

No.

9300198



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pure-Seed Testing, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, 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 TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC FURNISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE SAID APPLICANT(S) TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PROPAGATING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED IN THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CHEWINGS FESCUE

'Tiffany'

In Testimony Whereof, I have herunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of May in the year of our Lord one thousand nine hundred and ninety-five.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Stan Glickman
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Pure-Seed Testing, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. PST-4CD		3. VARIETY NAME Tiffany	
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) P.O. Box 250 Hubbard, OR. 97032		5. PHONE (include area code) 503-651-2130		FOR OFFICIAL USE ONLY VPPO NUMBER 9300198 F I L I N G Date 4/20/93 Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M. F E E S Filing and Examination Fee: \$ 23.25 - Date 4/20/93 R E C E I V E D Certificate Fee: \$ 300.00 Date May 1, 1995	
6. GENUS AND SPECIES NAME Festuca rubra Subsp. Commutata		7. FAMILY NAME (Botanical) Gramineae			
8. CROP KIND NAME (Common Name) Chewings fescue		9. DATE OF DETERMINATION August, 1991			
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation					
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Oregon		12. DATE OF INCORPORATION June 3, 1974			

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. William A. Meyer and Crystal Rose-Fricker
Pure-Seed Testing, Inc.
P.O. Box 250
Hubbard, OR. 97032

PHONE (include area code):

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. Exhibit A, Origin and Breeding History of the Variety.
- b. Exhibit B, Novelty Statement.
- c. Exhibit C, Objective Description of Variety.
- d. Exhibit D, Additional Description of Variety.
- e. Exhibit E, Statement of the Basis of Applicant's Ownership.
- f. Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office _____
- g. Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. 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) of the Plant Variety Protection Act.)
 YES (If "YES," answer items 16 and 17 below) NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
 YES NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
 FOUNDATION REGISTERED CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
 YES (If "YES," through Plant Variety Protection Act Patent Act. Give date: _____)
 NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
 YES (If "YES," give names of countries and dates)
 NO

20. The applicant(s) declare(s) that a viable sample of basic seeds 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 Protection Act.
 Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] <i>William A. Meyer</i>	CAPACITY OR TITLE President	DATE 4/13/93
SIGNATURE OF APPLICANT [Owner(s)] <i>Crystal Rose-Fricker</i>	CAPACITY OR TITLE Plant Breeder	DATE 4/13/93

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF
TIFFANY CHEWINGS FESCUE.

1. Tiffany Chewings fescue is an advanced generation synthetic resulting from progeny tests of clones selected for a lower growth habit with a high number of reproductive tillers. During the summer of 1989, twenty-eight clones were selected for a lower growth habit. These clones came from two Chewings fescue populations, an endophyte source from New Jersey called LFE and a nursery of 'Shadow' with endophyte. The fall of 1989 each of the 28 clones was vegetatively increased to 32 clones each and put into an isolated spaced-plant nursery in Oregon. The 28 clones were progeny tested in turf trials in Oregon and at Rutgers University in New Jersey.

The experimental code is PST-4CD. After evaluation for plant height, uniform maturity, seed production and turf quality seed was harvested from 11 clones as the parents of Tiffany Chewings fescue. Progenies of these clones were started and transplanted into a spaced-plant nursery of 1008 plants. This nursery was rogued for uniformity disease resistance, high seed head number, and low plant height resulting in 695 plants harvested as breeder seed of Tiffany.

2. Breeder seed is produced from clones maintained vegetatively in Oregon. Breeder seed is used to establish one generation each of foundation and certified seed.

3. No variants or off-types have been observed in the reproduction and multiplication of Tiffany.

4. Breeder, foundation and certified seed will produce turf and seed fields of equal quality, acceptable uniformity and good stability.

EXHIBIT B.

NOVELTY STATEMENT FOR
TIFFANY CHEWINGS FESCUE.

Tiffany Chewings fescue most resembles the variety Shadow except for the following characteristics:

1. Tiffany is at least 6 days later maturing than Shadow (Table 1).
2. Tiffany has a mature plant height at least 14.73 cm shorter than Shadow (Table 2 & 3).
3. Tiffany produces 40.25 more tillers per 5 inch of seeded row than Shadow (Table 3).

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION
 PLANT VARIETY PROTECTION OFFICE
 BELTSVILLE, MARYLAND 20705

EXHIBIT C
 (Fine Leaved Fescues)

OBJECTIVE DESCRIPTION OF VARIETY
FINE LEAVED FESCUES
 (*Festuca spp.*)

NAME OF APPLICANT(S) Pure-Seed Testing, Inc.	TEMPORARY DESIGNATION PST-4CD	VARIETY NAME Tiffany
ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) P.O. Box 250 Hubbard, OR. 97032		FOR OFFICIAL USE ONLY PVPO NUMBER 9300198

Place the appropriate number that describes the varietal character of this variety in the boxes below. Use leading zeroes when necessary (e.g., or). Characteristics described including numerical measurements, should represent those that are typical for the variety. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors; designate system used: _____
Seed yield trials near Hubbard, Oregon Describe location of test area, conditions and number of plants used: _____

1. SPECIES: (With comparison varieties for use below - use varieties within species of application variety)

- | | | | | |
|--------------------------------|--|---------------|---------------------|----------------|
| <input type="text" value="1"/> | 1 = <i>F. rubra</i> ssp. <i>commutata</i> (Chewings) | 11 = Cascade | 12 = Highlight | 13 = Jamestown |
| | 2 = <i>F. rubra</i> ssp. <i>litoralis</i> (Creeping Red) | 14 = Banner | 15 = Barfalla | 23 = Merlin |
| | 3 = <i>F. rubra</i> ssp. <i>rubra</i> (Spreading Red) | 21 = Dawson | 22 = Starlight | |
| | 4 = <i>F. ovina</i> (Sheep) | 24 = Pennlawn | | |
| | 5 = <i>F. longifolia</i> (Hard) | 31 = Boreal | 32 = Ruby | 33 = Fortress |
| | 6 = <i>F. tenuifolia</i> (Fine-Leaved Sheep) | 34 = Ensylva | | |
| | 7 = Other (Specify) <i>F.</i> _____ | 41 = Covar | | |
| | | 51 = Durar | 52 = Biljart (C-26) | 53 = Scaldis |
| | | 61 = Panda | 62 = Barok | |

2. CYTOLOGY:

- | | | | | | | |
|---|-------------------|---|--------|---------------|----------------|---------------|
| <input type="text" value="4"/> <input type="text" value="2"/> | Chromosome Number | <input type="text" value="3"/> <input type="text" value="1"/> | Ploidy | 1 = diploid | 2 = tetraploid | 3 = hexaploid |
| | | <i>3n 11/4/94</i> | | 4 = octoploid | | |

3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adapted)

- | | | | | | | | | | |
|--------------------------------|-----------|--------------------------|-----------|--------------------------------|---------------|--------------------------------|--------------|--------------------------|-----------------------|
| <input type="text" value="2"/> | Northeast | <input type="checkbox"/> | Southeast | <input type="text" value="2"/> | North Central | <input type="text" value="2"/> | Pacific N.W. | <input type="checkbox"/> | Other (Specify) _____ |
|--------------------------------|-----------|--------------------------|-----------|--------------------------------|---------------|--------------------------------|--------------|--------------------------|-----------------------|

4. MATURITY: Date First Headed (panicle emergence) Location(s) of Trail(s) Hubbard, Oregon

- | | | | | |
|--------------------------------|---------------------------------|--------------------------------|-----------------------------------|----------------------|
| <input type="text" value="5"/> | Maturity Class: | | | |
| | 1 = Very Early (Covar) | 2 = Early (Highlight) | 3 = Medium Early (Boreal, Dawson) | |
| | 4 = Medium Late (Cascade, Ruby) | 5 = Late (Jamestown, Agram) | 6 = Very Late | |
| | Date Headed <u>4/19</u> | See Table 1. | | |
| <input type="text" value=""/> | Days earlier than | <input type="text" value=""/> | <input type="text" value=""/> | } Comparison Variety |
| <input type="text" value=""/> | Maturity same as | <input type="text" value=""/> | <input type="text" value=""/> | |
| <input type="text" value="1"/> | Days later than | <input type="text" value="1"/> | <input type="text" value="4"/> | |

5. PLANT HEIGHT: (At maturity; to top of panicle; Average of 10 tallest culms)

- | | | | |
|--|-----------------|---|----------------------|
| <input type="text" value="9"/> <input type="text" value="3"/> <input type="text" value="0"/> | mm height | | See Table 2. |
| <input type="text" value="8"/> <input type="text" value="6"/> | mm shorter than | <input type="text" value="1"/> <input type="text" value="4"/> | } Comparison Variety |
| <input type="text" value=""/> | Height same as | <input type="text" value=""/> | |
| <input type="text" value=""/> | mm taller than | <input type="text" value=""/> | |

6. GROWTH HABIT: (Mature)

- | | | | |
|--------------------------------|------------------|----------------------------|-------------------------|
| <input type="text" value="3"/> | 1 = Erect (Ruby) | 2 = Semi-erect (Highlight) | 3 = Prostrate (Silvana) |
|--------------------------------|------------------|----------------------------|-------------------------|

7. RHIZOMES:

- | | | | | | |
|--------------------------------|---------------------------------------|-------------------------------|--------------------------------|-------------------------------|---------------------|
| <input type="text" value=""/> | mm Length | <input type="text" value=""/> | mm Width | <input type="text" value=""/> | mm Internode length |
| <input type="text" value="1"/> | 1 = Absent (Highlight) | 2 = Weakly Creeping (Dawson) | 3 = Strongly Creeping (Boreal) | | |
| | 4 = Very Strongly Creeping (Fortress) | | | | |

8. LEAF BLADE:

4 Color: 1 = Light Green (Starlight) 2 = Medium Light Green (Highlight) 3 = Medium Dark Green (Ruby, Agram)
 4 = Dark Green (Jamestown, Manoir) 5 = Bluegreen (Saphir) 6 = Graygreen (Scaldis)
 7 = Other (Specify) _____

Glaucosity (Sowing Year): 1 = Absent (Koket) 2 = Present (Vendome)

2 Anthocyanin: 1 = Absent 2 = Present 1 Hairs (Basal) 1 = Absent 2 = Present

2 Margins: 1 = Smooth 2 = Semi-rough 3 = Rough

1 Margin folding (closure): 1 = Rolled inward (closed-Highlight) 2 = Flat (open-Jamestown, Engina)

2 Width class:
 1 = Very Fine (Agram, Frida) 2 = Fine (Jamestown, Highlight, Banner, Dawson)
 3 = Medium Fine (Fortress, Ruby, Scaldis) 4 = Medium Coarse (Engina)

9 5 6 mm Length (flag leaf)

1 8 mm Shorter than 1 4 } Comparison Variety

Blade length same as } Comparison Variety

mm Longer than } Comparison Variety

2 8 5 mm Width (flag leaf)

2 7 mm Narrower than 1 4 } Comparison Variety

Blade width same as } Comparison Variety

mm Wider than } Comparison Variety

9. LEAF SHEATH:

Anthocyanin (seedling): 1 = Absent (Highlight) 2 = Present (Jamestown, Fortress, Marga)

Auricle Hairiness: 1 = Absent 2 = Present

Margins: 1 = Open (Highlight) 2 = Closed (Jamestown)

10. PANICLE (Mature plant):

3 Shape: 1 = Narrow-tapering 2 = Ovate 3 = Oblong 4 = Other (Specify) _____

2 Type: 1 = Open 2 = Intermediate 3 = Compact

1 Orientation: 1 = Erect 2 = Nodding

1 Branch Pubescence: 1 = Glabrous 2 = Pubescent

1 Anther Color: 1 = Yellowish Green 2 = Green 3 = Bluish Green 4 = Purplish
 5 = Reddish 6 = Other (Specify) _____

4 Glume Color (At 50% flowering): 1 = Yellowish Green 2 = Green 3 = Bluish Green 4 = Purplish
 5 = Reddish 6 = Other (Specify) _____

1 2 4 mm Length

2 5 mm Shorter than 1 4 } Comparison Variety

Panicle length same as } Comparison Variety

mm Longer than } Comparison Variety

11. PALEA:

Hairs (On keels or margins): 1 = Absent (Banner) 2 = Short (Agram, Scaldis, Olds)
 3 = Long (Rainier, Fortress, Jamestown)

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12. LEMMA (Mature):

<input type="text" value="1"/>	Hairs:	1 = Absent (Jamestown)	2 = Several	3 = Many (Highlight)
<input type="text" value="4"/> <input type="text" value="9"/>	mm Lemma Length			
<input type="text" value="3"/>	mm Shorter than	<input type="text" value="1"/> <input type="text" value="4"/>	} Comparison Variety	
<input type="text"/>	Lemma length same as	<input type="text"/>		
<input type="text"/>	mm Longer than	<input type="text"/>		
<input type="text" value="9"/> <input type="text" value="3"/>	mm Lemma Width			
<input type="text"/>	mm Narrower than	<input type="text"/>	} Comparison Variety	
<input type="text"/>	Lemma width same as	<input type="text" value="1"/> <input type="text" value="4"/>		
<input type="text"/>	mm Wider than	<input type="text"/>		
<input type="text" value="2"/>	Awns:	1 = Absent	2 = Present	
<input type="text"/>	mm Awn Length			
<input type="text"/>	mm Shorter than	<input type="text"/>	} Comparison Variety	
<input type="text"/>	Awn length same as	<input type="text"/>		
<input type="text"/>	mm Longer than	<input type="text"/>		

13. SEED (With lemma & palea):

<input type="text" value="3"/>	Size Class (g/1000 seed):			
	1 = < .9g (Biljart, Dawson)	2 = .9 - < 1.1g (Jamestown, Highlight)		
	3 = 1.1 - 1.3g (Fortress, Novorubra)	4 = > 1.3g (Boreal, Golfrood)		
<input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="6"/>	mg per 1000 seed			
<input type="text" value="1"/> <input type="text" value="3"/> <input type="text" value="7"/>	mg per 1000 seed less than	<input type="text" value="1"/> <input type="text" value="4"/>	} Comparison Variety	
<input type="text"/>	Seed Weight same as	<input type="text"/>		
<input type="text"/>	mg per 1000 more than	<input type="text"/>		

