No. 7600012

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Idaho Seed Bean Co., Inc.

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

BEAN

'Grand Canyon'

PLANT VARIETY PROTECTION OFFICE · SECRETARY OF AGRICULTURE

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* 27th *day of* October *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF THE VARIETY GRAND CANYON

"Grand Canyon" originated from the variety "Canyon" through pureline selection and detailed evaluation of economically important variations among the purelines. There are adequate differences between the parent "Canyon" and "Grand Canyon" to assume the occurrence of mutation although a more remote possibility is the occurrence of subtle segregation within the relatively newly released variety "Canyon." Since "Canyon" is the product of a backcross program followed by three generations of pureline selection prior to mass increase and the subsequent release in 1969, the occurrence of segregation is quite unlikely. The genetic instability of "Tendercrop," on the other hand, is well documented in the literature. Zaumeyer lists a number of presumed mutant derivatives from "Tendercrop" which vary not only in testa color but in plant architecture and maturity. Among these commercially valuable deviates listed are "Tenderette," "Executive," and "Gallatin 50." "W/S Tendercrop" is the product of a backcross program to introduce white testa into the colored testa variety "Tendercrop." Thus, there is ample reason to presume that the genetic instability of "Tendercrop" may persist among its derivatives and, hence, the assumption that "Grand Canyon" may have arisen as a result of mutation from "Canyon."

FORM GR-470
(2-12-71)

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

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION Grand Canyon	2. KIND NAME Common Bean	FOR OFFICIAL USE ONLY PVPO NUMBER 7600012	
3. GENUS AND SPECIES NAME Phaseolus vulgaris L.	4. FAMILY NAME *(Botanical)* Leguminosae	FILING DATE 10·20·75	TIME 1:30 P.M.
	5. DATE OF DETERMINATION December 1, 1974	FEE RECEIVED $ 750	CHARGES —
6. NAME OF APPLICANT(S) Idaho Seed Bean Co., Inc.	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* P.O. Box 1072 Twin Falls, Idaho 83301		8. TELEPHONE AREA CODE AND NUMBER 208-734-5221
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Corporation	10. STATE OF INCORPORATION Idaho		11. DATE OF INCORPORATION 6/29/70

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

[X] 12A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52, P.L. 91-577)*

[X] 12B. Exhibit B, Botanical Description of the Variety

[X] 12C. Exhibit C, Objective Description of the Variety

[X] 12D. Exhibit D, Data Indicative of Novelty

[X] 12E. Exhibit E, Statement of the Basis of Applicant's Ownership

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable. *(See Section 52, P.L. 91-577).*

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), P.L. 91-577) (If "Yes," answer 14B and 14C below.)* [ ] YES [X] 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?

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes 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 (P.L. 91-577).

8/29/75
(DATE)

Idaho Seed Bean Co., Inc
[signature], President
(SIGNATURE OF APPLICANT)

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(DATE)

(SIGNATURE OF APPLICANT)

EXHIBIT B

BOTANICAL DESCRIPTION OF THE VARIETY GRAND CANYON

"Grand Canyon" is a green podded, sturdy, erect, processing bean of the "Tendercrop" class with adaptation to a wide variety of climatic conditions. It is highly suited to mechanical harvest.

In Southcentral Idaho, pods reach processing stage in 59 days and produce mature seed in 109 days.

The determinate, compact, distinctly erect bush with narrow profile has averaged 48.5 cm. tall (above primary node) by 24.6 cm. wide (spread). The main stem of the plant is large, strong, and stiff with 3.65 mean number of primary branches per plant and 4.5 internodes. Blossoming (white) and subsequent pod set is profuse, high, and concentrated. Leaves are moderately wrinkled, medium green, and of medium size. Fresh pods (5 sieve) are medium dark green, 14.5 cm. long, and have a moderately short (14.7 mm.) slightly curved spur. The average 5-sieve pod is only slightly over-round (creaseback) as indicated by the width/thickness x 10 ratio of 9.38. Seed coats are white with vein-like pattern. Seeds weigh 31 gms. per 100. Incomplete testa occurrence in "Grand Canyon" is relatively rare for a bean of the "Tendercrop" class, occurring at a rate of 0.5% by number.

"Grand Canyon" is resistant to curly top and bean common mosaic (type and NY 15 strains) and to summer death. It is susceptible--although somewhat tolerant of--fusarium root rot.

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-12
(11-15-72)

EXHIBIT C
(Bean)

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

OBJECTIVE DESCRIPTION OF VARIETY

BEAN *(PHALEOLUS VULGARIS)*

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Idaho Seed Bean Co., Inc.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
P. O. Box 1072
Twin Falls, Idaho 83301

FOR OFFICIAL USE ONLY

PVPO NUMBER
7600012

VARIETY NAME OR TEMPORARY DESIGNATION
GRAND CANYON

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[1] 1 = SNAPBEAN 2 = GREEN SHELL 3 = DRY EDIBLE 4 = MULTIPURPOSE

2. SEASON AND REGION OF ADAPTABILITY IN THE U.S.:

[1] Grows best during: 1 = SPRING 2 = SUMMER 3 = FALL 4 = WINTER

[6] Best adapted in: 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST 5 = SOUTHWEST 6 = MOST REGIONS

3. MATURITY *(Days from seeding to first harvest)*:

[5][9] GREEN PODS [7][1] GREEN SHELLS 1[0][9] DRY SEEDS

[0][3] NO. DAYS EARLIER THAN --------- [1]
[0][8] NO. DAYS LATER THAN ---------- [8]

1 = TENDERCROP 2 = KENTUCKY WONDER 3 = KINGHORN WAX
4 = WHITE KIDNEY 5 = MICHELITE 62 6 = DWARF HORTICULTURAL
7 = BUSH BLUE LAKE 8 = OTHER *(Specify)* Bountiful

4. PLANT:

[1] 1 = DETERMINATE, ERECT BUSH 2 = DETERMINATE, SPRAWLING BUSH 3 = DETERMINATE, SEMIPOLE 4 = INDETERMINATE, POLE

[0][4][8] CM. HEIGHT OR LENGTH OF VINE FROM PRIMARY LEAF NODE

[0][0][4] NUMBER PRIMARY BRANCHES PER MAIN STALK

[2][5] CM. SPREAD

[1] Branching habit: 1 = COMPACT 2 = OPEN

[0][4] NUMBER INTERNODES ON MAIN STALK BETWEEN PRIMARY LEAF AND BASE OF TERMINAL INFLORESCENCE

[0][1] CM. LENGTH OF FIRST INTERNODE ABOVE PRIMARY LEAF

[0][8] MM. STALK DIAMETER ABOVE FIRST TRIFOLIATE LEAF

[1] Main stalk: 1 = BRITTLE 2 = WIREY [1] 1. STOUT 2. THIN

[2] Flower position:
[2] Pod Position:
1 = LOW, CONCENTRATED 2 = HIGH, CONCENTRATED 3 = SCATTERED

5. LEAVES:

[2] 1 = SMOOTH 2 = WRINKLED [1] 1 = DULL 2 = GLOSSY [2] Thickness: 1 = THIN 2 = MEDIUM 3 = THICK

[2] Size: 1 = SMALL *(Earliwax)* 2 = MEDIUM 3 = LARGE *(Tendercrop)*

[7] CM. PETIOLE LENGTH *(To basal leaflets of first trifoliate leaf)*

[3] Tip shape of center leaflet: 1 = ROUNDED 2 = TAPER POINTED 3 = SHARP POINTED

[2] PUBESCENCE - Dorsal:
[2] PUBESCENCE - Ventral:
1 = NONE 2 = SLIGHT 3 = CONSIDERABLE

[2] Color: 1 = LIGHT GREEN *(Bountiful)* 2 = MEDIUM GREEN 3 = DARK GREEN *(Bush Blue Lake)*

10. ANTHOCYANIN: *(1 = Absent 2 = Present):*

[1] FLOWERS [1] STEMS [1] PODS [1] SEEDS [1] LEAVES

11. DISEASE RESISTANCE *(0 = Not tested; 1 = Susceptible; 2 = Resistant):*

[0] RUST *(Specify race)* _____

[0] BACTERIAL WILT

[0] ANTHRACNOSE

[0] SOUTHERN BEAN MOSAIC

[2] CURLY TOP

[0] POWDERY MILDEW

[0] HALO BLIGHT

[0] ALFALFA MOSAIC VIRUS

[0] POD MOTTLE VIRUS

[0] ROOT KNOT NEMATODE

[0] ANGULAR LEAF SPOT

[2] COMMON BEAN MOSAIC

[0] YELLOW BEAN MOSAIC

[1] FUSARIUM ROOT ROT

[2] N.Y. 15 BEAN MOSAIC

[0] BEAN MOSAIC VIRUS 4

[0] FUSCOUS BLIGHT

[0] ALFALFA MOSAIC VIRUS 2

[0] RED NODE VIRUS

[2] OTHER *(Specify)* Summer Death

12. INSECT RESISTANCE: *(0 = Not tested; 1 = Susceptible; 2 = Resistant)*

[0] APHIDS

[0] POD BORER

[0] THRIPS

[0] SEED CORN MAGGOT

[0] LEAF HOPPERS

[0] LYGUS

[0] WEAVILS

[ ] OTHER *(Specify)* _____

13. PHYSIOLOGICAL RESISTANCE: *(0 = Not tested; 1 = Susceptible; 2 = Resistant)*

[0] HEAT [0] COLD [0] DROUGHT [ ] OTHER *(Specify)* _____

REFERENCES: The following publications may be used as a reference in completing this form:

1. Beans of New York. Vol. 1 Part II of Vegetables of New York. U.P. Hedrick et al. J. B. Lyon Company, Albany, N.Y. 1931.

2. Yarnell, S. H., Cytogenetics of the Vegetable Crops IV. Legumes. Bot. Rev. 31:247 - 330. 1965.

3. USDA Yearbook of Agriculture. 1937.

COLOR: Nickerson's or any recognized color fan may be used to determine the colors.

IDAHO SEED BEAN COMPANY
P. O. Box 1072
Twin Falls, Idaho 83301
February 19, 1976

Dr. Thad Frey, Examiner
Plant Variety Protection Office
Grain Division
U.S.D.A. - A.M.S.
6525 Belcrest Road
Hyattsville, MD 20782

Dear Dr. Frey:

SUBJECT: Application No. 7600012, Bean, 'Grand Canyon'

The standard error for most of the measured characteristics of 'Grand Canyon', together with number of samples and means, is listed in the enclosed table. The standard error for certain of the characteristics differing from those of 'Grand Canyon' is also shown for 'Canyon'. I did not calculate the standard error for maturities because these are subjective evaluations and can be markedly influenced by the opinion of the evaluator.

The morphological differences between 'Grand Canyon' and 'Canyon' which seem to me to be constant and measureable are 1) plant height, 2) plant spread, 3) stalk diameter, 4) pod length, 5) pod roundness (ratio), 6) spur length, and 7) incidence of ruptured testa. Of these I consider the incidence of ruptured testa to be of greatest economic magnitude, although pod length and ratio are also of considerable importance to the processor.

At one time I wrote Mr. Rollin rather questioning the reliability of detailed measurement data because of the substantial influence of plant population, nutrition, available moisture, rate of accumulated degree days, light intensity, and a multitude of other environmental impacts upon plant development and the consequent measurements. In a very large degree the workability of Plant Variety Protection still will rest with the good judgment of the Plant Variety Protection office people.

Even the incidence of ruptured testa is strongly influenced by environment. However, both varieties seem to react similarly in response to environment regarding incidence of ruptured testa. For example, under hot, dry conditions and irregular irrigation the incidence of ruptured testa in lot 4 (enclosed table) was increased substantially within both varieties. Had not both varieties been under nearly identical stresses one might well have questioned the seed quality superiority of 'Grand Canyon' over 'Canyon'. Indeed it might be more nearly accurate to state that "the incidence of ruptured testa is approximately ten times greater among 'Canyon' seed," rather than to state percentages or number by count or weight.

I appreciate the kind offer of assistance from your office and hope to have the pleasure of meeting you personally in the future.

Very truly yours,

Leslie L. Dean, President

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Sample Numbers (n), Means ($\bar{x}$), and Standard Errors ($s_{\bar{x}}$) for Certain Measurements of 'Grand Canyon' Bean re Application No. 7600012, and some Comparisons with 'Canyon' Bean.

	Grand Canyon			Canyon		
	n	$\bar{x}$	$s_{\bar{x}}$	n	$\bar{x}$	$s_{\bar{x}}$
Plant						
Height	40	48.45 (cm)	.5700	10	54.1 (cm)	.3145
Spread	40	24.55 (cm)	.9555	10	23.5 (cm)	.4281
Branches	40	3.65 (No.)	.0762	10	3.7 (No.)	
Internode	40	4.50 (No.)	.0877	10	4.6 (No.)	
Internode (length)	40	1.14 (cm)	.0161	10	1.01 (cm)	
Stalk (diameter)	40	8.2 (mm)	.1723	10	6.8 (mm)	.2000
Leaf						
Petiole	40	7.02 (cm)	.1897	10	7.05 (cm)	
Pod						
Length	40	14.45 (cm)	.1562	10	13.70 (cm)	.1105
$\frac{\text{Width}}{\text{Thickness}} \times 10$	40	9.38	.0860	10	8.33	.1096
Spur	40	14.70 (mm)	.2869	10	11.50 (mm)	.1667
Per Plant	40	24.52 (No.)	.8726	10	22.5 (No.)	
Marketable/Plant	40	16.72 (No.)	.6435	10	18.1 (No.)	
Seed						
Width	40	5.87 (mm)	.0224	10	5.88 (mm)	
Thickness	40	5.60 (mm)	.0173	10	5.52 (mm)	
$\frac{\text{Width}}{\text{Thickness}} \times 10$	40	10.47	.0245	10	10.65	
Length	40	12.57 (mm)	.0548	10	12.49 (mm)	
Weight/100	4	30.56 (gm)	.2782	3	29.72 (gm)	
Ruptured Testa*						
Lot 1	10**	.39 (No.)	.2135	10	3.03 (No.)	.8406
Lot 2	10	.05 (No.)	Not calc.***	None comparable		
Lot 3	20	.20 (No.)	.0742	5	2.78 (No.)	.3571
Lot 4	16	2.56 (No.)	.3000	8	10.88 (No.)	2.5600
Lot 5	16	.39 (No.)	.3224	20	5.45 (No.)	.5500
Lot 6	5	.70 (No.)	Not calc.	5	7.80 (No.)	Not calc.***
Lot 7	5	.55 (No.)	Not calc.	5	7.20 (No.)	Not calc.
Lot 8	8	.40 (No.)	Not calc.	8	5.70 (No.)	Not calc.
Lot 9	4	.50 (No.)	Not calc.	4	2.40 (No.)	Not calc.
Lot 10	8	.30 (No.)	Not calc.	8	7.20 (No.)	Not calc.
Mean		.60 (No.)			5.83 (No.)	

*Comparable lots of 'Grand Canyon' and 'Canyon' grown in same field during the same season.

**100-seed samples: ($\bar{x}$) equivalent of % by number.

***Raw data not available.

EXHIBIT D

DATA INDICATIVE OF NOVELTY OF GRAND CANYON

"Grand Canyon" most closely resembles the curly top-resistant cv. "Canyon" from which it arose; and yet "Grand Canyon" is unique from "Canyon" in several important commercial characteristics. "Grand Canyon" reaches peak processing maturity two days earlier than "Canyon" yet retains the longer useable pod stage characteristic of "Canyon" without a corresponding increase in days to seed maturity. "Grand Canyon" will mature seed in 109 days as compared to 111 days for "Canyon" or 114 days for "Early Gallatin." "Grand Canyon" plants are 5.6 cm. shorter and spread one cm. wider than "Canyon" plants. The stalk diameter above the first trifoliate leaf for "Grand Canyon" is 8.2 mm. as compared to 6.8 mm. for "Canyon." Pods at 5-sieve are longer (7 mm.) and more nearly round (width/thickness x 10 = 9.38 vs. 8.33) than those from "Canyon" and the spur length on "Grand Canyon" 5-sieve pods average 3.2 mm. longer than for "Canyon." The seed-coat defect--incomplete or ruptured testa-- occurs at a frequency rate of 0.5% among "Grand Canyon" seed as compared to a frequency of near 5.5% for "Canyon." Insofar as tested, "Grand Canyon" and "Canyon" do not differ in disease or insect resistance.

EXHIBIT E

STATEMENT OF APPLICANT'S OWNERSHIP OF GRAND CANYON

Idaho Seed Bean Company, Inc., P.O. Box 1072, Twin Falls, Idaho 83301, believes it to be the sole, original, and first discoverer of the "Grand Canyon" variety of common bean for which it solicits a Certificate of Plant Variety Protection. The breeder is a major stockholder in Idaho Seed Bean Company, Inc., and is also an employee of the corporation.

6. FLOWERS:

[1] Color: 1 = WHITE 2 = CREAM 3 = PINK 4 = LILAC 5 = PURPLE 6 = OTHER *(Specify)*_____

[2] Racemes: 1 = LONG 2 = MEDIUM 3 = SHORT [8] NUMBER FLOWERS PER RACEME

7. FRESH PODS: *(Edible maturity, averages for 10 pods)*

[7] Color: 1 = LIGHT GREEN *(Bountiful)* 2 = MEDIUM GREEN *(Tendergreen)* 3 = DARK GREEN *(Wade)* 4 = LIGHT YELLOW *(Brittlewax)* 5 = GOLDEN YELLOW *(Cherokee Wax)* 6 = GREEN-RED VARIAGATED *(Horticultural)* 7 = OTHER *(Specify)* Medium dark green (Tendercrop)

[1 4] CM. LENGTH [0 9] MM. WIDTH *(Between sutures)* [1 0] MM. THICKNESS [0 9] WIDTH/THICKNESS X 10

[4] Cross section pod shape: 1 = FLAT 2 = OVAL 3 = CREASEBACK 4 = ROUND

[1] Curvature: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[1] Pubescence: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE

[1] Constrictions: 1 = NONE 2 = SLIGHT 3 = DEEP

[2] Spur: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[1] Surface: 1 = SHINY 2 = DULL

[1] Surface: 1 = SMOOTH 2 = BLISTERED

[1] Pod flesh: 1 = LIGHT 2 = DARK

[1] Pod flesh: 1 = FIRM 2 = WATERY

1[5] MM. SPUR LENGTH

[2] Suture string: 1 = PRESENT 2 = ABSENT

[2] Fiber: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE

[1] Seed development: 1 = SLOW 2 = MEDIUM 3 = FAST

[6] NUMBER OF SEEDS PER POD

2[5] NUMBER PODS PER PLANT *(Once over harvest)*

1[7] NUMBER MARKETABLE PODS PER PLANT *(Once over harvest)*

[1] Machine harvest: 1 = ADAPTED 2 = NOT ADAPTED

8. SEED COAT COLOR:

[1] 1 = MONOCHROME 2 = POLYCHROME

[2] 1 = SHINY 2 = DULL

[1] Primary color: [0] Secondary color: 1 = WHITE 2 = YELLOW 3 = BUFF 4 = TAN 5 = BROWN 6 = PINK 7 = RED 8 = PURPLE 9 = BLUE 10 = BLACK 11 = OTHER *(Specify)*_____

[0] Color pattern: 1 = SPLASHED 2 = MOTTLED 3 = STRIPED 4 = FLECKED 5 = DOTTED

[0] Secondary color location: 1 = HILAR RING 2 = HILAR SURFACE 3 = STROPHIOLE 4 = MICROPYLE 5 = SIDES 6 = DORSAL SURFACE 7 = NOT RESTRICTED TO ANY AREA 8 = COMBINATION OF LOCATIONS *(Specify)*_____

[1] Hilar ring: 1 = NOT PRESENT 2 = NARROW 3 = BUTTERFLY SHAPED

[2] Vein-like under coat pattern: 1 = ABSENT 2 = PRESENT

9. SEED SHAPE AND SIZE:

[2] Hilum view: 1 = ELLIPTICAL 2 = OVAL 3 = ROUND

[1] Side view: 1 = OVAL 2 = ROUND 3 = KIDNEY 4 = TRUNCATE ENDS

[2] Cross section: 1 = ELLIPTICAL 2 = OVAL 3 = CORDATE 4 = ROUND

3[1] GM. WEIGHT PER 100 SEEDS

[2] Classification: 1 = PEA 2 = MEDIUM 3 = MARROW 4 = KIDNEY 5 = PINTO

[0 6] MM. WIDTH *(Dorsal to ventral)*

[0 6] MM. THICKNESS *(Side to side)*

[1 3] MM. LENGTH

[0 1 0] WIDTH/THICKNESS X 10

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $50.00 fee to U.S. Dept. of Agriculture, Consumer and Marketing Service, Grain Division, Hyattsville, Maryland 20782. Retain one copy for your files. All items on the face of the form are self-explanatory unles noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety.

12a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

12b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

12c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

12d Provide complete data indicative of novelty. Seed and plant specimens may be submitted and seeds submitted may be sterile. Where possible, include photographs of plant comparisons, chemical tests, etc.

12e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.