8
2. Omega	7.2	7.5	7.0	7.7	7.4	28	3.3	313	1.7
3. Citation	7.1	8.0	8.0	8.0	8.0	74	3.0	321	2.0
4. Manhattan	6.8	6.2	7.0	7.0	6.7	15	6.2	288	1.9
5. Pennfine	6.5	6.6	5.5	6.5	6.2	66	3.3	322	1.8
6. NK-200	5.0	5.7	5.3	6.3	5.8	18	5.0	202	2.3
7. Pelo	4.4	3.7	3.7	5.3	4.2	9	6.7	251	2.2
8. NK-100	4.1	4.3	4.3	5.0	4.5	30	7.0	220	2.3
9. Barenza	3.6	4.0	3.7	4.7	4.1	13	7.7	191	2.4
10. Oregon Common	2.7	3.8	2.8	4.9	3.8	35	8.4	206	2.3
LSD at 5%		0.8	0.8	0.9		11	1.4	34	0.2
Merion Kentucky Bluegrass									

Test mowed at 3/4 inch and maintained at moderate to high fertility at all seasons.

Table 1. Monthly Turf Quality Ratings of Perennial Ryegrass Varieties at New Brunswick, New Jersey.

	Turf quality ratings 9 = best quality													
	Sept. Oct. 1972	Oct. 16 1972	Nov. Dec. 1972	Mar. 1973	Apr. 1973	May 1973	June 1973	July 1973	Aug. 1973	Sept. 1973	Oct. 1973	Nov. 1973	Dec. 1973	Avg.
1. Yorktown	7.3	7.5	7.8	8.5	8.0	8.0	5.5	6.5	7.0	6.5	8.0	8.0	8.0	7.4
2. Omega	8.0	7.0	6.5	7.3	7.7	7.2	6.3	7.3	7.3	7.7	7.7	7.7	8.0	7.2
3. Citation	7.1	7.5	4.0	6.3	7.0	5.8	6.3	7.7	8.0	8.7	8.0	8.0	7.7	7.1
4. Manhattan	6.8	6.8	6.6	7.6	7.5	7.2	4.5	5.5	6.0	6.5	7.4	8.0	8.0	6.8
5. Pennfine	6.7	6.6	4.6	5.5	4.5	5.0	5.7	6.7	7.0	7.2	7.2	7.5	7.7	6.5
6. NK-200	5.0	5.5	5.8	6.3	6.7	6.2	5.0	4.0	4.3	3.0	4.3	4.3	4.3	5.0
7. Pelo	4.2	4.2	5.2	5.3	5.3	4.8	3.0	3.3	3.7	3.0	4.7	5.3	5.7	4.4
8. NK-100	3.9	4.0	3.7	4.7	4.7	3.8	2.3	3.7	4.0	3.7	4.7	5.0	5.0	4.1
9. Barenza	3.4	4.0	4.5	4.0	4.0	3.5	2.3	2.3	3.0	4.0	4.0	4.0	4.3	3.6
10. Oregon Common	3.1	3.8	2.8	3.2	3.0	1.9	1.4	1.4	2.0	2.2	3.2	3.0	3.0	2.7
LSD at 5%	0.6	0.6	0.7	0.9	0.7	0.6	1.2	0.8	0.8	1.2	0.8	0.5	0.8	

Test seeded August 1972
Mowed at 3/4 inch
Moderate to high fertility maintained during all seasons.

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EXHIBIT C

9/3/75

U.S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Grain Division

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Omega

Omega

Objective Description of Cultivars
RYEGRASS
(Lolium spp.)

1. SPECIES:

[2] 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:

[1] 1=Diploid 2=Tetraploid 3= Other (specify) _____

3. DURATION:

[3] 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 standard cultivars from above.)