14. DISEASE, INSECT, AND NEMATODE REACTION (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

<input type="text" value="0"/>	Melting-out <i>Drechslera poae</i> (<i>Helminthosporium vagans</i>)	<input type="text" value="0"/>	Stripe rust <i>P. striiformis</i>
<input type="text" value="0"/>	Leaf spot <i>D. siccans</i>	<input type="text" value="0"/>	Leaf rust <i>P. poae-nemorialis</i>
<input type="text" value="2"/>	Net blotch <i>D. dictyoides</i>	<input type="text" value="2"/>	<i>P. crandallii</i>
<input type="text" value="0"/>	Leaf spot <i>Bipolaris sorokiniana</i>	<input type="text" value="0"/>	Pythium Blight <i>Pythium ultimum</i>
<input type="text" value="0"/>	Brown patch <i>Rhizoctonia solani</i>	<input type="text" value="2"/>	Red thread <i>Corticium fusciforme</i>
<input type="text" value="2"/>	Powdery mildew <i>Erysiphe graminis</i>	<input type="text" value="2"/>	Dollar spot <i>Sclerotinia homoeocarpa</i>
<input type="text" value="2"/>	Stripe smut <i>Ustilago striiformis</i>	<input type="text"/>	Insect _____
<input type="text" value="2"/>	F. Patch, Pink snow-mold <i>Fusarium nivale</i>	<input type="text"/>	Nematode _____
<input type="text" value="2"/>	Fusarium blight <i>F. tricinctum</i> , <i>F. roseum</i>	<input type="text"/>	Other _____
<input type="text" value="0"/>	Gray snow mold <i>Typhula lotana</i>	<input type="text"/>	Other _____
<input type="text" value="0"/>	Stem rust <i>Puccinia graminis</i>	<input type="text"/>	Other _____

15. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY. For the following characteristics indicate Degree of Resemblance by placing the column marked, D.R., one of the following numbers:

1 = Application variety is less than comparison variety. 2 = Same As
 3 = More than, better, greater, darker, more disease resistant, etc.

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D.R.
Rhizome Length			Growth Habit	Banner	1 (3=lower)
Leaf Width	Banner	1 (3=finer)	Leaf Color	"	3
Panicle Color	"	3	Panicle Shape		
Winter Color	"	3	Cold Injury		
Shade Tolerance	"	3	Heat		
Drought			Disease*		

* Specify each disease evaluated.

16. ADDITIONAL DESCRIPTION: (Use additional sheets as required)

Describe all characteristics that cannot be adequately described in the form above in Exhibit D. Comparative varieties should be used as may be appropriate, such as for disease. Append all comparative trial and evaluation data, including measured characters, environmental, and disease tests.

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EXHIBIT D.

ADDITIONAL DESCRIPTION FOR
TIFFANY CHEWINGS FESCUE.

Tiffany is low growing, turf-type Chewings fescue which produces an attractive, fine textured dense turf with a dark green color. It has good turf quality ratings across the United States (Tables 1A, 4D, 7D & 13).

Tiffany has good seedling vigor, spring and fall density, good winter color and good drought tolerance (Tables 6D, 8D, 9D, 11 & 14D).

Tiffany also has improved resistance to Puccinia crandahli, red thread, leaf spot, dollar spot, summer patch, pink patch, and anthracnose (Tables 10, 12, 15D, 16D, 17D, 18D & 19D). It also has a high reproductive seed head number (Table 12).

TABLE 1.

FIFTY PERCENT HEADING DATE ON
FINE FESCUE SEED YIELD TRIAL SEEDED FALL
OF 1990 AND 1989 NEAR HUBBARD, OREGON.

<u>CULTIVAR</u>	<u>1990 TRIAL</u>		<u>1989 TRIAL</u>
	<u>1992</u> <u>HEADING</u> <u>DATE</u>	<u>1991</u> <u>HEADING</u> <u>DATE</u>	<u>1992</u> <u>HEADING</u> <u>DATE</u>
Tiffany	4/18	5/7	4/19
Shadow	4/10	4/30	4/13
Banner	*NIT	*NIT	4/18
Jamestown	*NIT	*NIT	4/18

*NIT=NOT IN TRIAL

TABLE 2.

MORPHOLOGICAL MEASUREMENTS TAKEN JUNE 1991
ON NATIONAL FINE FESCUE SEED YIELD TRIAL
SEEDED FALL OF 1989 NEAR HUBBARD, OREGON.

CULTIVAR	PLANT HEIGHT	S.E.	FLAG LEAF LENGTH	S.E.	FLAG LEAF WIDTH	S.E.
	CM		CM		MM	
Tiffany	92.99	1.22	9.56	0.58	2.85	0.13
Shadow	107.72	1.84	10.82	0.49	2.62	0.11
Banner	101.62	1.31	11.42	0.55	3.12	0.13
Jamestown	105.67	1.08	12.41	0.54	2.41	0.15

CULTIVAR	PANICLE LENGTH	S.E.	AWN LENGTH	S.E.
	CM		MM	
Tiffany	12.41	0.41	1.40	0.20
Shadow	16.13	0.47	1.35	0.20
Banner	14.93	0.44	1.68	0.22
Jamestown	15.92	0.47	1.20	0.19

TABLE 3.

MORPHOLOGICAL MEASUREMENTS TAKEN JUNE ON
FINE FESCUE SEED YIELD TRIALS SEEDED FALL
1990 AND 1988 NEAR HUBBARD, OREGON.

CULTIVAR	1992 PLANT HEIGHT CM	1990 TRIAL 1991		1988 TRIAL 1989		
		S.E.	# OF TILLERS PER 5" ROW	S.E.	# OF TILLERS PER 5" ROW	S.E.
Tiffany	77.40	1.58	99.13	10.04	84.63	13.10
Shadow	92.84	1.71	49.00	6.05	44.38	7.21

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TABLE 4D. GENETIC COLOR RATINGS OF CHEWINGS FESCUE CULTIVARS
1990 DATA

