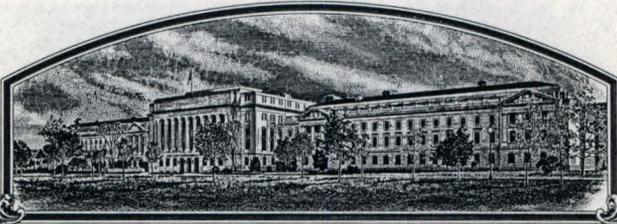


No.

9100010



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

BEAN

'Rapids'



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, D.C. this *31st* day of August in the year of our Lord one thousand nine hundred and ninety-two.

Attest:

Kenneth Howard
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madison
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) Ferry-Morse Seed Company		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. FM-136	3. VARIETY NAME Rapids
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 555 Codoni P.O. Box 4938 Modesto, CA 95352		5. PHONE (Include area code) (209) 579-7333	FOR OFFICIAL USE ONLY PVPO NUMBER 9100010
6. GENUS AND SPECIES NAME Phaseolus vulgaris L.	7. FAMILY NAME (Botanical) Leguminose		
8. CROP KIND NAME (Common Name) (Garden) Bean	9. DATE OF DETERMINATION October 1989		FILING Date Oct. 10, 1990 Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation		FEE SCHEDULE Filing and Examination Fee: \$ 2150⁰⁰ Date Oct. 5, 1990	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION California	12. DATE OF INCORPORATION 7 April 1969		CERTIFICATE FEE Certificate Fee: \$ 250.⁰⁰ Date August 3, 1992
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Dr. Larry Gautney Ferry-Morse Seed Company P.O. Box 1010 San Juan Bautista, CA 95045 (408) 637-7461 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)

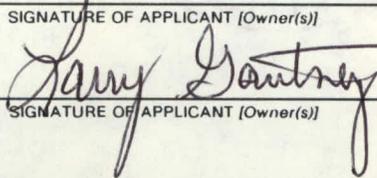
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
 YES NO

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)) 	CAPACITY OR TITLE Vice President Research	DATE 3 October 1990
SIGNATURE OF APPLICANT (Owner(s))	CAPACITY OR TITLE	DATE

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A,B,C,E; (3) at least 2,500 viable untreated seeds; (4) check, drawn on a U.S. bank, payable to "Treasurer of the United States" in the amount of \$2,150 (\$250 filing fee and \$1,900 examination fee). (See section 180.175 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for 30 days, then returned to the applicant as unfiled. Mail application and other requirements to: Plant Variety Protection Office, AMS, USDA, Rm. 500, NAL Building, 10301 Baltimore Blvd., Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the Application are self-explanatory unless noted below. Corrections on the Application form and Exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a Certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$250 for issuance of the Certificate.

Plant Variety Protection Office
Telephone: 301/344-2518

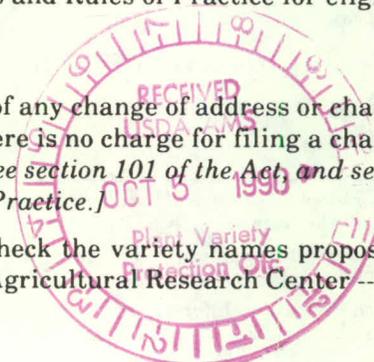
ITEM

9. Give the date when there has been at least a tentative determination that the variety has been sexually reproduced with recognized characteristics, whether or not the novelty of those characteristics has been determined. [See section 41(d) of the Plant Variety Protection Act (Act).]
- 14a. 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. (See sections 41 and 52 of the Act.)
- 14b. 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 are clear differences; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons which clearly indicate novelty.
- 14c. Exhibit C forms are available from the PVPO; specify crop kind. Fill in the Exhibit C (Objective Description of Variety form) to describe your variety.
- 14d. Optional additional characteristics and/or photographs: Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 14e. Section 52(4) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. The applicant may be the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.
15. 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 this affirmative decision after the variety has either been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified the applicant may change the choice. (See section 180.16 of the Regulations and Rules of Practice.)
19. See sections 41 (i, j) and 42 of the Act and section 180.7 of the Regulations and Rules of Practice for eligibility requirements.