[4] 1=Very early 3=Early 5=Medium 7=Late 9=Very late See Table A
[1 1] Days earlier than [7] standard cultivar
[7] Days later than [8] standard cultivar

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

[5 6] cm. High [7] cm. Shorter than [7] standard cultivar See Table
[2] cm. Taller than [8] standard cultivar

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

[0] Percent damage of application cultivar
[0] Percent damage of [7] standard cultivar

7. TURF DENSITY: (Use standard cultivars from above.)

[3 1 3] Tillers per 100 sq. cm.
[9] Less tillers per 100 sq. cm. than [8] standard cultivar See Table C
[2 5] More tillers per 100 sq. cm. than [7] standard cultivar

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

[ ] cm. Length (from ligule to tip)
[ ] cm. Shorter than [ ] standard cultivar
[ ] cm. Longer than [ ] standard cultivar See Table D
[ ] mm. Width (at widest point)
[ ] mm. Narrower than [ ] standard cultivar
[ ] mm. Wider than [ ] standard cultivar
[ ] Flag leaf at boot stage: 1=Deflexed 3=Recurved 5=Horizonta
7=Semi-erect 9=Erect

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
[2] Foliage color: 1=yellow green 2=medium green 3=blue green

10. SPIKE:

[2 0] mm. Spike length (tip to internode below lowest floret) See Table B
[3] mm. Shorter than [7]
[1] mm. Longer than [8] (Use standard cultivars from above.)

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Omega
Omega

7600028

Ryegrass - 2
9/3/75

0. SPIKE (continued):

[ ] 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: [ ] % green [ ] % purple
Lemma: [ ] % awned [ ] mm. awn length

[ ] mm. glume length
1=Spikelet length nearly equal to outer glumes
2=Spikelet length much longer than outer glumes

11. COLEOPTILE:
[ ] %Plants with anthocyanin in coleoptile

12. ANTHER COLOR:
[ ] % Plants with white anthers
[ ] % Plants with purple anthers
[ ] % Plants with yellow anthers

13. ROOT AND PLANT CHARACTERS:
100 % Plants with prostrate growth habit
0 % Plants with upright growth habit
0 % Plants with fluorescent roots

14. SEED:
1.689 mg. per 1,000 seed
45 mm. total length of 10 seeds
12 mm. total width of 10 seeds

15. DISEASE (0=Not tested, 2=Highly susceptible, 4=Moderately susceptible, 6=Moderately resistant, 8=Highly resistant):

4 Crown rust (Puccinia coronata)
6 Leaf spot (Helminthosporium)
0 Snow mold (Typhula)
0 Dollar spot (Sclerotinia)
8 Mildew
0 Red thread (Corticium)
7 Brown patch (Rhizoctonia)
[ ] Other (specify) _____

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 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)	Manhattan
2	Tillering	Manhattan
2	Winter hardiness	Manhattan
3	High temp.stress resistance	Manhattan
2	Turf persistence	Manhattan
3	Plant color	Manhattan
2	Vertical seedling growth rate	Manhattan
2	Crown density	Manhattan
2	Mower shredding resistance	Manhattan

18. GIVE AREA OF ADAPTATION AND INTENDED USE: New Jersey & other cool seas areas of U.S. & overseeding

19. GIVE AREA TEST RESULTS PRESENTED FROM: New Jersey

COMMENTS:

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EXHIBIT D

Data Indicative of Novelty

Novelty is based on the unique combination of the following characteristics:

Omega most closely resembles 'Manhattan' except it has shown (1) a somewhat darker green color (2) earlier maturity (3) greater resistance to *Rhizoctonia* brown patch but less resistance to *Helminthosporium siccans*, and (4) a better record of performance under summer stress conditions at New Brunswick, New Jersey.

EXHIBIT E

Statement of Applicant's Ownership

Turf-Seed, Inc., Hubbard, Oregon, believes it has the sole ownership of the variety, Omega perennial ryegrass because of its work in the selection and sythesizing of the clones.

Seedsmen's Digest 32(1): 43. Jan. 1981.

conditions, particularly to length of day and temperatures within local areas.

The symposium also included pooling of information of maize (corn), soybeans and wheat.

NEW OMEGA TURF RYEGRASS LICENSED FOR CANADA

OMEGA, a new fine textured moderately dark green turf type perennial ryegrass has been awarded a Canadian license by Agriculture Canada, Plant Products Division in Ottawa on an application by Oseco Inc. of Brampton, Ontario.

Omega was developed by Turf-Seed Inc. (Hubbard, Oregon). Omega is a 32 clone synthetic variety. It has been tested at a number of official stations in Canada since 1976. Research stations at Ottawa and Guelph, Ontario and Truro, Nova Scotia have recommended Omega for licensing.

Omega has proven to be a versatile turf type perennial ryegrass suited for wide climatic conditions.

Oseco Inc. reports that it has a good supply of Omega available. □

NEW FESCUES VARIETIES REDUCE TETANY DANGERS

Scientists are developing new fescue varieties which will greatly reduce the odds of grass tetany, a disease of cattle that kills 1 to 2% of the mature grazing animals in the U.S. each year.

The disease is caused by a deficiency of magnesium in the blood serum of the animals. "So we simply have to increase the level of magnesium in tall fescue varieties to prevent grass tetany," David Sleper said in a report to the American Society of Agronomy.

"Fortunately, magnesium is under genetic control. In fact, we've been able to produce genotypes with more than twice the level of magnesium considered adequate to avoid tetany."

Sleper said he has produced plants with magnesium levels ranging from 0.1 to 0.4%, and that

(Please turn page)

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New Varieties of Birdsfoot Trefoil, Soybean, Broccoli and Pea Protected

The U.S. Department of Agriculture has issued the first certificate of protection for a variety of birdsfoot trefoil, according to Assistant Secretary of Agriculture P. R. "Bobby" Smith. He also announced the protection of six new varieties of soybean, seven new garden-pea varieties and one new broccoli variety.

The birdsfoot trefoil variety is named *Carroll*. It was developed by the Iowa Agriculture and Home Economics Experiment Station in Ames, Iowa.

The new soybean varieties are: *FFR 335* and *FFR 224*, developed by the FFR Cooperative, West Lafayette, IN; *Gnome* and *Amcor*, developed by the Ohio Agricultural Research and Development Center, Wooster, OH; *A3659*, developed by Asgrow Seed Co., Kalamazoo, MI; and *3981*, developed by Pioneer Hi-Bred International, Inc., Des Moines, IA.

The new garden pea varieties include *Sounder, Duke* and *Salvo* from the Roger Brothers Seed Co., Idaho Falls, ID, and *Clic, Klos, Dinos* and *Barok* from Asgrow.

Asgrow also received a protection certificate for *Toro*, a new broccoli variety.

The soybean varieties, FFR 335, Gnome, and Amcor and the birdsfoot trefoil variety, Carroll, will be sold by variety name as a class of certified seed.

New Alfalfa Variety Resistant To Seven Pests

Certified seed of *Perry*, a new pest-resistant alfalfa variety for the North Central states, will be available for seeding in the spring of 1981.

Perry is a winter-hardy variety resistant to four insects and three diseases. It was developed by a team of U.S. Department of Agriculture and University of Nebraska scientists at Lincoln. The variety is named after a pioneer alfalfa grower, H. C. Perry, of Ord, Nebraska.

The Perry variety has resistance to bacterial wilt similar to that of the variety, Vernal, as well as resistance similar to that of the Baker variety for the pea aphid. In addition, it has moderate resistance to downy mildew (like Baker and Saranac), to potato leafhopper yellowing (like Vernal), and to spotted alfalfa aphids collected in Nebraska (like Dawson). In field tests Perry has shown resistance to alfalfa weevil (like Arc) and to anthracnose (like Baker and Riley).

New Flower Novelties Introduced

Samen Mauser has introduced its new flower seed novelties for 1980/81.

Begonia semperflorens F-1 Hybrid Chur is a very important novelty and a Samen Mauser exclusivity. Height is 30-35 cm, with large flowers, which makes it a perfect selection for balconies and window-boxes, too. Chur is extremely resistant to rains and bad weather. Stem and leaves are a dark bronze, and the flower is pure white.

Chrysanthemum multicaule is an annual, dwarf chrysanthemum, golden yellow, for borders and as a bedding plant. It produces an abundance of flowers all through summer. Plants grow up to 20 cm, spreading and thus covering the soil.

Eucalyptus, Silver Drop/Silver Dollar make decorative boughs for exquisite bouquets. Sow in January-February, warm (18-20 degrees C), then prick out seedlings to be potted and cultivated at lower temperatures (16 degrees C). From May onwards, outdoor cultivation. A growing of Eucalyptus under glass, in a cold greenhouse, would even improve the attractive silver-grey color.

Delphinium Giants, hyacinth-flowered (new colors: white and salmon-red) are an annual larkspur, flowering two weeks earlier than the Royals. Plants grow up to 100 cm with strong, single stems, densly set with flowers. Best results are obtained with autumn sowing (hibernation with light protection against frosts), or also a direct outdoor sowing in March.

Helianthus annuus Taiyo is a new sunflower with long and strong stalks, growing to a height of up to 160 cm. It has a narrow, golden crown of large petals around the large, black-brown, disc-shaped center.

Lathydrus odoratus Jubilee (new colors: pure white and mixture) is a new sweet pea for outdoor cultivation, which has been tested thoroughly and confirmed in its excellent qualities. It shows vigorous growth and long, strong stems.

Salvia horminum Pink Sundae is an annual plant for borders and groups as an excellent bedding plant, but at the same time for cutting. Height is 60 cm, and it has carmine-rose leaves.

Scabiosa Sternkugel (Stellate Globe) is a new dry flower with globular, little heads, 4 cm, of light brown. The light blue scabious flowers change very soon into the little, dry balls, on stems 20 cm long. These little balls, in fact, are composed by numerous small, light-brown cups, with a black, five-pointed star as their center. Both stems and flowers are strong and durable, thus easy and excellent for bouquets and decorations.

Tagetes patula nana Indian Lady is a dwarf (25 cm), single-flowered red marigold, with a fine golden edge. This flower has been granted a Gold Medal at the Green 80 in Basel for its excellent color and quality.

Verbascum Silberblatt (Silver Leaf) is large (25 cm), ellyptic, pilose, with silver-white leaves gathered in rosettes. It is a particularly decorative silver-leaved plant.

Ficus benjamina, the "Indian fig-tree," is a good and vigorous plant for pots and tubs, and is also suited for Luwasa and similar special cultivation methods. The pendulous boughs and leaves are of a glossy dark green.

New Turf Ryegrass Licensed for Canada

Omega a new fine-textured moderately dark-green turf-type perennial ryegrass has been awarded a Canadian license by Agriculture Canada, Plant Products Division in Ottawa, on an application by Oseco Inc. of Brampton, Ontario.

Omega was developed by Turf-Seed Inc., Hubbard, Oregon. It is a 32-clone, synthetic variety, tested at a number of official stations in Canada since 1976. Research stations at Ottawa and Guelph, Ontario and Truro, Nova Scotia have recommended Omega for licensing. It has proven to be a versatile turf-type perennial ryegrass suited for wide climatic conditions. Oseco Inc. reports that is has a good supply of Omega available.

Asgrow Introduces New Soybean Varieties

A semi-determinate, relatively short soybean variety, *A2858*, is one of Asgrow Seed Company's newest soybean varietal releases.

The Group II maturity variety is especially adapted to narrow rows and solid seeding, and offers a high yield potential. In Asgrow research tests in Indiana and Illinois, it yielded 64 and 57 bushels per acre, respectively. It averaged 53.9 bushels per acre in seven locations throughout Iowa, Illinois and Indiana, compared to 48.9 bushels for Sloan and 49.9 bushels for Amsoy 71. A2858 shows moderate tolerance to iron chlorosis and good tolerance to Phytophthora root rot. It is resistant to powdery mildew.

Another new Asgrow variety, *A3659*, also shows consistent high yields in four years of research tests, averaging

 Seed World 118 (13): 17.

Dec 3, 1980.

SEED TRADE NEWS

International newsp

Asgrow corn hybrids offer yield potential

Three new corn hybrids from Asgrow Seed Company, Kalamazoo, Michigan, have demonstrated high yield potential in tests throughout the Corn Belt.

RX511, adapted for the northern Corn Belt, has outyielded other hybrids of comparable maturity by [illegible] to 18 bushels per acre in tests in Minnesota, Iowa and Illinois. In those tests, it averaged 139 to 152 bushels per acre, the company said. RX511 is a single-cross hybrid with a maturity range of from 95 to 130 days and an average height of eight feet six inches, with ears setting about four feet.

Asgrow's RX777 is tolerant of anthracnose and leaf diseases and is resistant to northern leaf blight. In state yield tests in Nebraska, Kansas, Iowa, Illinois, Indiana, and Ohio, it averaged 170 bushels per acre, Asgrow said. The average yield of all hybrids in the tests, the company said, was 160 bushels per acre. RX777 is adapted for a wide range of the Corn Belt.

