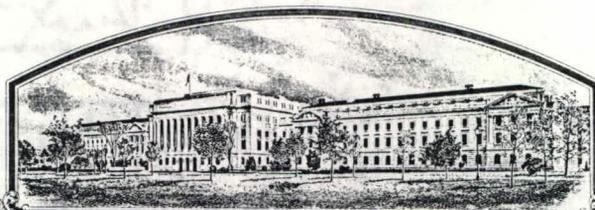


No.



8100049

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Ferry-Morse Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

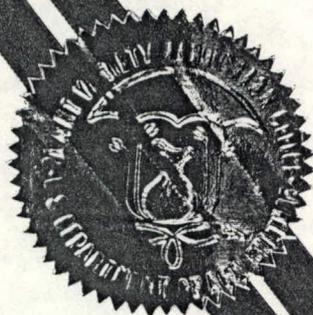
**Secretary of Agriculture**

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

SNAP BEAN

'Crossville'



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 February in the year of our Lord one thousand nine hundred and eighty-three.

Attest

*Kenneth H. W...*  
Acting  
Commissioner  
Plant Variety Protection Office  
Grain Division  
Agricultural Marketing Service

*John R. Block*

Secretary of Agriculture



2001

VARIETY: Crossville (formerly E4206 (formerly 1C-65AC(MT)23(C)MsA,DMs  
(formerly 1C-X41Ms#1(W)R(GH)Ms(C)MsAC)))

Exhibit A: Origin and Breeding History of the Variety

Crossville originated through the pedigree method of breeding as a bulk-mass of seed from 2 F<sub>10</sub> single plant progeny rows originating from the 1C-X41 cross of Asgrow BBL 274 as the seed parent and 1H-25B(C)MsMsMs (later named Avalanche) as the pollen parent. The cross was made in the greenhouse at San Juan Bautista, California, in the fall of 1966. The F<sub>16</sub> bulk-mass of seed was designated the stock seed for Crossville in the summer of 1979.

F<sub>1</sub> seed of 1C-X41 was planted in the California greenhouse in the spring of 1967; F<sub>2</sub> seed from F<sub>1</sub> plants with good concentration were massed and designated 1C-X41Ms#1. This seed was planted in the field in California in the summer of 1967, the F<sub>3</sub> seed from the resulting plants was bulk-massed and designated 1C-X41Ms#1Ms.

In the summer of 1968 the F<sub>3</sub> seed was planted in Columbus, Wisconsin. The row received a good rating for its overall good concentration of maturity and production and pod smoothness, but was also noted to be somewhat lacking in color. Nineteen F<sub>3</sub> single plant selections were made in this row. F<sub>4</sub> seed from each of these selections was planted in the California greenhouse in the fall of 1968 and carried through another generation.

The F<sub>5</sub> seed of the fifteenth selection, 1C-X41Ms#1Ms(W)R(GH)Ms, was planted in the field in California in the summer of 1969. The row continued to show good concentration of maturity and production, straight, smooth pods, and a medium external color. Besides six single plant selections, F<sub>6</sub> seed from the remaining plants in the row were bulk-massed.

The F<sub>6</sub> seed, 1C-X41Ms#1Ms(W)R(GH)Ms(C)Ms, was planted in the field in California in the summer of 1970. The row was noted for its tall, upright habit, but was still segregating for round to oval shaped pods and variegated (Corbett Refugee-type) foliage. Sixteen F<sub>6</sub> single plant selections were taken from the row; the row was redesignated 1C-65. The F<sub>7</sub> seed of thirteenth selection 1C-65AC was planted one seed per/pot in the greenhouse at San Juan Bautista, California, in the winter of 1970-71. F<sub>8</sub> seed from each of 23 plants was planted separately to the field in the summer of 1971 in California. The F<sub>8</sub> progeny row, 1C-65AC(MT)23, was given a good rating. It's F<sub>9</sub> seed was bulk-massed.

The F<sub>9</sub> seed, 1C-65AC(MT)23(C)Ms, was planted back in the California field in 1972. The row rated excellent and noted for its very good concentration of maturity and pod yield as well as good pod characteristics. However, the row still was segregating some plants with occasional variegated foliage (about 6%). Ten F<sub>9</sub> single plant selections were made, and F<sub>10</sub> seed from the remaining plants was bulk-massed.