NAME	GENETIC COLOR RATINGS 1-9; 9=DARK GREEN 1/							
	AL1	ID2	NE1	NJ1	NJ2	OH2	OR9	MEAN
OF1 89-200	5.0	7.7	5.7	5.7	4.7	7.0	6.3	6.0
PST-4CD	4.0	6.7	6.0	5.3	5.7	7.0	7.3	6.0
ERG 1143	4.7	7.3	5.3	6.3	4.7	7.7	6.0	6.0
LONGFELLOW	4.3	6.0	5.3	7.3	5.0	7.0	6.0	5.9
PST-4FE	4.3	6.3	6.3	5.3	5.3	7.0	6.3	5.9
SOUTHPORT	4.0	7.0	6.0	5.7	4.7	7.0	6.7	5.9
BAR FR 9F (BARLANDER)	4.0	6.3	6.3	6.3	5.7	7.0	5.0	5.8
NK 82492 (DOVER)	3.3	6.7	7.0	7.0	4.3	7.0	5.3	5.8
ESTORIL (TROPHY)	5.0	7.0	6.0	5.0	5.3	7.0	5.0	5.8
89.LKR			6.0	5.7	5.3		6.0	5.8
M-105 (BRIDGEPORT)	4.0	6.7	5.7	5.0	5.3	7.0	6.3	5.7
BARGREEN	4.3	6.3	6.0	4.3	6.0	7.0	6.0	5.7
WILMA	4.0	6.3	5.7	5.7	4.7	7.0	6.3	5.7
PST-SHE (SHADOW W/ENDO.)	3.7	6.7	6.3	5.0	4.3	7.0	6.3	5.6
RAYMOND	3.3	6.7	5.7	4.7	5.3	7.0	6.3	5.6
BANNER	4.0	6.0	5.3	5.7	4.7	7.0	6.0	5.5
ENJOY	4.0	6.7	6.0	4.7	5.0	7.0	5.3	5.5
JAMESTOWN	3.7	6.0	6.0	4.7	5.7	7.0	5.7	5.5
CAPITOL	3.0	6.3	6.0	5.0	5.7	7.0	5.3	5.5
MOLINDA	3.0	6.0	6.0	5.0	5.0	7.0	6.3	5.5
RAINBOW	3.7	6.7	6.0	3.7	6.0	6.7	5.7	5.5
JAMESTOWN 11	3.7	6.3	5.7	4.3	5.3	6.7	6.0	5.4
SCARLET	3.3	6.7	6.0	4.0	5.3	7.0	5.7	5.4
CAMARO	3.0	6.3	6.0	4.3	5.0	7.0	6.0	5.4
WALDORF	3.3	6.7	5.3	5.3	4.7	6.7	5.7	5.4
MARY	3.7	6.3	6.0	4.0	5.0	7.0	5.3	5.3
SHADOW	3.0	6.7	5.7	4.7	4.0	7.0	6.3	5.3
SR 5000	3.7	6.7	5.3	3.7	4.7	7.0	6.3	5.3
JMB-89	3.3	6.0	6.7	4.3	4.3	6.7	6.0	5.3
LD 3485	3.7	5.3	6.3	3.7	5.0	7.0	5.7	5.2
PUMA	3.0	6.0	5.7	3.3	5.3	7.0	6.0	5.2
ATLANTA	3.3	6.7	5.7	4.0	4.3	6.7	5.0	5.1
KOKET	4.3	5.3	6.3	3.3	4.7	6.0	5.3	5.0
BARNICA	3.0	5.3	5.7	3.0	5.0	6.7	5.7	4.9
EPSOM	3.3	6.0	5.3	3.0	5.0	6.0	5.0	4.8
HF 112 (FERNANDO)	3.7	5.0	5.3	3.0	4.7	6.0	5.0	4.7
LSD VALUE	1.0	1.0	1.1	1.1	1.1	0.4	1.2	0.4

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 5.

PERFORMANCE OF FINE FESCUE CULTIVARS AND SELECTIONS
IN A TURF TRIAL SEEDED SEPTEMBER 1991 AT ADELPHIA, NJ.

CULTIVAR	1992 TURF QUALITY	NET BLOTCH JAN. 3 1992	WINTER PERFORMANCE DEC. 23 1992
Tiffany	6.1	7.3	5.3
Shadow	5.0	6.0	4.7
Banner	*NIT	*NIT	*NIT
Jamestown	4.3	5.7	4.7
L.S.D. .05%	0.7	1.6	1.6

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TABLE 6D. SEEDLING VIGOR RATINGS OF CHEWINGS FESCUE CULTIVARS
1991 DATA

NAME	SEEDLING VIGOR RATINGS 1-9; 9=MAXIMUM VIGOR				MEAN
	MD1	MN1	PA1	SK1	
SHADOW	4.7	6.0	7.7	4.7	5.8
CAPITOL	5.7	5.3	6.0	5.7	5.7
PST-4CD	5.3	5.3	6.0	5.7	5.6
MARY	5.0	5.7	5.7	5.7	5.5
ENJOY	5.3	5.3	6.3	5.0	5.5
SR 5000	4.3	5.3	6.7	5.7	5.5
JAMESTOWN II	4.0	6.0	5.7	6.0	5.4
PUMA	4.0	5.7	7.0	5.0	5.4
SCARLET	4.3	5.7	6.0	5.7	5.4
TROPHY (ESTORIL)	5.0	5.7	5.3	5.7	5.4
SOUTHPORT	4.3	5.7	5.7	5.7	5.3
FERNANDO (HF 112)	4.3	5.7	6.0	5.3	5.3
BRIDGEPORT (N-105)	4.3	5.3	5.7	5.7	5.3
CAMARO	4.3	6.0	5.0	5.7	5.3
JAMESTOWN	4.0	6.0	5.7	5.3	5.3
PROFORMER (JMB-89)	4.7	5.3	5.3	5.7	5.3
SIMONE (LD 3485)	4.0	5.7	6.3	5.0	5.3
BARNICA	4.0	5.3	6.3	5.3	5.3
BANNER	4.3	5.7	6.0	4.7	5.2
PST-4FE	4.7	5.7	5.0	5.3	5.2
RAINBOW	3.3	5.3	6.0	6.0	5.2
RAYMOND	4.0	5.3	6.0	5.3	5.2
WILMA	4.3	5.3	5.7	5.3	5.2
EPSOM	4.0	5.0	6.0	5.3	5.1
MOLINDA	4.0	5.7	5.7	4.3	4.9
SHADOW W/ENDO. (PST-SHE)	3.7	5.7	5.0	5.0	4.8
BARGREEN	4.0	5.0	4.7	5.3	4.8
BARLANDER (BAR FR 9F)	4.0	4.7	5.0	5.3	4.8
LONGFELLOW	4.0	5.3	4.7	5.0	4.8
OFI 89-200	4.3	4.7	4.7	5.0	4.7
WALDORF	4.3	4.7	4.3	5.3	4.7
DOVER (NK 82492)	4.0	5.0	3.7	5.3	4.5
ERG 1143	4.0	4.3	4.7	5.0	4.5
ATLANTA	4.0	5.0	4.0	4.7	4.4
KOKET	3.3	5.3	4.0	4.7	4.3
89.LKR	5.0	.	2.0	.	3.5
LSD VALUE	1.3	1.0	1.6	1.3	0.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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9300198TABLE 7D. LEAF TEXTURE RATINGS OF CHEWINGS FESCUE CULTIVARS
1991 DATA

LEAF TEXTURE RATINGS 1-9; 9=VERY FINE 1/

NAME	ID2	MEAN
BARNICA	8.0	8.0
ENJOY	8.0	8.0
WALDORF	8.0	8.0
BARGREEN	7.7	7.7
PST-4CD	7.7	7.7
SCARLET	7.7	7.7
WILMA	7.7	7.7
ATLANTA	7.3	7.3
BARLANDER (BAR FR 9F)	7.3	7.3
CAPITOL	7.3	7.3
FERNANDO (HF 112)	7.3	7.3
PUMA	7.3	7.3
RAINBOW	7.3	7.3
RAYMOND	7.3	7.3
SHADOW W/ENDO. (PST-SHE)	7.3	7.3
SIMONE (LD 3485)	7.3	7.3
SR 5000	7.3	7.3
BANNER	7.0	7.0
BRIDGEPORT (N-105)	7.0	7.0
CAMARO	7.0	7.0
DOVER (NK 82492)	7.0	7.0
JAMESTOWN 11	7.0	7.0
KOKET	7.0	7.0
LONGFELLOW	7.0	7.0
MARY	7.0	7.0
MOLINDA	7.0	7.0
PROFORMER (JMB-89)	7.0	7.0
PST-4FE	7.0	7.0
SHADOW	7.0	7.0
SOUTHPORT	7.0	7.0
TROPHY (ESTORIL)	7.0	7.0
EPSOM	6.7	6.7
ERG 1143	6.7	6.7
JAMESTOWN	6.7	6.7
OFI 89-200	6.7	6.7
LSD VALUE	0.9	0.9

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 80. SPRING DENSITY RATINGS OF CHEWINGS FESCUE CULTIVARS
1991 DATA

DENSITY RATINGS 1-9; 9=MAXIMUM DENSITY 1/

NAME	ID2	MEAN
MARY	8.0	8.0
PST-4CD	8.0	8.0
SCARLET	8.0	8.0
BARLANDER (BAR FR 9F)	7.7	7.7
BRIDGEPORT (N-105)	7.7	7.7
CAPITOL	7.7	7.7
ENJOY	7.7	7.7
KOKET	7.7	7.7
RAINBOW	7.7	7.7
FERNANDO (HF 112)	7.3	7.3
TROPHY (ESTORIL)	7.3	7.3
BARNICA	7.0	7.0
OFI 89-200	7.0	7.0
SR 5000	7.0	7.0
BANNER	6.7	6.7
BARGREEN	6.7	6.7
EPSOM	6.7	6.7
JAMESTOWN II	6.7	6.7
RAYMOND	6.7	6.7
SHADOW W/ENDO. (PST-SHE)	6.7	6.7
WALDORF	6.7	6.7
WILMA	6.7	6.7
ATLANTA	6.3	6.3
DOVER (NK 82492)	6.3	6.3
ERG 1143	6.3	6.3
JAMESTOWN	6.3	6.3
SHADOW	6.3	6.3
SIMONE (LD 3485)	6.3	6.3
SOUTHPORT	6.3	6.3
CAMARO	6.0	6.0
MOLINDA	6.0	6.0
PST-4FE	6.0	6.0
PUMA	6.0	6.0
LONGFELLOW	5.7	5.7
PROFORMER (JMB-89)	5.0	5.0
LSD VALUE	1.7	1.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 9D. FALL DENSITY RATINGS OF CHEWINGS FESCUE CULTIVARS
1991 DATA

DENSITY RATINGS 1-9; 9=MAXIMUM DENSITY 1/

NAME	ID2	PA1	MEAN
89.LKR	.	8.3	8.3
PST-4CD	7.7	7.0	7.3
BARGREEN	7.3	7.0	7.2
BARLANDER (BAR FR 9F)	7.3	7.0	7.2
ENJOY	7.3	7.0	7.2
PST-4FE	7.3	7.0	7.2
CAPITOL	7.0	7.0	7.0
SR 5000	7.0	7.0	7.0
BARNICA	7.0	6.7	6.8
JAMESTOWN II	6.7	7.0	6.8
MARY	7.0	6.7	6.8
SCARLET	7.7	6.0	6.8
SHADOW W/ENDO. (PST-SHE)	6.7	7.0	6.8
TROPHY (ESTORIL)	7.0	6.7	6.8
SOUTHPORT	6.7	6.7	6.7
ATLANTA	7.0	6.3	6.7
BRIDGEPORT (N-105)	7.0	6.3	6.7
LONGFELLOW	6.0	7.3	6.7
RAYMOND	7.0	6.3	6.7
WALDORF	6.3	7.0	6.7
WILMA	7.0	6.3	6.7
FERNANDO (HF 112)	7.0	6.0	6.5
MOLINDA	6.7	6.3	6.5
PROFORMER (JMB-89)	6.3	6.7	6.5
SHADOW	6.3	6.7	6.5
SIMONE (LD 3485)	7.0	5.7	6.3
EPSOM	7.3	5.3	6.3
RAINBOW	7.3	5.3	6.3
DOVER (NK 82492)	6.7	5.7	6.2
PUMA	6.7	5.7	6.2
BANNER	6.3	6.0	6.2
JAMESTOWN	6.0	6.3	6.2
OFI 89-200	7.0	5.3	6.2
ERG 1143	6.7	5.3	6.0
KOKET	6.3	5.7	6.0
CAMARO	6.0	5.7	5.8
LSD VALUE	1.3	1.4	1.0

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 10. RED THREAD RATINGS OF CHEWINGS FESCUE CULTIVARS
1990 DATA

RED THREAD RATINGS 1-9; 9=NO DISEASE 1/			
NAME	ID2	OH2	MEAN
BARGREEN	9.0	7.3	8.2
HF 112 (FERNANDO)	9.0	7.0	8.0
PST-4FE	9.0	7.0	8.0
RAYMOND	9.0	7.0	8.0
ENJOY	9.0	6.7	7.8
EPSOM	9.0	6.7	7.8
ERG 1143	9.0	6.7	7.8
PUMA	9.0	6.7	7.8
BARNICA	8.7	7.0	7.8
CAMARO	8.3	7.0	7.7
MOLINDA	9.0	6.3	7.7
OFI 89-200	9.0	6.3	7.7
JAMESTOWN II	9.0	6.0	7.5
LD 3485	8.7	6.3	7.5
MARY	8.7	6.3	7.5
N-105 (BRIDGEPORT)	9.0	6.0	7.5
PST-4CD	8.7	6.3	7.5
RAINBOW	9.0	6.0	7.5
BAR FR 9F (BARLANDER)	9.0	5.7	7.3
JAMESTOWN	8.3	6.3	7.3
JMB-89	9.0	5.7	7.3
CAPITOL	8.7	6.0	7.3
LONGFELLOW	8.7	6.0	7.3
SHADOW	8.7	6.0	7.3
ESTORIL (TROPHY)	8.3	6.0	7.2
NK 82492 (DOVER)	8.3	6.0	7.2
PST-SHE (SHADOW W/ENDO.)	8.3	6.0	7.2
KOKET	8.7	5.7	7.2
SR 5000	9.0	5.3	7.2
WALDORF	8.7	5.7	7.2
ATLANTA	8.3	5.7	7.0
BANNER	8.3	5.7	7.0
SCARLET	8.7	5.3	7.0
WILMA	8.0	5.7	6.8
SOUTHPORT	8.7	5.0	6.8
LSD VALUE	1.0	1.4	0.8