The third new hybrid, RX875, has demonstrated exceptional yields for its maturity of from 90 to 95 days. This single-cross hybrid has a strong root system and carries ears moderately high. It has demonstrated vigorous early season growth, making it particularly adaptable for northern growing areas.

Harris Labs transmits soil test results by computer link-up

Harris Laboratories, Lincoln, Nebraska, has announced the development of an exclusive soil anaylsis system that links the world's largest soil data bank and agricultural fertilizer dealers. The new system delivers complete computerized soil reports within only 18 seconds, and allows routine fertilizer recommendations to be made without routing mail delays.

Using an existing telephone line via

Ray Wood [illegible] financial officer [illegible] Growers Seed Assn.

Ray E. Wood [illegible] appointed [illegible] financial [illegible] controller of Growers Seed [illegible]ion, Lubbock, Texas. George [illegible] vice president and general manager made the announcement.

Prior to joining GSA, Wood was a partner in Mason, Nickels [illegible] Warner, a certified public accounting [illegible] Lubbock.

Wood holds a BBA degree [illegible] ing from Texas Tech University and is a certified public accountant. He is a member of numerous professional organizations.

Omega is licensed for Canada by Oseco

Omega, a new fine-textured, moderately dark-green, turf-type perennial ryegrass, has been awarded a Canadian license by Agriculture Canada's plant products division, on an application by Oseco, Inc., Brampton, Ontario.

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Oseco said Omega has proved to be a versatile turf-type perennial suited for a wide range of climatic conditions.

Oseco said it has a good supply of Omega available.

Rushing promoted to Gustafson v.p.

Kyle W. Rushing has been promoted to vice president, research and development for Gustaf

Grus[illegible] of At[illegible]

Don Gru[illegible], [illegible] Seed [illegible] Sons, Marysville, Ohio, [illegible] president of the [illegible] Association, [illegible] tory specialist in the research division of Ohio Seed, was elected at the association's 28th annual meeting, held recently in Charleston, South Carolina. He has been with [illegible] years.

Also elected were Robert [illegible], Wetzel Seed Company, [illegible], Virginia, first vice president; Donald Pope, John Zaehn [illegible] set, New York, second vice president; John [illegible], Walker-Clemons Seeds, Inc., Buffalo, New [illegible], secretary; Dr. Charles Walker [illegible] Vaughan Seed Company, [illegible] Brook, New Jersey, treasurer.

Elected [illegible] were [illegible], Northern Chemical Kindsvatter, [illegible] Company, [illegible] Seed [illegible], New [illegible], Oregon, [illegible], Allen [illegible], Pennsylvania.

Margaret Herbst is the executive

Table B. Plant Height and Length of Spike of Perennial Ryegrass Selections and Cultivars Grown in a Spaced-Plant Nursery at Adelphia, New Jersey during 1974.

Entry	Plant Height (cm)	Length of Spike (cm)
1. Citation	51	18
2. Yorktown	53	21
3. Pennfine	54	19
4. Omega	56	20
5. Ensporta	57	20
6. Diplomat	58	20
7. Manhattan	63	23
8. Sprinter	63	24
9. Linn	63	21
10. Syn F	63	23
11. Oregon perennial	64	20
12. Eton	64	23
13. S-23	67	25
14. NK-100	69	24
15. NK-200	70	24
16. Pelo	72	24
17. Norlea	76	26

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Table C. Turf Density Ratings of Perennial Ryegrass Cultivars and Selections Evaluated in Turf Trials at New Brunswick, New Jersey.

	Entry	Tillers per 100 sq. cm. November 1973
1.	Diplomat	352
2.	Lofts Syn F	329
3.	Pennfine	322
4.	Citation	321
5.	Omega	313
6.	Yorktown	308
7.	Manhattan	288
8.	Pelo	251
9.	NK-100	220
10.	Game	207
11.	Splendor	206
12.	Oregon perennial	206
13.	NK-200	202
14.	Sprinter	202
15.	Barenza	191
16.	Caprice	191
	LSD at 5%	34
	Merion Kentucky bluegrass	226

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