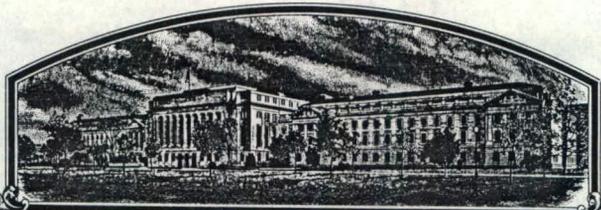


No.

8300114



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Wisconsin Crop Improvement
Association

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 *eighteen* 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 (7 U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA

'Frontier'

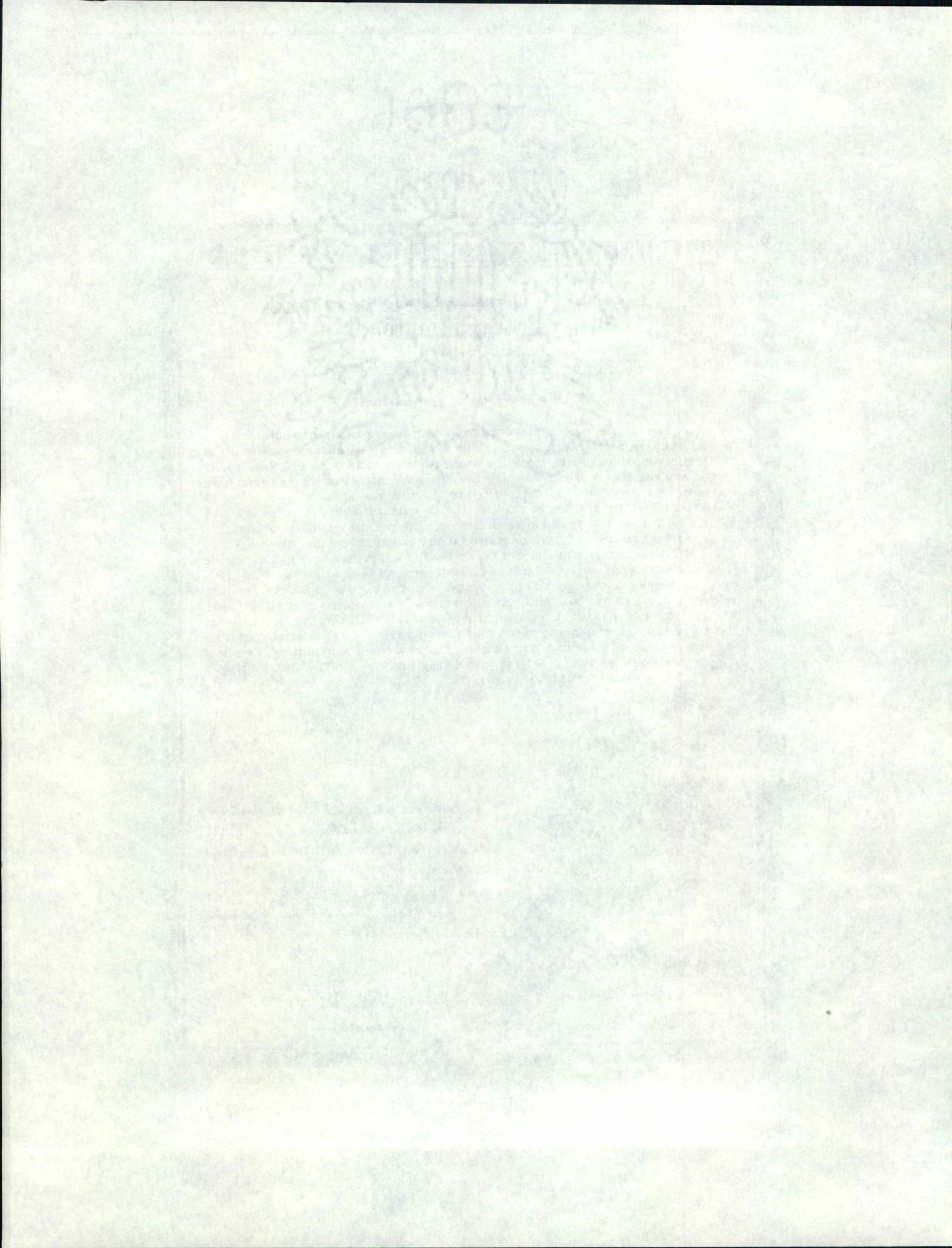


In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 26th day of October in the year of our Lord one thousand nine hundred and eighty-four.