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 16E. RED THREAD RATINGS OF HARD FESCUE CULTIVARS
1990 DATA

RED THREAD RATINGS 1-9; 9=NO DISEASE 1/			
NAME	ID2	OH2	MEAN
VALDA	9.0	7.0	8.0
SCALDIS	8.3	7.0	7.7
PST-AUE (AURORA W/ENDO.)	8.7	6.7	7.7
BAR FO 9A2	8.3	6.3	7.3
SRX 89-31 (SR 3100)	8.3	6.3	7.3
AURORA	8.3	6.0	7.2
SILVANA	7.7	6.7	7.2
BARREPP0	7.3	7.0	7.2
SR 3000	7.3	7.0	7.2
BILJART	7.3	6.7	7.0
MELODY	8.0	6.0	7.0
ATTILA	6.7	7.0	6.8
PST-4AG	7.0	6.7	6.8
RELIANT-NO ENDOPHYTE	8.0	5.7	6.8
SERRA	6.7	6.7	6.7
EUREKA	6.7	6.0	6.3
PST-4HD	6.7	5.3	6.0
RELIANT-W/ ENDOPHYTE	6.3	5.7	6.0
LSD VALUE	2.6	1.2	1.4

TABLE 16F. RED THREAD RATINGS OF SHEEP FESCUE CULTIVARS
1990 DATA

RED THREAD RATINGS 1-9; 9=NO DISEASE 1/			
NAME	ID2	OH2	MEAN
MX 86	8.3	6.3	7.3
BIGHORN	7.3	6.3	6.8
LSD VALUE	2.2	0.9	1.2

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 11. WINTER COLOR RATINGS OF CHEWINGS FESCUE CULTIVARS
1990 DATA

WINTER COLOR RATINGS 1-9; 9=COMPLETE COLOR RETENTION 1/

NAME	OR9	MEAN
PST-4CD	7.3	7.3
PUMA	7.3	7.3
SCARLET	7.3	7.3
HF 112 (FERNANDO)	7.0	7.0
BANNER	6.7	6.7
EPSOM	6.7	6.7
JAMESTOWN	6.7	6.7
KOKET	6.7	6.7
LONGFELLOW	6.7	6.7
N-105 (BRIDGEPORT)	6.7	6.7
RAYMOND	6.7	6.7
B9.LKR	6.3	6.3
BARGREEN	6.3	6.3
BARNICA	6.3	6.3
ENJOY	6.3	6.3
MOLINDA	6.3	6.3
OFI 89-200	6.3	6.3
PST-4FE	6.3	6.3
RAINBOW	6.3	6.3
WALDORF	6.3	6.3
ATLANTA	6.0	6.0
CAMARO	6.0	6.0
CAPITOL	6.0	6.0
ESTORIL (TROPHY)	6.0	6.0
JAMESTOWN II	6.0	6.0
JMB-89	6.0	6.0
MARY	6.0	6.0
PST-SHE (SHADOW W/ENDO.)	6.0	6.0
SOUTHPORT	6.0	6.0
SR 5000	6.0	6.0
WILMA	6.0	6.0
BAR FR 9F (BARLANDER)	5.7	5.7
NK 82492 (DOVER)	5.7	5.7
SHADOW	5.7	5.7
LD 3485	4.7	4.7
ERG 1143	4.3	4.3
LSD VALUE	1.2	1.2

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 7E. WINTER COLOR RATINGS OF HARD FESCUE CULTIVARS
1990 DATA

WINTER COLOR RATINGS 1-9; 9=COMPLETE COLOR RETENTION 1/

NAME	OR9	MEAN
PST-4HD	5.3	5.3
SRX 89-31 (SR 3100)	5.3	5.3
BARREPPPO	5.0	5.0
SR 3000	5.0	5.0
BAR FO 9A2	4.7	4.7
PST-AUE (AURORA W/ENDO.)	4.7	4.7
SCALDIS	4.3	4.3
VALDA	4.3	4.3
ATTILA	4.0	4.0
AURORA	4.0	4.0
EUREKA	4.0	4.0
PST-4AG	4.0	4.0
RELIANT-NO ENDOPHYTE	4.0	4.0
SERRA	4.0	4.0
SILVANA	4.0	4.0
MELODY	3.7	3.7
RELIANT-W/ ENDOPHYTE	3.7	3.7
BILJART	3.3	3.3
LSD VALUE	1.9	1.9

TABLE 7F. WINTER COLOR RATINGS OF SHEEP FESCUE CULTIVARS
1990 DATA

WINTER COLOR RATINGS 1-9; 9=COMPLETE COLOR RETENTION 1/

NAME	OR9	MEAN
BIGHORN	4.0	4.0
MX 86	3.3	3.3
LSD VALUE	2.1	2.1

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 12.

NATIONAL FINE FESCUE SEED YIELD TRIAL
 SEEDED FALL OF 1989 NEAR HUBBARD, OREGON.

<u>CULTIVAR</u>	9=NONE	9=MOST
	5/25/90	6/27/90
	<u>PUCCINIA</u>	<u>SEED</u>
	<u>CRANDAHLI</u>	<u>HEAD #</u>
Tiffany	9.0	7.0
Shadow	7.0	4.0
Banner	5.5	4.0
Jamestown	7.5	2.0

TABLE 13.

SALINITY FINE FESCUE TURF TRIAL SEEDED
 SPRING OF 1992 AT PACIFIC SOD, CAMARILLO, CA.

<u>CULTIVAR</u>	<u>1992 TURF QUALITY</u>
Tiffany	7.4
Shadow	6.5
Banner	*NIT
Jamestown	*NIT
L.S.D. .05%	0.8

*NIT=NOT IN TRIAL

TABLE 14D. DROUGHT TOLERANCE (DORMANCY) RATINGS OF
CHEWINGS FESCUE CULTIVARS
1990 DATA

DORMANCY RATINGS 1-9; 9=NO DORMANCY 1/

NAME	OR9	MEAN
EPSOM	6.7	6.7
PST-4FE	6.7	6.7
RAINBOW	6.7	6.7
BAR FR 9F (BARLANDER)	6.3	6.3
CAMARO	6.3	6.3
ESTORIL (TROPHY)	6.3	6.3
JMB-89	6.3	6.3
LONGFELLOW	6.3	6.3
PST-4CD	6.3	6.3
SCARLET	6.3	6.3
89.LKR	6.0	6.0
ATLANTA	6.0	6.0
BANNER	6.0	6.0
BARGREEN	6.0	6.0
BARNICA	6.0	6.0
CAPITOL	6.0	6.0
ENJOY	6.0	6.0
ERG 1143	6.0	6.0
HF 112 (FERMANO)	6.0	6.0
JAMESTOWN	6.0	6.0
JAMESTOWN II	6.0	6.0
KOKET	6.0	6.0
LD 3485	6.0	6.0
MARY	6.0	6.0
MOLINDA	6.0	6.0
M-105 (BRIDGEPORT)	6.0	6.0
NK 82492 (DOVER)	6.0	6.0
OFI 89-200	6.0	6.0
PST-SHE (SHADOW W/ENDO.)	6.0	6.0
PUMA	6.0	6.0
RAYMOND	6.0	6.0
SHADOW	6.0	6.0
SOUTHPORT	6.0	6.0
SR 5000	6.0	6.0
WALDORF	6.0	6.0
WILMA	6.0	6.0
LSD. VALUE	0.5	0.5

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 14E. DROUGHT TOLERANCE (DORMANCY) RATINGS OF
HARD FESCUE CULTIVARS
1990 DATA

DORMANCY RATINGS 1-9; 9=NO DORMANCY 1/

NAME	OR9	MEAN
SCALDIS	6.3	6.3
SERRA	6.3	6.3
ATTILA	6.0	6.0
AURORA	6.0	6.0
BAR FO 9A2	6.0	6.0
BARREPPPO	6.0	6.0
BILJART	6.0	6.0
EUREKA	6.0	6.0
MELODY	6.0	6.0
PST-4AG	6.0	6.0
PST-4HD	6.0	6.0
PST-AUE (AURORA W/ENDO.)	6.0	6.0
RELIANT-NO ENDOPHYTE	6.0	6.0
RELIANT-W/ ENDOPHYTE	6.0	6.0
SILVANA	6.0	6.0
SR 3000	6.0	6.0
SRX 89-31 (SR 3100)	6.0	6.0
VALDA	6.0	6.0
LSD VALUE	0.3	0.3

TABLE 14F. DROUGHT TOLERANCE (DORMANCY) RATINGS OF
SHEEP FESCUE CULTIVARS
1990 DATA

DORMANCY RATINGS 1-9; 9=NO DORMANCY 1/

NAME	OR9	MEAN
BIGHORN	6	6
MX 86	6	6
LSD VALUE	0	0

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 15D. LEAF SPOT RATINGS OF CHEWINGS FESCUE CULTIVARS
1991 DATA

LEAF SPOT RATINGS 1-9; 9=NO DISEASE 1/

NAME	MN1	UB1	MEAN
ATLANTA	7.0	7.7	7.3
WALDORF	7.7	7.0	7.3
PST-4CD	7.0	7.3	7.2
BARGREEN	7.3	6.3	6.8
SCARLET	6.3	7.3	6.8
MARY	5.7	7.7	6.7
FERNANDO (HF 112)	7.0	6.3	6.7
OFI 89-200	6.3	7.0	6.7
LONGFELLOW	6.7	6.0	6.3
SIMONE (LD 3485)	6.7	6.0	6.3
ERG 1143	6.3	6.3	6.3
RAYMOND	6.3	6.3	6.3
EPSOM	6.7	5.7	6.2
SHADOW W/ENDO. (PST-SHE)	6.7	5.7	6.2
PST-4FE	6.0	6.3	6.2
RAINBOW	6.3	6.0	6.2
TROPHY (ESTORIL)	6.0	6.3	6.2
PROFORMER (JMR-89)	7.0	5.0	6.0
PUMA	5.7	6.3	6.0
DOVER (NK 82492)	6.7	5.0	5.8
89.LKR	.	5.7	5.7
KOKET	6.7	4.7	5.7
BRIDGEPORT (N-105)	6.0	5.3	5.7
CAMARO	6.7	4.3	5.5
CAPITOL	5.3	5.7	5.5
SR 5000	5.3	5.7	5.5
WILMA	6.7	4.3	5.5
BARLANDER (BAR FR 9F)	6.0	4.7	5.3
ENJOY	5.7	5.0	5.3
BANNER	6.0	4.3	5.2
BARNICA	6.3	4.0	5.2
JAMESTOWN	6.3	4.0	5.2
JAMESTOWN II	5.3	5.0	5.2
MOLINDA	6.0	4.3	5.2
SHADOW	5.3	5.0	5.2
SOUTHPORT	6.0	4.3	5.2
LSD VALUE	1.0	1.7	1.0

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 160. DOLLAR SPOT RATINGS OF CHEWINGS FESCUE CULTIVARS
1991 DATA

DOLLAR SPOT RATINGS 1-9; 9=NO DISEASE 1/

NAME	NJ3	MEAN
ATLANTA	9.0	9.0
BANNER	9.0	9.0
BARLANDER (BAR FR 9F)	9.0	9.0
BARNICA	9.0	9.0
CAPITOL	9.0	9.0
ERG 1143	9.0	9.0
FERNANDO (HF 112)	9.0	9.0
JAMESTOWN II	9.0	9.0
KOKET	9.0	9.0
PROFORMER (JMB-89)	9.0	9.0
PST-4CD	9.0	9.0
RAINBOW	9.0	9.0
RAYMOND	9.0	9.0
SCARLET	9.0	9.0
SHADOW W/ENDO. (PST-SHE)	9.0	9.0
SOUTHPORT	9.0	9.0
SR 5000	9.0	9.0
TROPHY (ESTORIL)	9.0	9.0
WALDORF	9.0	9.0
WILMA	9.0	9.0
89.LKR	8.7	8.7
BARGREEN	8.7	8.7
BRIDGEPORT (N-105)	8.7	8.7
CAMARO	8.7	8.7
DOVER (NK 82492)	8.7	8.7
ENJOY	8.7	8.7
EPSOM	8.7	8.7
JAMESTOWN	8.7	8.7
LONGFELLOW	8.7	8.7
MARY	8.7	8.7
MOLINDA	8.7	8.7
OFI 89-200	8.7	8.7
PST-4FE	8.7	8.7
PUMA	8.7	8.7
SHADOW	8.7	8.7
SIMONE (LD 3485)	8.7	8.7
LSD VALUE	0.6	0.6

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 17D. SUMMER PATCH RATINGS OF CHEWINGS FESCUE CULTIVARS
1990 DATA

SUMMER PATCH RATINGS 1-9; 9=NO DISEASE 1/

NAME	NJ1	MEAN
LONGFELLOW	9.0	9.0
BAR FR 9F (BARLANDER)	8.3	8.3
HF 112 (FERNANDO)	8.3	8.3
N-105 (BRIDGEPORT)	8.3	8.3
OFI 89-200	8.0	8.0
PST-4CD	8.0	8.0
89.LKR	7.7	7.7
ESTORIL (TROPHY)	7.7	7.7
PST-4FE	7.7	7.7
CAMARO	7.3	7.3
JMB-89	7.3	7.3
SHADOW	7.3	7.3
WALDORF	7.3	7.3
ATLANTA	7.0	7.0
BANNER	7.0	7.0
ERG 1143	7.0	7.0
MARY	7.0	7.0
PST-SHE (SHADOW W/ENDO.)	7.0	7.0
PUMA	7.0	7.0
RAINBOW	7.0	7.0
SCARLET	7.0	7.0
SR 5000	7.0	7.0
JAMESTOWN	6.7	6.7
KOKET	6.7	6.7
MOLINDA	6.7	6.7
SOUTHPORT	6.7	6.7
BARNICA	6.3	6.3
CAPITOL	6.0	6.0
JAMESTOWN 11	6.0	6.0
LD 3485	6.0	6.0
BARGREEN	5.7	5.7
EPSOM	5.7	5.7
WILMA	5.7	5.7
ENJOY	5.3	5.3
NK 82492 (DOVER)	5.3	5.3
RAYMOND	5.3	5.3
LSD VALUE	1.6	1.6

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 17E. SUMMER PATCH RATINGS OF HARD FESCUE CULTIVARS
1990 DATA

SUMMER PATCH RATINGS 1-9; 9=NO DISEASE 1/

NAME	NJ1	MEAN
BAR FO 9A2	8.3	8.3
MELODY	8.3	8.3
PST-4AG	8.3	8.3
RELIANT-NO ENDOPHYTE	8.3	8.3
WARWICK	8.3	8.3
ATTILA	8.0	8.0
AURORA	8.0	8.0
EUREKA	8.0	8.0
PST-4HD	8.0	8.0
SCALDIS	8.0	8.0
SILVANA	8.0	8.0
SR 3000	8.0	8.0
PST-AUE (AURORA W/ENDO.)	7.7	7.7
RELIANT-W/ ENDOPHYTE	7.7	7.7
BILJART	7.3	7.3
SERRA	7.3	7.3
SRX 89-31 (SR 3100)	7.0	7.0
BARREPP0	6.0	6.0
VALDA	5.7	5.7
LSD VALUE	1.5	1.5

TABLE 17F. SUMMER PATCH RATINGS OF SHEEP FESCUE CULTIVARS
1990 DATA

SUMMER PATCH RATINGS 1-9; 9=NO DISEASE 1/

NAME	NJ1	MEAN
BIGHORN	8.3	8.3
MX 86	8.3	8.3
LSD VALUE	1.5	1.5

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 18D. PINK PATCH RATINGS OF CHEWINGS FESCUE CULTIVARS
1990 DATA

PINK PATCH RATINGS 1-9; 9=NO DISEASE 1/		
NAME	OH2	MEAN
BARGREEN	7.7	7.7
WALDORF	7.7	7.7
BAR FR 9F (BARLANDER)	7.3	7.3
CAMARO	7.3	7.3
EPSOM	7.3	7.3
ESTORIL (TROPHY)	7.3	7.3
JMB-89	7.3	7.3
LONGFELLOW	7.3	7.3
N-105 (BRIDGEPORT)	7.3	7.3
OFI 89-200	7.3	7.3
PST-4CD	7.3	7.3
PST-SHE (SHADOW W/ENDO.)	7.3	7.3
JAMESTOWN II	7.0	7.0
PST-4FE	7.0	7.0
SOUTHPORT	7.0	7.0
ERG 1143	6.7	6.7
HF 112 (FERNANDO)	6.7	6.7
LD 3485	6.7	6.7
MARY	6.7	6.7
MOLINDA	6.7	6.7
NK 82492 (DOVER)	6.7	6.7
SCARLET	6.7	6.7
ATLANTA	6.3	6.3
BANNER	6.3	6.3
BARNICA	6.3	6.3
CAPITOL	6.3	6.3
JAMESTOWN	6.3	6.3
KOKET	6.3	6.3
PUMA	6.3	6.3
RAINBOW	6.3	6.3
RAYMOND	6.3	6.3
SHADOW	6.3	6.3
SR 5000	6.3	6.3
WILMA	6.3	6.3
ENJOY	6.0	6.0
LSD VALUE	1.5	1.5

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 18E. PINK PATCH RATINGS OF HARD FESCUE CULTIVARS
1990 DATA

PINK PATCH RATINGS 1-9; 9=NO DISEASE 1/		
NAME	OH2	MEAN
SILVANA	8.0	8.0
SRX 89-31 (SR 3100)	8.0	8.0
MELODY	7.3	7.3
SCALDIS	7.3	7.3
SERRA	7.3	7.3
ATTILA	7.0	7.0
BARREPPPO	7.0	7.0
PST-4AG	7.0	7.0
PST-4HD	7.0	7.0
AURORA	6.7	6.7
BAR FO 9A2	6.7	6.7
BILJART	6.7	6.7
EUREKA	6.7	6.7
PST-AUE (AURORA W/ENDO.)	6.7	6.7
RELIANT-NO ENDOPHYTE	6.7	6.7
RELIANT-W/ ENDOPHYTE	6.3	6.3
SR 3000	6.3	6.3
VALDA	6.3	6.3
LSD VALUE	1.3	1.3

TABLE 18F. PINK PATCH RATINGS OF SHEEP FESCUE CULTIVARS
1990 DATA

PINK PATCH RATINGS 1-9; 9=NO DISEASE 1/		
NAME	OH2	MEAN
BIGHORN	7.3	7.3
MX 86	6.7	6.7
LSD VALUE	0.9	0.9

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

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TABLE 19D. ANTHRACNOSE RATINGS OF CHEWINGS FESCUE CULTIVARS
1990 DATA

ANTHRACNOSE RATINGS 1-9; 9=NO DISEASE 1/

NAME	OR9	MEAN
N-105 (BRIDGEPORT)	6.7	6.7
LONGFELLOW	6.3	6.3
BAR FR 9F (BARLANDER)	6.0	6.0
BARNICA	6.0	6.0
PST-4CD	6.0	6.0
PST-4FE	6.0	6.0
RAYMOND	6.0	6.0
SOUTHPORT	6.0	6.0
BARGREEN	5.7	5.7
CAMARO	5.7	5.7
KOKET	5.7	5.7
MOLINDA	5.7	5.7
OFI 89-200	5.7	5.7
PST-SHE (SHADOW W/ENDO.)	5.7	5.7
BANNER	5.3	5.3
ERG 1143	5.3	5.3
ESTORIL (TROPHY)	5.3	5.3
HF 112 (FERNANDO)	5.3	5.3
JAMESTOWN	5.3	5.3
JMB-89	5.3	5.3
MARY	5.3	5.3
PUMA	5.3	5.3
SCARLET	5.3	5.3
SHADOW	5.3	5.3
WALDORF	5.3	5.3
WILMA	5.3	5.3
89.LKR	5.0	5.0
ENJOY	5.0	5.0
JAMESTOWN II	5.0	5.0
LD 3485	5.0	5.0
SR 5000	5.0	5.0
CAPITOL	4.7	4.7
RAINBOW	4.7	4.7
EPSOM	4.0	4.0
NK 82492 (DOVER)	4.0	4.0
ATLANTA	3.7	3.7
LSD VALUE	1.4	1.4

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

TABLE 19E. ANTHRACNOSE RATINGS OF HARD FESCUE CULTIVARS
1990 DATA

ANTHRACNOSE RATINGS 1-9; 9=NO DISEASE 1/

NAME	OR9	MEAN
BARREPPPO	6.7	6.7
VALDA	6.0	6.0
BAR FO 9A2	5.3	5.3
MELODY	5.3	5.3
PST-4HD	5.3	5.3
ATTILA	5.0	5.0
PST-4AG	5.0	5.0
PST-AUE (AURORA W/ENDO.)	5.0	5.0
AURORA	4.7	4.7
BILJART	4.7	4.7
EUREKA	4.7	4.7
SERRA	4.7	4.7
SILVANA	4.7	4.7
RELIANT-NO ENDOPHYTE	4.3	4.3
RELIANT-W/ ENDOPHYTE	4.3	4.3
SR 3000	4.3	4.3
SRX 89-31 (SR 3100)	4.3	4.3
SCALDIS	4.0	4.0
LSD VALUE	1.3	1.3

TABLE 19F. ANTHRACNOSE RATINGS OF SHEEP FESCUE CULTIVARS
1990 DATA

ANTHRACNOSE RATINGS 1-9; 9=NO DISEASE 1/

NAME	OR9	MEAN
MX 86	5.0	5.0
BIGHORN	4.7	4.7
LSD VALUE	0.7	0.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES,
SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCR WHEN THIS VALUE IS LARGER
THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

EXHIBIT E.

TIFFANY CHEWINGS FESCUE.

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