NOTES:

It is the responsibility of the applicant/owner to keep the PVPO informed of any change of address or change of ownership or assignment during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment is \$25. [See section 101 of the Act, and sections 180.130, 180.131, 180.132, and 180.175(h) of the Regulations and Rules of Practice.]

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Rm. 213, Building 306, Beltsville Agricultural Research Center -- East, Beltsville, MD 20705. Telephone: 301/344-2089.



VARIETY: Rapids (formerly FM-136 (formerly 1C-136-F4MsMs
(formerly 1D-X1452-MsMs(C)AH(W)1(C)Ms)))

Exhibit A: Origin and Breeding History of the Variety

Rapids originated as a F_8 single plant selection following the pedigree method of selection from the cross designated 1D-X1452. The seed parent of 1D-X1452 was the F_6 pedigreed line 1D-28, and the pollen parent was the F_3 pedigreed line, 1C-X2062-(W)MsMs. The cross was made in the field in Sun Prairie, Wisconsin, in the summer of 1977.

F_1 seed of 1D-X1452 was planted in the field at Sun Prairie, Wisconsin, in the summer of 1978. The F_2 seed was bulk-massed from the three plants designated 1D-X1452-Ms.

Twenty F_2 plants of 1D-X1452-Ms were grown in a progeny row in the field at Sun Prairie, Wisconsin, in the summer of 1979. The row rated excellent for its field performance; nine F_2 plants were selected from the row and F_3 seed from eight of the plants was bulk-massed and designated 1D-X1452-MsMs.

A 60 foot progeny row of F_3 plants of 1D-X1452-MsMs was grown in San Juan Bautista, California, in the summer of 1980. The row rated good to very good in its field performance and segregated some good Bush Blue Lake-type plants and pods. Forty-seven F_3 plants were selected and their F_4 seed was harvested and held separately.

F_4 progeny rows of 40 of the F_3 selections were grown in Sun Prairie, Wisconsin, in the summer of 1981. The progeny row from F_4 seed designated 1D-X1452-MsMs(C)AH rated good for tall, upright plants with high pods. Three F_4 plants were selected and their F_5 seed harvested and held separately.

F_5 seed of the 3 selections was planted in progeny rows in San Juan Bautista, California, in the summer of 1982. The F_5 progeny row, 1D-X1452-MsMs(C)AH(W)1 rated good to very good for a good plant type, dark pod color, and early maturity. It was decided to evaluate the line as a potential new variety, and F_6 seed was bulk-massed from the row and redesignated 1C-136.

F_6 seed was evaluated in Wisconsin, Oregon, and California performance trials in the summer of 1983. The Wisconsin trial only rated fair, seed germination was poor; one plant was selected from the row. In Oregon, 1C-136 rated very good particularly for its tall, upright, narrow plant habit, but was still segregating pod color; 21 plants were selected from the row and F_7 seed harvested and held separately. The trial row in California also rated very good but with segregation of dark to medium colored pods; 17 plants were selected and F_7 seed held separately.

In the summer of 1984, F_7 seed from each of the 38 1C-136

selections were planted in progeny rows in San Juan Bautista, California. The progeny row of the California selection, 1C-136-F, rated excellent for plant habit and a uniform dark green Blue Lake type pod but with some segregation of pod smoothness. Five F₇ plants were selected and their seed harvested and held separately.

Progeny rows of the F₇ selections were planted at San Juan Bautista, California, in the summer of 1985. The row of 1C-136-F₄ rated very good for roundness and dark green Blue Lake color. F₈ seed was bulk-massed from the row.

F₈ seed of 1C-136-F₄Ms was evaluated in performance trials in Oregon, New York, Tennessee, Hancock and Sun Prairie, Wisconsin, and for seed increase in California, in the summer of 1986. The Oregon trial rated excellent for an upright plant habit and an early, concentrated maturity with an excellent yield. The New York trial rated good to very good for its upright habit and early maturity. In Sun Prairie, Wisconsin, and Tennessee, the trials rated fair with good earliness, heavy flowering, and rust tolerance. The Hancock, Wisconsin, trial rated very good particularly for its very early maturity, tolerance to root rot and bacterial brown spot, and dark green pod color. The California row for seed increase rated good; seed maturation was very early; F₉ seed was bulk-massed from the row.

In the summer of 1987, F₉ seed of 1C-136-F₄MsMs was evaluated in performance trials in Oregon and Wisconsin and in seed increase plots in California and Idaho. The Oregon trial rated very good, the line was uniform for type and maturity with a heavy early yield. The Wisconsin trial rated poor to good, with heavy early yields but with slight sprawly plants. The Idaho seed increase rated good, 160 single plant selections for future progeny row evaluation and massing for stock seed increase were taken, 3 oval-flat podded plants were rogued from approximately 1000 plants. The California seed increase rated fair to good; from approximately 1600 plants, 4 oval-flat pods and 1 bumpy-curved pod were rogued. When germination samples were taken of the California and Idaho seed increases, only 60% germination of each resulted. It was found that a large percentage of hard seed coat seed were present. The only solution left was to determine if there was still genetic segregation for the "hard seed coat" character in the variety by growing out the progeny rows of 160 F₉ single plants selected in Idaho in 1987.

In 1988 150 F₉ progeny rows were planted in Nampa, Idaho, to evaluate the rows for uniform germination or if germination was variable and spread over several weeks. Planting occurred May 20, 1988, and progeny rows were evaluated August 6, 1988. Eighteen rows were noted to have uniform emergence and when the seed from each row was harvested and germination tested, the germination was greater than 85% for each row.

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F₁₀ seed from each of the 18 F₉ progeny rows selected for good, uniform germination were planted in progeny rows in Homestead, Florida, in November, 1988. Seventeen of eighteen rows had excellent emergence and stand, only one of eighteen rows showed segregation for flat podded rogues and was eliminated from the planting. F₁₁ seed was harvested from each of the remaining seventeen rows and was bulk-massed.

One acre of the F₁₁ seed was planted in California and 0.1 acre in Nampa, Idaho, in the summer of 1989 for seed increase. The California increase rated very good to excellent; the line was uniform for maturity and type; five oval-flat podded off-types were removed from approximately 100,000 plants. The Nampa, Idaho, increase also rated good; the planting was quite uniform for type, and no off-types were rogued from the planting. The line was considered genetically stable and reproducible, and the seed produced would be used for stock seed.

Performance trials of 1C-136-F4MsMsMs continued in 1988 and 1989. 1C-136-F4MsMsMs was sampled to commercial cooperators as FM-136 for small pilot plantings in 1989. The earliness of the line and its dark pod color in Wisconsin and New York contributed to good field evaluations in both years.

The decision to introduce FM-136 as a new variety was made on October 4, 1989, and the variety was named Rapids.

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VARIETY: RAPIDS (formerly FM-136(formerly 1C-136-F4MsMsMs
(formerly 1C-X1452-MsMs(C)AH(W)1(C)Ms)))

Exhibit B: Data Indicative of Novelty

Rapids is most similar to the variety Oregon 91-G. Rapids is distinct from Oregon 91-G in having a shorter pod and a longer pod spur.

Experimental Procedure: Plants of each variety to be compared were grown in rows side by side. Row length was 20 foot with plants spaced two inches apart in row and rows 30 inches apart in Wisconsin, 40 inches center to center of double rows in California.

When significant departures from a normal distribution of the data occurred, a non-parametric test, the Mann-Whitney U-test, was applied to test for significance of differences between the compared variety samples.

Pod Width and Spur Length

In 1988 and 1989 when pods reached full diameter and advanced seed development could be felt in the pod, one full pod (no missing seed) was harvested and measured from each of 100 plants (except in Wisconsin in 1989 only fifty pods were measured).

SUMMARY OF RESULTS:

Trial No.	Location And Year	Pod Length (cm)		Spur Length (mm)	
		Rapids \bar{X}	Oregon 91-G \bar{X}	Rapids \bar{X}	Oregon 91-G \bar{X}
1	Sun Prairie, Wisconsin, 1988	13.8	14.7	12.8	11.2
2	Sun Prairie, Wisconsin, 1989	13.7	15.0	----	----
3	San Juan Bautista California, 1989	15.0	17.2	13.9	11.9

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TRIAL 1 Sun Prairie, Wisconsin. Seed planted in the field on June 29, 1988. One hundred pods were measured for length in cm and spur length in mm.

	<u>POD LENGTH (cm)</u>		<u>SPUR LENGTH (mm)</u>	
	<u>RAPIDS</u>	<u>OREGON 91-G</u>	<u>RAPIDS</u>	<u>OREGON 91-G</u>
Mean	13.8	14.7	12.8	11.2
s ²	0.95	2.09	8.27	6.52
s	0.98	1.44	2.88	2.55
Actual				
Observed Range	9.1 - 16.4	7.8 - 18.3	5.0 - 19.0	4.0 - 20.0
95% Confidence Interval	13.41- 14.20	14.40- 15.00	12.18-13.32	10.64- 11.70
Coefficient of Variation	7.1	9.8	22.6	22.8
Difference of Means		0.9		1.6

Test for Homogeneity of Variance

F-value	2.196	1.269
Probability	.0000**	0.118

Test for Normality

Skewness	-0.5704	-0.7467	-0.3811	0.0810
T-value	-2.3630	-2.9707	-1.5788	0.3223
Probability	0.0100**	0.0019**	0.0588	0.3740
Kurtosis	4.8550	5.1107	-0.2031	1.7204
T-value	10.1499	10.2684	-0.4245	3.4566
Probability	0.0000**	0.0000**	0.3361	0.0004**

Mann-Whitney Test for Two Independent Samples

Test Criterion (U)	2423.5000	3015.0000
Normal Deviate (z)	5.6618	4.1348
Probability	0.0000*	0.0000**

* significance at the 0.05 level of probability

** significance at the 0.01 or less level of probability

TRIAL 2 Sun Prairie, Wisconsin. Seed planted in the field on July 6, 1989. Fifty pods were measured for length in cm.

	<u>POD LENGTH (cm)</u>	
	<u>RAPIDS</u>	<u>OREGON 91-G</u>
Mean	13.7	15.0
s ²	1.20	2.16
s	1.10	1.47
Actual		
Observed Range	11.8 - 16.5	12.2 - 17.9
95% Confidence Interval	13.44 - 14.06	14.58 - 15.40
Coefficient of Variation	8.0	9.8
Difference of Means		1.3

Test for Homogeneity of Variance

F-value	1.80
Probability	0.02*

Test for Normality

Skewness	0.3179	0.1537
T-value	0.9446	0.4565
Probability	0.1748	0.3250
Kurtosis	-0.1270	-0.7248
T-value	-0.1919	-1.0950
Probability	0.4243	0.1394

Mann-Whitney Test of Two Independent Samples

Test Criterion (U)	641.0000
Normal Deviate (z)	4.2010
Probability	6.0000**

* significance at the 0.05 level of probability

** significance at the 0.01 or less level of probability

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TRIAL 3 San Juan Bautista, California. Seed planted in field June 21, 1989. One hundred pods were measured for pod length in cm and spur length in mm.

	<u>POD LENGTH (cm)</u>		<u>SPUR LENGTH (mm)</u>	
	<u>RAPIDS</u>	<u>OREGON 91-G</u>	<u>RAPIDS</u>	<u>OREGON 91-G</u>
Mean	15.0	17.2	13.9	11.9
s ²	0.80	1.58	9.58	8.31
s	0.90	1.26	3.10	2.88
Actual				
Observed Range	13.0-17.3	14.0-20.2	7.0-21.0	5.0-16.0
95% Confidence Interval	14.81-15.17	16.97-17.47	13.30-14.52	11.33-12.47
Coefficient of Variation	5.97	7.30	22.25	24.23
Difference of Means		2.2		2.0

Test for Homogeneity of Variance

F-value	1.97	1.15
Probability	0.00**	0.25

Test for Normality

Skewness	0.2742	-0.1506	-0.2291	-1.0927
T-value	1.1362	-0.6237	-0.9492	-4.5268
Probability	0.1293	0.2671	0.1724	0.0000**
Kurtosis	-0.0536	-0.4008	-0.2115	0.4380
T-value	-0.1121	-0.8378	-0.4423	0.9158
Probability	0.4555	0.2021	0.3296	0.1810

Mann-Whitney Test for Two Independent Samples

Test Criterion (U)	797.500	3148.5000
Normal Deviate (z)	10.2792	4.5241
Probability	0.0000**	0.0000**

* significance at the 0.05 level of probability

** significance at the 0.01 or less level of probability

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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	FOR OFFICIAL USE ONLY
	PVPO NUMBER 9100010
ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 555 Codoni P.O. Box 4938 Modesto, CA 95352	VARIETY NAME OR TEMPORARY DESIGNATION Rapids (FM-136)