Attest

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

John R. Block
Secretary of Agriculture



APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

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

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY WIS-EX 82-1		1b. VARIETY NAME <i>FRONTIER r/s 9/20/83</i>		FOR OFFICIAL USE ONLY	
				PV NUMBER 8300114	
2. KIND NAME Pea		3. GENUS AND SPECIES NAME <u>Pisum sativum</u>		FILING DATE 4/22/83	TIME A.M. 8:30 P.M.
4. FAMILY NAME (BOTANICAL) Papilionaceae		5. DATE OF DETERMINATION Nov. 18, 1980		FEE RECEIVED \$ 1,000	DATE 4/22/83
				\$ 500.00	9/24/84
6. NAME OF APPLICANT(S) Wisconsin Crop Improvement Association		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 1575 Linden Drive Madison, WI 53706		8. TELEPHONE AREA CODE AND NUMBER 608-262-0167	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Association			10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION		11. DATE OF INCORPORATION

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:
 Gene Amberson, Manager, Wisconsin Crop Improvement Association
 1575 Linden Drive, Madison, WI 53706

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:
- 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
 - 13B. Exhibit B, Novelty Statement.
 - 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
 - 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) YES NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? YES NO

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

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

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

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

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

4/20/83
 (DATE)

Wis. Crop Improvement Assoc.
 (SIGNATURE OF APPLICANT)
W. A. Buckman Sec-Treas

(DATE)

(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.



13. A. Exhibit A.

Origin and Breeding History of the Variety

8300114

Temporary Designation of Variety: WIS-EX 82-1 *PERMANENT NAME 'FRONTIER' AJS 9/20/83*

This line originated in 1969 with the cross of the New Line Early Perfection cultivar with a breeding line designated B267-373-25 which was homozygous recessive for the genes af, tl and st. The backcross system of breeding, using New Line Early Perfection as the recurrent parent, was followed to incorporate the three genes af (afila), st (reduced stipule) and tl (acacia) from the donor parent, B267-373-25, into the New Line Early Perfection background genotype. In the BC₆ F₂ generation, one plant homozygous for all three genes and a second plant homozygous for af and st and carrying tl in the heterozygous condition were selected. Progeny of these two plants which were homozygous for af, tl and st were crossed with WIS 7104 during the summer of 1976. WIS 7104 is a near-isogenic line of New Line Early Perfection possessing resistance to powdery mildew and described in Crop Science, 1971, Vol. II, page 941. The F₂ generation was grown in the field during the summer of 1977 and seed was harvested from individual plants closely resembling New Line Early Perfection, but with afila foliage and resistance to powdery mildew. These F₂-derived single plant lines were grown as F₃'s during the summer of 1978 for further evaluation for agronomic type and resistance to powdery mildew. Two single plant selections were made within one of the F₂-derived F₃ lines and progeny lines were grown during 1979 and 1980 for seed increase and further evaluation. Following the 1980 seed harvest, F₆ seed from the two F₂-derived F₅ families was bulked and this became the line designated WIS-EX 82-1.

No variants have been observed and all plants continue to express the afila foliage trait and resistance to powdery mildew.

PL10060

Neerak Bond

25% COTTON FIBER 2/3



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13. B. Exhibit B.

Novelty Statement

8300114

Temporary Designation of Variety: <WIS-EX 82-1>

'FRONTIER'

This variety most closely resembles the varieties New Line Early Perfection and WIS 7104. ^{'FRONTIER'} ~~WIS-EX 82-1~~ differs from WIS 7104 in that ^{'FRONTIER'} ~~WIS-EX 82-1~~ has afila foliage due to the homozygous state of the af gene while WIS 7104 has normal foliage. ^{'FRONTIER'} ~~WIS-EX 82-1~~ differs from New Line Early Perfection in that ^{'FRONTIER'} ~~WIS-EX 82-1~~ has afila foliage due to the homozygous state of the af gene and is resistant to powdery mildew due to the homozygous state of the er gene, while New Line Early Perfection has normal foliage and is susceptible to powdery mildew.

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

OBJECTIVE DESCRIPTION OF VARIETY
PEA (PISUM SATIVUM)

NAME OF APPLICANT(S)
Wisconsin Crop Improvement Association

VARIETY NAME OR TEMPORARY DESIGNATION
<WIS-EX 82-1> 'FRONTIER'

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
1575 Linden Drive
Madison, WI 53706

FOR OFFICIAL USE ONLY
PVPO NUMBER
8300114

Place the appropriate number that describes the varietal character in the boxes below.
Place a zero in first box (e.g. 089 or 09) when number is either 99 or less or 9 or less.

1. TYPE:

1 1 = GARDEN 2 = FIELD 3 = EDIBLE-PODDED

2. MATURITY:

1 5 Node number of first bloom: 0 6 9 No. of days to processing 1 6 0 0 Heat Units
 0 3 No. of days Earlier than 5 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL
 0 1 No. of days Later than 4 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

3. PLANT HEIGHT:

0 9 1 CM. HIGH
 0 3 Cm. Shorter than 1 } 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL
 0 9 Cm. Taller than 4 } 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

4. VINE:

1 Habit: 1 = DETERMINATE 2 = INDETERMINATE 2 Stockiness: 1 = SLIM (Alaska) 3 = HEAVY (Alderman)
2 = MEDIUM (Thomas Laxton WR)
 1 Branching: 1 = NONE (Alaska) 2 = 1-2 BRANCHES (Little Marvel) 3 = MORE THAN 2 BRANCHES (Dwarf Gray Sugar)
 2 Internodes: 1 = STRAIGHT 2 = ZIG ZAG 2 0 NUMBER OF NODES

5. LEAFLETS: (absent)

Color: 1 = LIGHT GREEN (Alaska WR) 2 = MED. GREEN (Thomas Laxton WR) 3 = DARK GREEN (Alderman)
4 = OTHER (Specify)
 Wax: 1 = NONE 2 = LIGHT 3 = MEDIUM 4 = HEAVY 1 = NOT MARBLED 2 = MARBLED (Alaska)
 Number of leaflet pairs: 1 = NOT PAIRED 2 = ONE 3 = TWO 4 = THREE OR MORE

6. STIPULES:

2 1 = LACKING 2 = PRESENT 2 1 = NOT CLASPING 2 = CLASPING
 2 1 = NOT MARBLED 2 = MARBLED Size (Compared with leaflets): 1 = SMALLER 2 = SAME
Leaflets absent 3 = LARGER
 Color (Compared with leaflets): 1 = LIGHTER 2 = SAME 3 = DARKER

7. FLOWER COLOR:

2 VENATION 1 STANDARD 1 WING 1 KEEL } 1 = WHITE 2 = GREENISH 3 = LAVENDER
4 = PURPLE 5 = RED
6 = OTHER (Specify)

8. PODS:

1 Shape: 1 = STRAIGHT 2 = SLIGHTLY CURVED 2 End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)
 2 Color: 1 = LIGHT GREEN (Alaska WR) 2 = MEDIUM GREEN 3 = DARK GREEN (Alderman)
 4 = OTHER (Specify) _____
 1 Surface: 1 = SMOOTH 2 = ROUGH 2 Surface: 1 = SHINY 2 = DULL
 2 Borne: 1 = SINGLE 2 = DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE
 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) _____
 6 7 ^{mm} X.M. LENGTH 1 3 MM. WIDTH (Between sutures) 0 6 NO. SEEDS PER POD

9. SEEDS (95-100 Tenderometer):

2 Color: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = OTHER (Specify) _____
 Seive: % 0 4 0 7 1 7 2 4 4 3 0 5 ^{6+over} 7 8 AVERAGE 4 0 9

SEEDS (Dry, Mature):

2 Shape: 1 = FLATTENED 2 = ANGULAR 3 = OVAL 4 = ROUNDED
 3 Surface: 1 = SMOOTH 2 = DIMPLED 2 Surface: 1 = SHINY 2 = DULL
 3 = WRINKLED
 1 Color Pattern: 1 = MONOCOLOR 2 = MOTTLED 3 = STRIPED 4 = DOTTED
 4 Primary Color: { 1 = CREAMY-WHITE 2 = CREAM & GREEN 3 = LIGHT GREEN 4 = MEDIUM GREEN
 5 = DARK GREEN 6 = BLUE-GREEN 7 = YELLOW 8 = BROWN 9 = RED
 Secondary Color: { 10 = GRAY 11 = BLACK
 1 Hilum Floor Color: 1 = WHITE 2 = TAN 1 Cotyledon Color: 1 = GREEN 2 = YELLOW 3 = ORANGE
 2 0 GRAMS PER 100 SEEDS

10. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

0 FUSARIUM WILT 0 NEAR-WILT 0 DOWNY MILDEW
 0 ASCOCHYTA BLIGHT 2 POWDERY MILDEW 0 BACTERIAL BLIGHT
 0 MOSAIC 0 PEA ENATION MOSAIC 0 YELLOW BEAN MOSAIC
 OTHER (Specify) _____

11. INSECT: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

0 APHIDS OTHER (Specify) _____

12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Leafiness	New Line Early Perf.	Fresh Seed Color	New Line Early Perf.
Leaf Color	New Line Early Perf.	Mature Seed Color	New Line Early Perf.
Pod Color	New Line Early Perf.	Seed Shape	New Line Early Perf.
Pod Shape	New Line Early Perf.	Plant Habit	New Line Early Perf.

COMMENTS:

WIS-EX 82-1 differs from New Line Early Perfection in that WIS-EX 82-1 has afila foliage and is resistant to powdery mildew.
 WIS-EX 82-1 differs from WIS 7104 in that WIS-EX 82-1 has afila foliage.