## Exhibit A: Origin and Breeding History of the Variety (continued)

The F<sub>10</sub> progeny rows were planted in the field in California in the summer of 1973. Two rows 1C-65AC(MT)23MsA and 1C-65AC(MT)23MsD were nearly identical in appearance and stood out for a very good concentration of maturity and straight, round, well filled pods. The F<sub>11</sub> seed of these two rows was bulk-massed and designated E4206.

The seed increase and testing of E4206 as a new variety began in 1974. The line received excellent reports for its frozen pod color, good pod quality, holding ability on the vine, late midseason maturity. Forty pounds of F<sub>2</sub> seed was obtained in 1974.

In 1975 seed increase of E4206 was held up, but evaluation of the line continued. Field tolerance to rust was noted in the Cumberland Plateau rust trial. The good frozen product continued to have good color.

In 1976, E4206 continued in its good evaluation as an Eastern Blue Lake type with a good plant habit, medium late maturity, and good processing pod type. The F<sub>13</sub> increase was up to 101.0 lbs. Slight leaf variegation continued in the line; among approximately 20,000 plants 16 flat oval podded and 3 oval podded plants were removed.

In 1977 there was renewed interest in E4206 as a new variety for release because of its field tolerance to rust on the Cumberland Plateau of Tennessee. There was a further F<sub>14</sub> increase of the seed to 320 lbs. with a frequency of 20 oval and 2 oval-flat-podded off type per 100 plants.

In 1978 the F<sub>15</sub> increase of E4206 yielded 765 lbs. of seed. The variety continued to show promise on the Cumberland Plateau.

In 1979 the F<sub>16</sub> increase of E4206 yielded 2613 lbs. of seed. Resulting seed was designated the stock seed for the new variety, and E4206 was named Crossville in the summer of 1979. The frequency pod off-types in the production of this lot was noted as no off-types in 100 plants.

... were planted in the field in fall 1977 in the  
number of 170. Two rows 10-500 (W) and 10-500 (B) were  
planted in the field in fall 1977 for a very good yield  
of 170 bushels per acre. The yield of the 10-500 (W) row  
was 170 bushels per acre and the yield of the 10-500 (B) row  
was 170 bushels per acre.

The seed increase and testing of 10-500 as a new variety in 1977  
line received excellent reports on its first year yield and  
quality. The yield of the 10-500 (W) row was 170 bushels per  
acre and the yield of the 10-500 (B) row was 170 bushels per  
acre.

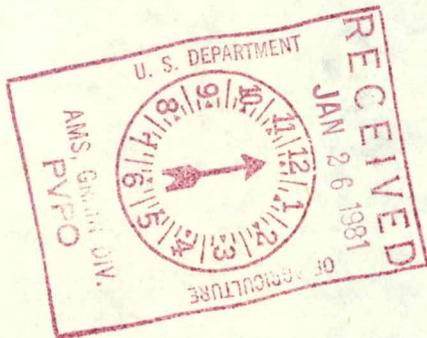
The yield of the 10-500 (W) row was 170 bushels per acre and  
the yield of the 10-500 (B) row was 170 bushels per acre.

The yield of the 10-500 (W) row was 170 bushels per acre and  
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the yield of the 10-500 (B) row was 170 bushels per acre.



VARIETY: Crossville (formerly E4206 (formerly 1C-65AC(MT)23(C)MsA,DMs  
(formerly 1C+X41Ms#1(W)R(GH)Ms(C)MsAC)))

<sup>B</sup>  
Exhibit D: Data Indicative of Novelty

Crossville most closely resembles the variety Blue Crop and has been derived from the reciprocal cross of the same parents. The characteristic of clearest difference between these two varieties that has been measured is seed size. Crossville has a shorter seed length than Blue Crop.

