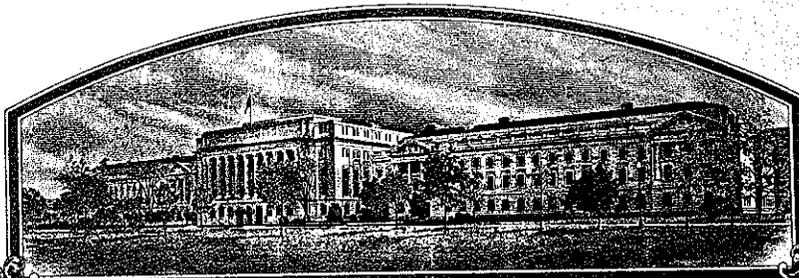


No.

8000077



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Colorado State University

**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. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN

'Olathe'



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 16th day of October in the year of our Lord one thousand nine hundred and eighty.

Attest:

Edward K. Kane
Commissioner
Plant Variety Protection Office
Agric. Division

Robert B. Berry

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 3439 | | 1b. VARIETY NAME Olathe | | FOR OFFICIAL USE ONLY PV NUMBER 8000077 | |
| 2. KIND NAME | | 3. GENUS AND SPECIES NAME Phaseolus vulgaris L. | | | |
| 4. FAMILY NAME (BOTANICAL) Leguminosae | | 5. DATE OF DETERMINATION March 15, 1979 | | FEE RECEIVED \$ 500.00 | DATE 3/20/80 |
| | | | | \$ 250.00 | 7/28/80 |
| 6. NAME OF APPLICANT(S) Colorado State University | | 7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) C3 Plant Science Bldg Colorado State University Ft. Collins, Co 80523 | | 8. TELEPHONE AREA CODE AND NUMBER 303-491-6202 | |
| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) University | | | 10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Colorado | | 11. DATE OF INCORPORATION |
| 12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Donald R. Wood C3 Plant Science Bldg, CSU Ft. Collins, Co 80523 | | | | | |

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 Set 800633

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.

Feb 25, 1980
 (DATE)

Donald R. Wood
 (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.

08/20/80
m/d

13-A. Exhibit A.

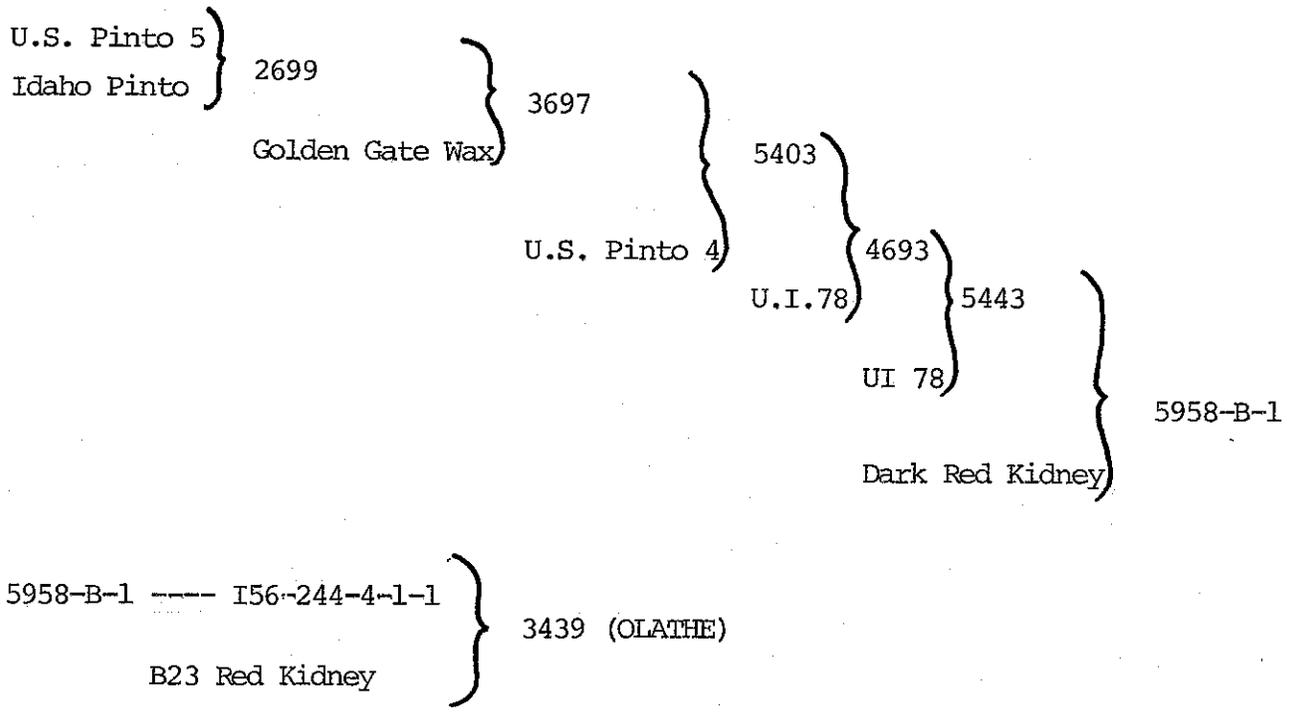
Olathe was derived from a cross, II62-35, made in 1962 by Donald R. Wood, Colorado State University, Ft. Collins, Co. The female parent was I56-244-4-1-1 with a rust resistant selection derived by Dr. Wood from a F₂ population (5958-B-1) received from Dr. W. J. Zaunmeyer, Principal Pathologist, Horticultural Crops Research Branch, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, MD in 1957. The male parent was B23, a red kidney strain developed by the U.S.D.A. and first tested in the Cooperative Dry Bean Nurseries in 1960. It was never released as an improved cultivar.

The F₂ population was harvested in bulk, the pinto type seeds were sorted out and used to establish a bulk population (Bulk number 23) and carried by bulk breeding methods through the 1972 growing season. An individual plant was selected by D. R. Wood and J. G. Keenan and tested with other selections in a common bean mosaic disease nursery. Strains resistant to N.Y. 15 strain were selected on the basis of agronomic traits and advanced to yield testing. Dr. Matt Silbermagel, USDA, SEA-AR, Prosser, WS. tested the selection for resistance to curly top.

Outstanding characteristics of Olathe are high yield, resistance to common bean mosaic virus (common strain and N.Y. 15 strain), resistance to curly top and high degree of resistance to bean rust.

Olathe has been found stable in all tests except for some rogue plants found in 1977 in a planting at the Fruita Research Center. It is now suspected that these plants may have derived by natural crossing of one or more Olathe male sterile plants. Seed was increased in plant rows and rogued by the breeder on the Agronomy Research Center, Colorado State University, Ft. Collins, CO. Typical occurrence of rogues in increase plots are about one in 10,000 plants. Rogues were recognized by height and a typical pink pinto seed color.

Olathe pedigree:





Department of Agronomy
303/491-6517

Colorado State University
Fort Collins, Colorado
80523

June 16, 1980

Mr. Thaddeus E. Frey, Examiner
Plant Variety Protection Office
USDA, AMS,
National Agric. Library Bldg.
Beltsville, MD 20705

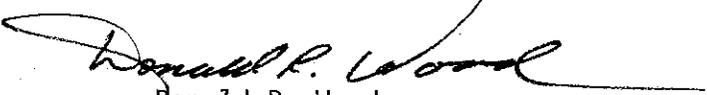
Dear Mr. Frey:

Subject: Novelty Statement Revision for Bean Application No.
8000077, 'Olathe'.

I am amending the novelty statement for 'Olathe' in response to
a telephone call from your office as follows:

'Olathe' is most similar to 'U.I. 114'; however, 'Olathe' is
resistant to known races of bean rust, whereas 'U.I. 114' is
susceptible to bean rust.

Sincerely yours,


Donald R. Wood
Professor

DRW:esk

Summary Novelty Statement

CROP Field Bean, Pinto (Phaseolis vulgaris L.)

Variety Olathe

General Information Colorado State University released a high yielding, rust resistant pinto bean which is similar to UI114 in field vining habit. Olathe is sometimes statistically higher in yield than UI114 and completely resistant to all strains of rust where UI114 is susceptible and all other varieties of Pinto beans are susceptible. Olathe is indistinguishable from UI114 in vining habit and maturity but is wider in seed width than UI114, thus appearing much rounder than UI114. Seed weight of Olathe is lighter than UI114.

Origin and Pedigree Olathe was derived from a cross, II62-35, made in 1962 by Donald R. Wood, Colorado State University, Ft. Collins. The female parent was I56-244-4-1-1 with rust resistant selection derived by Dr. Wood from a F₂ population (5958-B-1) received from Dr. W. J. Zaumeyer, Principal Pathologist, Horticultural Crops Research Branch, Agricultural Research Service, U. S. Dept. of Agriculture, Beltsville, MD in 1957. The male parent was B23, a red kidney strain developed by the U.S.D.A. and first tested in the Cooperative Dry Bean Nurseries in 1960. It was never released as a improved cultivar.

The F₂ population was harvested in bulk, the pinto type seeds were sorted out and used to establish a bulk population (Bulk number 23) and carried by bulk breeding methods through the 1972 growing season. An individual plant was selected by D. R. Wood and J. G. Keenan and tested with other selections in a common bean mosaic disease nursery. Strains resistant to N.Y. 15 strain were selected on the basis of agronomic traits and advanced to yield testing. Dr. Matt Silbernagel, USDA, SEA-AR, Prosser, WA tested the selection for resistance to curly top.

Variety Discription Olathe differs from UI114 and UI111 in being resistant to all present races of rust. Olathe differs from UI111 in being resistant to

the N. Y. 15 strains of common bean mosaic. Olathe seeds are 1 gram per 100 seeds lighter than Colombia. Olathe seeds are 2 grams per 100 seeds lighter than UI111. Olathe differs from UI114 by being 2 grams lighter per weight of 100 seeds. Olathe is higher yielding than Colombia or UI111, (see table 6). Olathe has more pods per plant than Colombia or UI111 (see table 6).

Table 6. Means¹ and standard deviations for seed yield, seed number, and yield components for seven populations of pinto beans.

| Population | Seed Yield | Pods/plant | Seeds/pod | Seed Weight |
|-----------------|----------------|----------------|---------------|---------------|
| UI 111 | 27.46 ± 7.87b | 15.91 ± 4.00c | 4.30 ± 0.92bc | 0.41 ± 0.04a |
| Columbia | 26.03 ± 8.56bc | 17.23 ± 4.85b | 3.83 ± 0.64d | 0.40 ± 0.03b |
| Olathe | 35.65 ± 12.39a | 20.85 ± 6.44a | 4.44 ± 0.68ab | 0.39 ± 0.03c |
| 3385 | 37.16 ± 10.08a | 20.53 ± 5.42a | 4.56 ± 0.49a | 0.40 ± 0.03ab |
| F ₇ | 24.16 ± 13.14c | 17.85 ± 9.12b | 4.16 ± 1.23c | 0.34 ± 0.05e |
| F ₈ | 22.21 ± 10.92d | 16.13 ± 7.69bc | 3.83 ± 0.86d | 0.35 ± 0.05d |
| F ₁₀ | 22.13 ± 12.47d | 17.16 ± 9.85b | 3.93 ± 0.73d | 0.34 ± 0.05e |

¹ A group of means followed by the same letter are not significantly different at the 0.05% level using the Bayesian LSD Test.

PINTO BEAN VARIETY TRIAL SUMMARY 1979

Pounds Per Acre

| | Greeley | Kersey | Pueblo | Holyoke | Burlington | Ft. Collins I | Ft. Collins II | Montrose | AVERAGE 1979 | 6-YEAR AVERAGE |
|---------|---------|--------|--------|---------|------------|---------------|----------------|----------|--------------|----------------|
| Olathe | 2696 | 1359 | 3824 | 1943 | 1724 | 2544 | 2257 | 3220 | 2446 | 2900 |
| UI 111 | 1835 | 1332 | 3013 | 1842 | 1952 | 2157 | 1853 | 2690 | 2084 | 2559 |
| UI 114 | 2370 | 839 | 2851 | 1985 | 1694 | 2384 | 2242 | 3030 | 2174 | 2745 |
| 3385 | 2448 | 1254 | 3696 | 1942 | 1574 | 2500 | 2433 | -- | 2264 | 2800 |
| WS 410 | 2510 | 1073 | 2619 | 2123 | 1795 | -- | 2262 | 3000 | 2197 | -- |
| 6R563 | 2435 | 1388 | -- | 2841 | 2033 | -- | -- | 3120 | 2363 | -- |
| Wyo 166 | 2357 | 1154 | -- | 2250 | 2060 | 2148 | 2279 | -- | 2041 | -- |

Olathe has a very good average yield over several locations over 6 years. Agents may refer requests for seed to local bean seed dealers or contact Montrose Potato Growers Coop or seed growers through the spring directory.