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 _____ . 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 2 = Kentucky Wonder
 3 = Kinghorn Wax 4 = White Kidney
 5 = Michelite 62 6 = Dwarf Horticultural
 7 = Bush Blue Lake 290 8 = Other (specify below)
 Oregon 91-G

3. PLANT:

Ruse

1 = Determinate 2 = Indeterminate
See Exh. D; AAA-13 Dec 1991

cm height

cm shorter than }
 Same as } comparison variety from above

cm taller than }

cm spread Number primary branches near base

cm narrower than }
 width same as } comparison variety from above

cm wider than }

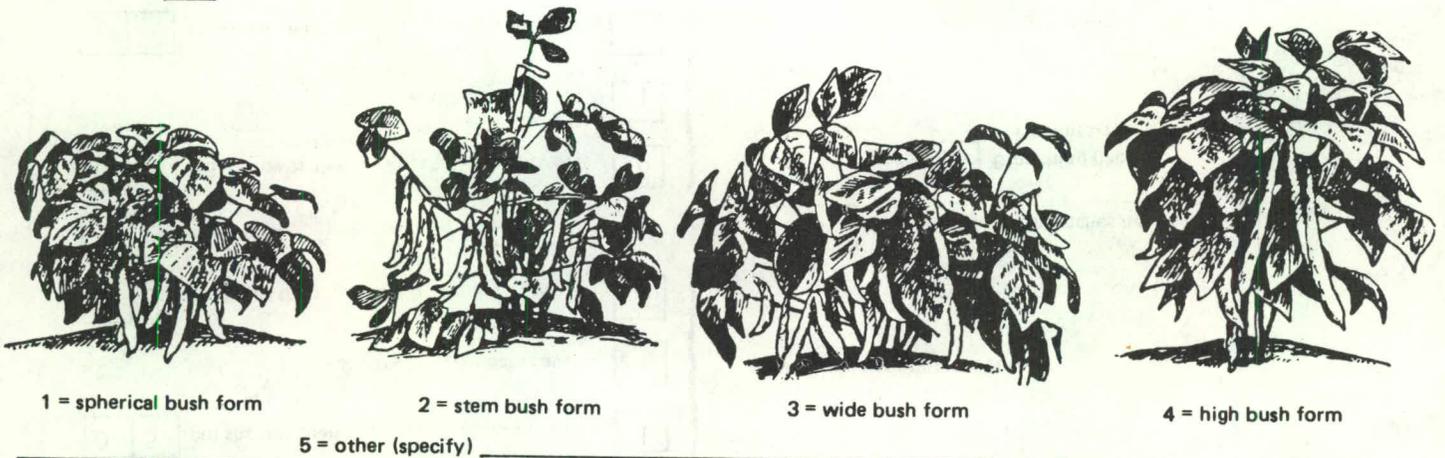
Main stalk: 1 = brittle 2 = wirey 1 = stout 2 = thin

Branching habit:
 1 = compact 2 = open

3. PLANT: (Cont'd)

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

3 Bush form (illustrated below):



4. LEAVES:

2 1 = smooth 2 = wrinkled

1 1 = dull 2 = glossy

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

3 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) _____

3 5 Days to 50% bloom

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

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

1	2	3	4	5	6
2%	8%	17%	45%	22%	6%

3 sieve 1 3 cm length 0 8 mm width 0 8 mm thickness

4 sieve 1 4 cm length 0 9 mm width 0 9 mm thickness

5 sieve 1 5 cm length 1 0 mm width 1 0 mm thickness

6 sieve 1 5 cm length 1 1 mm width 1 1 mm thickness

6. FRESH PODS: (Cont'd)

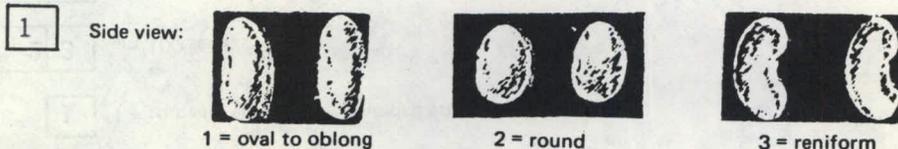
- 4 Cross section pod shape: 1 = flat 2 = oval 3 = round 4 = heart
- 1 Creaseback: 1 = present 2 = absent
- 3 Pubescence: 1 = none 2 = sparse 3 = considerable
- 2 Spur: 1 = straight 2 = slightly curved 3 = curved
- 2 Constrictions: 1 = none 2 = slight 3 = deep
- 3 Pod flesh: 1 = light 2 = medium 3 = dark
- 1 3 mm spur length
- 2 Fiber: 1 = none 2 = sparse 3 = considerable
- 6 Number of seeds per pod
- 1 Surface: 1 = smooth 2 = rough
- 2 Suture string: 1 = present 2 = absent
- 3 Seed development (Snap Bean): 1 = slow 2 = medium 3 = fast
- 1 Machine harvest: 1 = adapted 2 = not adapted
- 3 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
- 0 Secondary color: } 5 = brown 6 = pink 7 = red 8 = purple
 9 = blue 10 = black 11 = other (specify) _____
- 1 Color Pattern: 1 = none 2 = splashed 3 = mottled 4 = striped 5 = flecked 6 = dotted
- 0 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) _____
- 0 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 2 Cross section: 1 = elliptical 2 = oval 3 = cordate 4 = round



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

1 = truncate ends 2 = rounded ends

2 3 gm/100 seed

gm/100 seed lighter than }
 gm/100 seed same as 8 } comparison variety from page one
 gm/100 seed heavier than }

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):

- 2 Anthracnose (specify race below) beta & gamma (1=alpha & delta)
- 0 Fuscos blight
- 2 Rust (specify race below) Race 49 (susc. to 38, 45, 52)
- 0 Red node virus
- 0 Powdery mildew
- 0 Pod mottle virus
- 0 Fusarium root rot
- 2 Bean common mosaic virus (specify strain below)
CBMV -New York strain
- 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:

VARIETY: Rapids (formerly FM-136 (formerly 1C-136-F4MsMs (formerly 1D-X1452-MsMs(C)AH(W)1(C)Ms)))

Exhibit D: Botanical Description of the Variety

Seed germination and emergence are rapid, and early seedling growth vigorous. Time of flowering is 2 to 5 days earlier than Tendercrop. The duration of flowering is concentrated into a short period. Pods reach mature diameter 2 to 5 days earlier than Tendercrop. Seed and fiber development are relatively slow with seed development advancing more rapidly than fiber development. Seed maturity is early, 80 to 90 days under Idaho conditions.

Plants are determinate, bush, medium erect, medium tall, with a medium wide spread; the mature plant is shorter and wider than Tendercrop. Foliage color is dark green, darker than Tendercrop. The leaflets are deltoid ovate, acuminate, with rounded to truncate bases. Inflorescences arise from the apex and leaf axils and contain 4 to 8 buds. Pods are borne medium to high in the plant, occasionally touching the ground.

Pods are 13 to 16 centimeters in length, slightly round to slightly heart-shaped, 9 to 10 mm width (suture to suture) and 10 to 12 mm in thickness. The pod neck is short, and the pod spur (13 cm) is medium in length. The pod surface is slightly rough, non-pubescent, and medium dark green. Compared to Tendercrop, the pods are similar in length, less creaseback, and darker green.

Seeds are white, round in cross-section, oblong, and are smaller in size than Tendercrop.

9100010

EXHIBIT "E"

Plant Variety Protection Application

No:

STATEMENT OF OWNERSHIP

I, George R. Allbritten, Secretary of Ferry-Morse Seed Company do hereby certify that Ferry-Morse Seed Company is the breeder and owner of that certain variety namely, RAPIDS, (Garden) Bean for which an application for Plant Variety Protection has been filed.

In witness whereof I have executed this statement of ownership and caused the Ferry-Morse Corporate Seal to be affixed this 4th day of October, 1990.


Secretary

SEAL

14

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

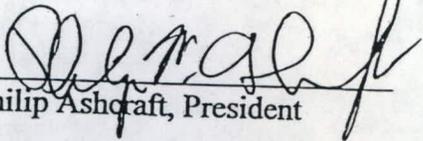
WHEREAS, on the date hereof, Assignee has changed its name to "Harris Moran Seed Company";

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