*set 810306*

	Seed Length					
	<u>Blue Crop</u>	<u>Crossville</u>	$\bar{d}$	$s_d$	$t$	$p$
1980 Wisconsin (Field Grown Seed) (160 paired comparisons)	13.58 <i>mm</i>	12.84 <i>mm</i>	0.73	.125	5.83	<.001
1979 California (Field Grown Seed) (100 paired comparisons)	14.20 <i>mm</i>	12.47 <i>mm</i>	1.65	.149	11.07	<.001
1980 Wisconsin (Greenhouse Grown Seed) (100 paired comparisons)	13.71 <i>mm</i>	13.11 <i>mm</i>	0.58	.184	3.152	.005 - .001

$$\bar{Y}_G = 13.83 \text{ mm} \quad 12.81 \text{ mm}$$

*rf 5 12/17/82*

U.S. Department of Agriculture  
Agricultural Research Service  
Beltsville, Maryland 20715

Protein content of alfalfa varies with the variety and the year of harvest. The protein content of the same variety in different years may vary. The protein content of alfalfa is determined by the nitrogen content of the plant.

Year	Protein (%)	Crude Fiber (%)	Acid Detergent Fiber (%)	Neutral Detergent Fiber (%)	Cellulose (%)	Cellulose Equivalent (%)
1980	18.5	31.0	12.4	28.5	12.5	12.5
1981	18.0	31.5	12.5	29.0	12.5	12.5
1982	18.5	31.0	12.4	28.5	12.5	12.5
1983	18.0	31.5	12.5	29.0	12.5	12.5
1984	18.5	31.0	12.4	28.5	12.5	12.5
1985	18.0	31.5	12.5	29.0	12.5	12.5



VARIETY: Crossville (formerly E4206 (formerly 1C-65AC(MT)23(C)MsA,DMs  
(formerly 1C-X41Ms#1(W)R(GH)Ms(C)MsAC)))

Exhibit <sup>D</sup> ~~B~~: Botanical Description of the Variety

1st  
810306

Seed germination and seedling emergence occur at a medium rate with a medium seedling vigor. Time of flowering is late midseason ( $\pm$  2 days later than Tidal Wave,  $\pm$  2 days earlier than Blue Crop). The pods reach edible maturity in late midseason (approximately the same maturity as Blue Crop). Seed development is very slow.

Plants are upright, tall, somewhat spreading. Foliage color is medium dark to dark green (similar to Blue Crop). Leaves are deltoid ovate (14 cm long x 11 cm wide for the center leaflet of the second trifoliate leaf above the unifoliate node), acuminate, with round or truncated bases. Leaves are medium large, similar to Blue Crop, and medium number. Stems and leaves are smooth and moderately pubescent. Inflorescences arise from the apex and leaf axils and contain 4 to 8 white flower buds. Stems of plants are medium thick. Pods are borne under the foliage, but off the ground.

Pods vary from 14 to 18 cm in length, but average  $\pm$  16 cm. Pods are slightly creaseback: 10 mm from suture to suture and 11 mm from sidewall to sidewall. Pods reach a medium large diameter (11 mm x 14 mm) just before becoming over-mature. Pods are straight; pod surface is smooth and moderately pubescent. Pod spur is medium in length (15 mm). Pod color is medium dark green; pod flesh is firm, pod seed cavity is very small. Pods are generally free of interocular cavitation.

Seeds are white, round in cross-section, and oblong; size is slightly smaller than Blue Crop.

(10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

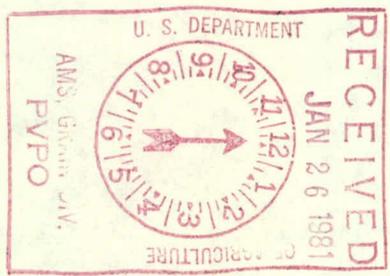
Statistical Description of the Data

The following table shows the distribution of the data by sex and age group. The total number of observations is 1000. The data were collected from a random sample of the population.

The data were analyzed using the following methods: (1) Descriptive statistics, including means, standard deviations, and frequencies. (2) Inferential statistics, including confidence intervals and hypothesis testing. (3) Regression analysis to determine the relationship between variables.

The results of the analysis are as follows: (1) The mean value of the dependent variable is 12.5. (2) The standard deviation is 3.2. (3) There is a significant positive correlation between the independent variable and the dependent variable.

The following table shows the distribution of the data by sex and age group.



## ASSIGNMENT OF INTELLECTUAL PROPERTY

WHEREAS, HARRIS MORAN SEED COMPANY, a corporation duly organized and existing under the laws of the State of Maryland, having its principal place of business at 4511 Willow Road, Suite 3, Pleasanton, California 94588 ("Assignor"), has, pursuant to that certain Bill of Sale and Assignment dated as of June 30, 1997, transferred to FERRY-MORSE SEED COMPANY (CALIFORNIA), a corporation duly organized and existing under the laws of the State of California, having its principal place of business at 555 Codoni Avenue, P.O. Box 4938, Modesto, California 95352-4938 ("Assignee"), all of the intellectual property Assignor had adopted, used and was using as of the effective date of this Assignment, including without limitation, the intellectual property represented by the United States Plant Variety Protection Certificates of Assignor identified on Schedule A hereto (collectively, the "Property"); and

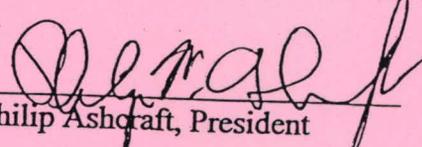
WHEREAS, on the date hereof, Assignee has changed its name to "Harris Moran Seed Company";

NOW, THEREFORE, effective by this instrument as of the close of business on June 30, 1997, and for good and valuable consideration, receipt of which is hereby acknowledged, Assignor hereby assigns to Assignee any and all right, title and interest worldwide in and to the Property and any and all recordations thereof, including, but not limited to, the use of the Property in any manner, all benefit of any and all prior use of the Property, and any and all rights to initiate claims or proceedings for past, present or future infringements of Assignor's rights, title and interest in and to the Property.

Dated: as of June 30, 1997

HARRIS MORAN SEED COMPANY

By:

  
Philip Ashcraft, President



CERTIFICATE OF AMENDMENT  
OF THE  
ARTICLES OF INCORPORATION  
OF

FERRY-MORSE SEED COMPANY (CALIFORNIA)  
(a California corporation)

1430310

ENDORSED  
FILED

In the office of the Secretary of State  
of the State of California

JUN 30 1997

*Bill Jones*  
BILL JONES, Secretary of State

To the Secretary of State  
State of California

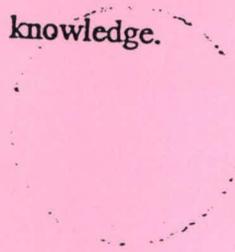
Pursuant to the provisions of the General Corporation Law of the State of California, the undersigned officers of FERRY-MORSE SEED COMPANY (CALIFORNIA), a California corporation (the "Corporation"), do hereby certify as follows:

1. The name of the Corporation is Ferry-Morse Seed Company (California).
2. Article One of the Corporation's Articles of Incorporation, which relates to the name of the Corporation, is hereby amended in its entirety to read as follows:
  - One. The name of this Corporation is:  
HARRIS MORAN SEED COMPANY.
3. The amendment herein provided for has been approved by the Corporation's Board of Directors.
4. The amendment herein provided for was approved by the written consent of the Corporation's sole shareholder in accordance with the provisions of Section 902 of the California General Corporation Law. The total number of outstanding shares of the corporation is 5,000.

IN WITNESS WHEREOF, each of the undersigned does hereby declare under the penalty of perjury that he or she signed the foregoing Certificate of Amendment as of June 30,



1997, in the Town of Modesto, State of California, in the official capacity set forth beneath his or her signature and that the statements set forth in this certificate are true of his or her own knowledge.



*Yves Queste*

Yves Queste, President

*Helen Andritsakis*

Helen Andritsakis, Secretary



# State of California

SECRETARY OF STATE



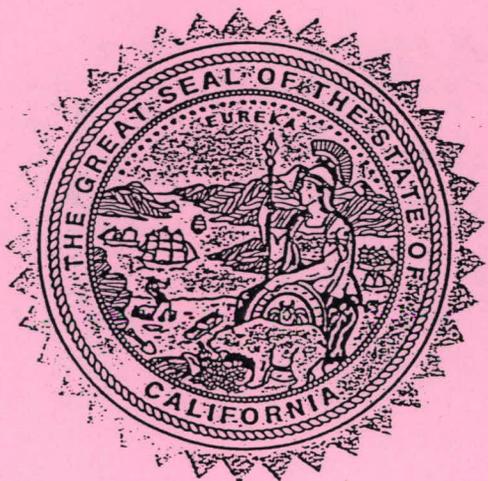
2 PAGES

I, *BILL JONES*, Secretary of State of the State of California, hereby certify:

That the attached transcript has been compared with the record on file in this office, of which it purports to be a copy, and that it is full, true and correct.

*IN WITNESS WHEREOF*, I execute this certificate and affix the Great Seal of the State of California this

JUN 30 1937



Secretary of State



## 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.



**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 E4206		1b. VARIETY NAME CROSSVILLE		<b>FOR OFFICIAL USE ONLY</b>	
				PV NUMBER 8100049	
2. KIND NAME Snap Bean		3. GENUS AND SPECIES NAME <u>Phaseolus vulgaris</u> L.		FILING DATE 2/6/81	TIME 1:30 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">P.M.</span>
4. FAMILY NAME (BOTANICAL) LEGUMINOSAE		5. DATE OF DETERMINATION 1979		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 2/6/81 2/7/83
6. NAME OF APPLICANT(S) FERRY-MORSE SEED COMPANY Dr. George C. Emery, Breeder		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 111 Ferry-Morse Way Drawer 7274 Mountain View, CA 94042		8. TELEPHONE AREA CODE AND NUMBER (415)967-6973	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) CORPORATION		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION CALIFORNIA		11. DATE OF INCORPORATION 7 April 1969	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Mr. D.V. Brondyke, Executive Vice President FERRY-MORSE SEED COMPANY 111 Ferry-Morse Way, Drawer 7274, Mountain View, CA 94042					

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.)

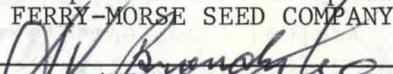
16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL?  YES  NO

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.

27 Jan 1981  
 (DATE)

FERRY-MORSE SEED COMPANY  
  
 (SIGNATURE OF APPLICANT)  
 D. V. BRONDYKE, EXECUTIVE V.P.

(DATE)

(SIGNATURE OF APPLICANT)

3. PLANT: (Cont'd)

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

Bush form (illustrated below):



1 = spherical bush form

2 = stem bush form

3 = wide bush form

4 = high bush form

5 = other (specify) \_\_\_\_\_

4. LEAVES:

1 = smooth    2 = wrinkled

1 = dull    2 = glossy

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

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:

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

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 variagated (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
-	-	12	14	39	35

3 sieve	<input type="text" value="1"/> <input type="text" value="2"/> cm length	<input type="text" value="0"/> <input type="text" value="6"/> mm width	<input type="text" value="0"/> <input type="text" value="7"/> mm thickness
4 sieve	<input type="text" value="1"/> <input type="text" value="3"/> cm length	<input type="text" value="0"/> <input type="text" value="9"/> mm width	<input type="text" value="1"/> <input type="text" value="0"/> mm thickness
5 sieve	<input type="text" value="1"/> <input type="text" value="6"/> cm length	<input type="text" value="1"/> <input type="text" value="0"/> mm width	<input type="text" value="1"/> <input type="text" value="2"/> mm thickness
6 sieve	<input type="text" value="1"/> <input type="text" value="7"/> cm length	<input type="text" value="1"/> <input type="text" value="1"/> mm width	<input type="text" value="1"/> <input type="text" value="4"/> mm thickness

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) FERRY-MORSE SEED COMPANY	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER <div style="text-align: right; font-size: 1.2em;">8100049</div>
ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 111 Ferry-Morse Way Drawer 7274 Mountain View, CA 94042	VARIETY NAME OR TEMPORARY DESIGNATION <div style="text-align: center; font-size: 1.5em; font-weight: bold;">CROSSVILLE</div>

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: Wisconsin. The location of test area is Columbus,

1. TYPE:

1 = Field (dry-edible)      2 = Garden

2. MARKET MATURITY:

<input type="text" value="5"/> <input type="text" value="4"/>	Days to edible pods	<input type="text"/>	<input type="text"/>	Days to green shells	
<input type="text"/>	Days to dry seeds				
<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="7"/> <input type="text" value="5"/>	Heat units to edible pods	<input type="text"/>	<input type="text"/>	Heat units to green shells	
<input type="text"/>	Heat units to dry seeds				
<input type="text" value="1"/>	No. days earlier than .....	<input type="text" value="1"/>	}	1 = Tendercrop 3 = Kinghorn Wax 5 = Michelite 62 7 = Bush Blue Lake 290	
	..... Same as .....	<input type="text" value="8"/>			2 = Kentucky Wonder 4 = White Kidney 6 = Dwarf Horticultural 8 = Other (specify below) <u>Blue Crop</u>
<input type="text"/>	No. days later than .....	<input type="text"/>			

3. PLANT:

1 = Determinate      2 = Indeterminate

<input type="text" value="0"/> <input type="text" value="5"/> <input type="text" value="0"/>	cm height	<input type="text"/>	<input type="text"/>	
<input type="text"/>	cm shorter than .....	<input type="text"/>	}	comparison variety from above
	..... Same as .....	<input type="text"/>		
<input type="text" value="4"/>	cm taller than .....	<input type="text" value="8"/>		
<input type="text" value="4"/> <input type="text" value="6"/>	cm spread	<input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="3"/>	Number primary branches near base	
<input type="text"/>	cm narrower than .....	<input type="text"/>	}	comparison variety from above <input type="text"/> Branching habit: 1 = compact    2 = open
	..... width same as .....	<input type="text"/>		
<input type="text" value="8"/>	cm wider than .....	<input type="text" value="8"/>		
<input type="text" value="1"/>	Main stalk: 1 = brittle    2 = wirey	<input type="text" value="1"/>	1 = stout    2 = thin	5

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

2 1 = truncate ends 2 = rounded ends

2  7 gm/100 seed

9 gm/100 seed lighter than .....  8

gm/100 seed same as ....

gm/100 seed heavier than .....

} comparison variety from page one

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

1 Flowers

1 Stems

1 Pods

1 Seeds

1 Leaves

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

0 Anthracnose (specify race below) \_\_\_\_\_

0 Fuscouc blight

0 Rust (specify race below) \_\_\_\_\_

0 Red node virus

0 Powdery mildew

0 Pod mottle virus

0 Fusarium root rot

2 Bean common mosaic virus (specify strain below) \_\_\_\_\_

0 Pythium root rot

2 Mosaic mottle

0 Rhizoctonia root rot

2 Black root

0 Pythium wilt

0 Bean yellow mosaic virus

0 Angular leaf spot

0 Curly top

0 Bacterial wilt

0 Other (specify below) \_\_\_\_\_

0 Halo blight (specify race below) \_\_\_\_\_

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

0 Aphids

0 Root knot nematode

0 Leaf hopper

0 Seed corn maggot

0 Lygus

0 Thrips

0 Pod borer

0 Weavils

0 Other (specify below) \_\_\_\_\_

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

0 Heat

0 Cold

0 Drought

0 Air pollution

13. COMMENTS:

6. FRESH PODS: (Cont'd)

- 3 Cross section pod shape: 1 = flat 2 = oval 3 = round 4 = heart
- 2 Creaseback: 1 = present 2 = absent
- 2 Pubescence: 1 = none 2 = sparse 3 = considerable
- 2 Spur: 1 = straight 2 = slightly curved 3 = curved
- 1 Constrictions: 1 = none 2 = slight 3 = deep
- 2 Pod flesh: 1 = light 2 = medium 3 = dark
- 1  4 mm spur length
- 2 Fiber: 1 = none 2 = sparse 3 = considerable
- 7 Number of seeds per pod
- 1 Surface: 1 = smooth 2 = rough
- 2 Suture string: 1 = present 2 = absent
- 1 Seed development (Snap Bean): 1 = slow 2 = medium 3 = fast
- 1 Machine harvest: 1 = adapted 2 = not adapted
- 2 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 1 = Monochrome 2 = Polychrome  1 1 = shiny 2 = dull
- 1 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:

- 1 Hilum view: 1 = elliptical 2 = oval 3 = round  4 Cross section: 1 = elliptical 2 = oval 3 = cordate  
 4 = round
- 1 Side view:     
 1 = oval to oblong 2 = round 3 = reniform