Statistical analysis indicated Kersey, Burlington, and Pueblo were highly variable sites with nonsignificant F values.

For more details contact Bob Croissant, Bob Clark, Elmer Rothman, John Keenan, or Charles Higgins.

Other varieties tested at Ft. Collins included Ouray, Columbia, and experimental lines. Two white mold resistant selections may be released in 2-3 years.



13d. Exhibit B. Additional Description of Olathe

Olathe is a semi-vine bean grown for its dry seeds and is marketed as a Pinto. Olathe is a few days, 4-6, later than U.I. ~~111~~ but has about the same maturity as U.I. 114, Wyo P166, or Columbia. Olathe is more sturdy and has a more upright growth habit when maturing in the field than other pinto varieites except Ouray. In contrast to U.I. ~~111~~ and Wyo P166, Olathe is resistant to the NY 15 strain of common blan mosaic.

JEA
800624

In five years of yield testing at Ft. Collins Olathe has shown a slightly higher yield than U.I. 114 which is not statistically different but it does yield significantly higher than U. I. ~~111~~.

Yield in Pounds Per Acres
Year

| Cultivar | 1974 | 1975 | 1976 | 1977 | 1978 | Mean |
|----------|------|------|------|------|------|------|
| Olathe | 3328 | 3572 | 3171 | 3310 | 3389 | 3354 |
| U.I.114 | 3356 | 3395 | 2888 | 3278 | 3656 | 3315 |
| U.I.111 | 3199 | 2978 | 2780 | 2854 | 3360 | 3034 |

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Bean)

OBJECTIVE DESCRIPTION OF VARIETY
BEAN (*Phaseolus vulgaris* L.)

| | |
|--|---|
| NAME OF APPLICANT(S) Colorado State University | FOR OFFICIAL USE ONLY |
| | PVPO NUMBER 8000077 |
| ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) Ft. Collins, Colorado 80523 | VARIETY NAME OR TEMPORARY DESIGNATION Olathe |

Place numbers in the boxes (e.g.) for the characters that best describe this variety. Measured data should be for SPACED PLANTS. Ranges may also be given. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____ The location of test area is State of Colo
Please answer questions appropriate for your variety if the information is available.

1. TYPE:

1 = Field (dry-edible) 2 = Garden

2. MARKET MATURITY:

Days to edible pods Days to green shells

Days to dry seeds

Heat units to edible pods

Heat units to green shells

Heat units to dry seeds

No. days earlier than

..... Same as

No. days later than

- 1 = Tendercrop
- 3 = Kinghorn Wax
- 5 = Michelite 62
- 7 = Bush Blue Lake 290

- 2 = Kentucky Wonder
- 4 = White Kidney
- 6 = Dwarf Horticultural
- 8 = Other (specify below)

U.I.114

3. PLANT:

1 = Determinate 2 = Indeterminate

cm height

cm shorter than

..... Same as

cm taller than

cm spread

cm narrower than

..... width same as

cm wider than

comparison variety from above

Number primary branches near base

comparison variety from above

Branching habit:
1 = compact 2 = open

Main stalk: 1 = brittle 2 = wirey

1 = stout 2 = thin

3. PLANT: (Cont'd)

3 Pod position: 1 = low 2 = high 3 = scattered

5 Bush form (illustrated below):



1 = spherical bush form



2 = stem bush form



3 = wide bush form



4 = high bush form

5 = other (specify) semi-vine

4. LEAVES:

2 1 = smooth 2 = wrinkled

1 1 = dull 2 = glossy

2 Size: 1 = small (Earliwax) 2 = medium 3 = large (Tendercrop)

2 Color: 1 = light green (as light or lighter than Bountiful) 2 = medium green
3 = dark green (as dark or darker than Bush Blue Lake 290)

5. FLOWERS:

1 Color: 1 = white 2 = cream 3 = pink 4 = lilac 5 = purple 6 = Other (specify) _____

4 5 Days to 50% bloom

6. FRESH PODS: (Edible maturity, average for 20 pods)

Exterior color: 1 = light green (as light or lighter than Bountiful)
2 = medium green
3 = dark green (as dark or darker than Bush Blue Lake 290)
4 = light yellow (Brittlewax)
5 = golden yellow (Cherokee Wax)
6 = green-red variegated (Horticultural)
7 = other (specify) _____

% Sieve size distribution at optimum maturity for non-flat pods

Note:

1 = 4.76 mm to 5.76 mm 4 = 8.34 mm to 9.53 mm
2 = 5.76 mm to 7.34 mm 5 = 9.53 mm to 10.72 mm
3 = 7.34 mm to 8.34 mm 6 = 10.72 mm or larger

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| | | | | | |

3 sieve cm length mm width mm thickness

4 sieve cm length mm width mm thickness

5 sieve cm length mm width mm thickness

6 sieve cm length mm width mm thickness

6. FRESH PODS: (Cont'd)

Cross section pod shape: 1 = flat 2 = oval 3 = round 4 = heart

Creaseback: 1 = present 2 = absent

Pubescence: 1 = none 2 = sparse 3 = considerable

Spur: 1 = straight 2 = slightly curved 3 = curved

Constrictions: 1 = none 2 = slight 3 = deep

Pod flesh: 1 = light 2 = medium 3 = dark

mm spur length

Fiber: 1 = none 2 = sparse 3 = considerable

Number of seeds per pod

Surface: 1 = smooth 2 = rough

Suture string: 1 = present 2 = absent

Seed development (Snap Bean): 1 = slow 2 = medium 3 = fast

Machine harvest: 1 = adapted 2 = not adapted

Pod flavor: (1) Standard (Tendercrop)
 (2) Mild Blue Lake (BBL 274)
 (3) Strong Blue Lake (Pole FM1)
 (4) Mild Romano (Roma)
 (5) Strong Romano (Pole Romano)
 (6) Other (specify) _____

7. SEED COAT COLOR:

1 = Monochrome 2 = Polychrome 1 = shiny 2 = dull

Primary color: 1 = white 2 = yellow 3 = buff 4 = tan

Secondary color: 5 = brown 6 = pink 7 = red 8 = purple
 9 = blue 10 = black 11 = other (specify) _____

Color Pattern: 1 = none 2 = splashed 3 = mottled 4 = striped 5 = flecked 6 = dotted

Secondary color location: 1 = hilar ring 2 = ventral surface
 3 = sides 4 = dorsal surface
 5 = not restricted to any area 6 = combination of location (specify below) _____

Hilar ring on colored seeds: 1 = absent 2 = narrow 3 = butterfly shaped

8. SEED SHAPE AND SIZE:

Hilum view: 1 = elliptical 2 = oval 3 = round

Cross section: 1 = elliptical 2 = oval 3 = cordate 4 = round

Side view:



1 = oval to oblong

2 = round

3 = reniform

8. SEED SHAPE AND SIZE: (Cont'd)

08/00/5
p. 200

2 1 = truncate ends 2 = rounded ends



3 8 gm/100 seed

2 gm/100 seed lighter than 8

gm/100 seed same as comparison variety from page one

gm/100 seed heavier than

9. ANTHOCYANIN: (1 = absent 2 = present)

1 Flowers 1 Stems 2 Pods 1 Seeds 1 Leaves

10. DISEASE RESISTANCE (0 = not tested 1 = susceptible 2 = resistant):

- 0 Anthracnose (specify race below) _____
- 0 Fusarium root rot _____
- 2 Rust (specify race below)
all tested strains
- 0 Pythium root rot _____
- 0 Rhizoctonia root rot _____
- 0 Pythium wilt _____
- 0 Angular leaf spot _____
- 0 Bacterial wilt _____
- 0 Halo blight (specify race below) _____
- 0 Fuscous blight _____
- 0 Red node virus _____
- 0 Pod mottle virus _____
- 2 Bean common mosaic virus (specify strain below)
common NY 15
- 0 Mosaic mottle _____
- 0 Black root _____
- 0 Bean yellow mosaic virus _____
- 2 Curly top _____
- Other (specify below) _____

11. INSECT RESISTANCE: (0 = not tested 1 = susceptible 2 = resistant)

- 0 Aphids _____
- 0 Leaf hopper _____
- 0 Lygus _____
- 0 Pod borer _____
- 0 Root knot nematode _____
- 0 Seed corn maggot _____
- 0 Thrips _____
- 0 Weavils _____
- Other (specify below) _____

12. PHYSIOLOGICAL RESISTANCE: (0 = not tested 1 = susceptible 2 = resistant)

0 Heat 0 Cold 0 Drought 0 Air pollution

13. COMMENTS: