U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Timothy (*Phleum* spp.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME

ADDRESS *(Street and No. or RD No., City, State, Zip Code and Country)*	FOR OFFICIAL USE ONLY
	PVPO NUMBER

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Fill unused columns with zeroes (e.g., 0 9 9 when the number is 99). In comparisons to standard varieties, the value 0 0 should only be used to indicate that the varieties are equal. Characteristics described, including numerical measurements, should represent those that are TYPICAL for the variety. TYPICAL culms, therefore, should represent individual plants. Measured data should be for SPACED PLANTS. Nitrogen regime should be optimal to intended production of described variety. Any recognized color fan, e.g., National Bureau of Standards Circular 553 Supplement, may be used to determine plant colors; designate system used: _____. Ranges of values may be included with additional description elsewhere in the application.

1. SPECIES:

☐☐ 1 = *Pratense* 2 = *Bertolinii* 3 = Other (Specify) _____

2. PLOIDY:

☐☐ 2n Chromosome Number

☐ 1 = Diploid 2 = Hexaploid 3 = Other (Specify) _____

STANDARD COMPARISON VARIETIES

1 = Clair 2 = Champ 3 = Climax 4 = Bounty 5 = Essex 6 = Aberystwyth S.50 (*Bertolinii*)

3. MATURITY: (50% of Plants in Flower) Specify Location: _____

☐ 1 = Very Early (Clair) 2 = Early (Champ) 3 = Midseason (Climax) 4 = Late (Bounty) 5 = Very Late (Essex) 6 = Extremely Late (Heidemij)

☐☐ Days Earlier Than ☐ Standard Comparison Variety

☐☐ Days Later Than ☐ Standard Comparison Variety

4. PLANT: (All shoots derived from a single seedling at 50% flowering in second year) DO NOT INCLUDE LODGED PLANTS

☐ Habit (Attitude of Outer Culms): 1 = Prostrate (Aberstwyth S.50) 2 = Semiprostrate (Pronto) 3 = Erect (Climax)

☐☐☐ cm Width (Basal Diameter)

☐☐☐ cm Narrower Than ☐ Standard Variety

☐☐☐ cm Wider Than ☐ Standard Variety

☐☐☐ cm Mature Plant Height (From Soil Level to Top of Head)

☐☐☐ cm Shorter Than ☐ Standard Variety

☐☐☐ cm Taller Than ☐ Standard Variety

5. STEM: (Seed Stalk at Flowering)

☐ Anthocyanin (Internodes) 1 = Absent 2 = Present

Node Color (Give Percentage of Plants Showing Indicated Color)

☐☐☐ % Green ☐☐☐ % Purple ☐☐☐ % _____ (Specify)

☐ Diamter (at Midlength): 1 = Fine (about 2mm) (Climax) 2 = Medium (about 2.5 mm) (Champ) 3 = Course (3 mm) (Clair)

☐☐☐ cm Exsertion (Flag Leaf to Base of Head)

☐☐☐ cm Shorter Than ☐ Standard Variety

☐☐☐ cm Longer Than ☐ Standard Variety

Neck Shape (Give Percentage of Plants with Stems as Indicated 3 m Below Head):

☐☐☐ % Straight ☐☐☐ % Wavy ☐☐☐ % _____ (Specify)

6. LEAF: (Flag Leaf at 50 % Flowering)

☐ Color: 1 = Light Green Abersytwyth S.50) 2 = Medium Green (Climax) 3 = Dark Green (King)

☐ Anthocanin: 1 = Absent 2 = Present

☐ Carriage: 1 = Drooping 2 = Ascending 3 = _____ (Specify)

☐ Torsion 1 = Not Twisted 2 = Twisted

☐☐ mm Width (Widest Part)

☐☐ cm Narrower Than ☐ Standard Variety

☐☐ cm Wider Than ☐ Standard Variety

☐☐☐ mm Blade Length (From Ligule to Tip)

☐☐☐ cm Shorter Than ☐ Standard Variety

☐☐☐ cm Longer Than ☐ Standard Variety

7. LOWER LEAVES:

Lower Leaf Cross Section (Give percentage of plants having indicated cross sectional conformation at midlength of nonflag foliage leaf):

☐☐☐ % Flat ☐☐☐ % Folded ☐☐☐ % Rolled

☐ Lower Leaves Remaining Green Until Seed Maturity 1 = No 2 = Yes

8. HEAD: (at Flowering)

Shape (Give percentage of plants with indicated head shape. Note progression from untapered to both ends tapered):

☐☐☐ ☐☐☐ ☐☐☐ ☐☐☐ % Cylindrical % Fusiform % Conical % Clavate

8. HEAD: (continued)

☐☐☐ % _____ (Specify)

☐ Anthocanin (in Chaff): 1 = Absent 2 = Present

☐☐☐ mm Width (at Midlength)
- ☐☐☐ mm Narrower Than ☐ Standard Variety
- ☐☐☐ mm Wider Than ☐ Standard Variety

☐☐☐ cm Length
- ☐☐☐ cm Shorter Than ☐ Standard Variety
- ☐☐☐ cm Longer Than ☐ Standard Variety

9. INHABITORY ACTION OF HIGH TEMPERATURE (See Note*). Give percentage of plants not forming heads on shoots developed in long days at 13-18° C (55-65° F):

Application Variety = ☐☐☐ % Plants not Forming Heads

Comparison Variety = ☐☐☐ % Plants not Forming Heads

Specify Name of Comparison Variety _____. Tests were conducted at _____ (location and year) in

_____ (field, greenhouse) and results are _____ (estimated, measured).

NOTE: This is an important performance component reflecting strain differences in seed production and leafiness. It will totally characterize the aftermath at some locations (See Cooper, 1958). Note that growth must take place, I.e., shoots must develop, for plants to be scored. Inhibited shoots show elongated internodes, but do not form heads. Strong differences are to be expected between germplasm originating in cooler vs. warmer climates. Greenhouse tests with proper lighting are recommended, but estimates based on field observances of aftermath will serve. Cooper reports the following mean percentages: Climax = 9%, Drummond = 32%, Kampe II = 75%, Aberystwyth S.50 = 100%.

10. SEED: (With Hull)

☐☐☐ mg per 1,000 seed
- ☐☐☐ mg Lighter Than ☐ Standard Variety
- ☐☐☐ mg Heavier Than ☐ Standard Variety

11. DISEASES AND PESTS: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ Eyespot (*Heterosporium phlei*)
☐ Brown Stripe (*Scolecotrichum graminis*)
☐ Leaf Smut (*Ustilago striaeformis*)
☐ Bacterial Stripe (*Xanthomonas translucens*)
☐ Rust (*Puccinia graminis*)
☐ _____ (Specify)
☐ _____ (Specify)
☐ _____ (Specify)

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

CHARACTER	VARIETY	CHARACTER	VARIETY
Leafiness		Persistance	
Seedling Vigor		Regrowth	
Coarseness		Adaptation	

REFERENCES:

Cooper, J.P. 1958. The effect of temperature and photoperiod on inflorescence development in strains of timothy (*Phleum*, spp). J. British Grassland Soc. 13: 81-91.

Evans M.W. 1927. The life history of timothy. USDA Department Bulletin No. 1450.

Webber H.J. 1912. The production of new and improved varieties of timothy. Cornell Univ. Agric. Exp. Sta. Bulletin 313.

COMMENTS: