No. 7500049

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Rogers Brothers 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 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

'Century Gold'

*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, DC *this* 19th *day of* July *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*

CENTURY GOLD

Snap Bean

EXHIBIT A

Origin and Breeding History of the Variety

CENTURY GOLD, a late season, wax podded garden variety, was derived from the following hand pollinated crosses:

BUSH BLUE LAKE #274 X (EARLIWAX X GALLATIN 50)

The final cross was made during the fall of 1963 and the following series of selections followed:

| Year | Generation | Plot * | Harvested |
|---|---|---|---|
| 1964 | F2 | 641591A | 1 waxpod single; 3 greenpods |
| 1965 | F3 | 651253 | 1 waxpod single |
| 1966 | F4 | 66875 | 2 waxpod single |
| 1967 | F5 | 67819 | 9 ounces bulk harvest |
| 1968 | F6 | 68274 | 2 pound 4 ounces bulk harvest<br>2 single plants |

*The plots listed above were only one of the several that were increased from each previous generation.

The 2 pound 4 ounce harvest from plot 68274 was not increased during the 1969 or 1970 seasons since it was believed that green retention of the pods was too severe. However, during a test in Rogers' Wisconsin trials during the 1970 season, it was discovered that when processing was delayed until full maturity was reached, green retention was not a problem. Because of the unusually long pods and excellent holding quality, CENTURY GOLD had been harvested too early in previous tests. Seed from the observation plot was harvested from the Wisconsin trials in 1970 and these four pounds of seed were increased as plot 71704 during the 1971 season. In addition, the 15 ounce remnant of 68274 was increased as well as plot 71706. Plot 71704 yielded 82 pounds of seed and 71706 yielded 13 pounds. Most of lot 71706 was used for trial sampling during 1972 and lot 71704 was increased as plot 72459 and yielded 802 pounds of seed. This seed was released for seed stock production during 1973. During the routine screening trial of 1972, it was found that CENTURY GOLD was segregating for resistance to common bean mosaic virus, BV-1 and NY-15 strains. Three single plant selections which appeared to be resistant were harvested from the test plots. These three selections were increased and re-tested for resistance during 1973. Plot 732200 appeared to be resistant again, but the other two expressed symptoms of common mosaic virus. The 1 pound 5

Origin and Breeding History of the Variety

ounce bulk of 732200, plus five single plant selections taken from it, were increased and retested during the summer of 1974. Each of these entries gave a negative reaction to common mosaic virus and is the basis for the genetically uniform variety for which plant variety protection is being requested.

Variant types have included approximately one flat podded plant per 3,000 plants, and one green podded plant per 20,000 plants. A major emphasis of our varietal maintenance program is to select pure lines that are free of these off-types.

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL 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<br>Century Gold | 2. KIND NAME<br>Snap Bean | FOR OFFICIAL USE ONLY<br>PV NUMBER 7500049 |
| 3. GENUS AND SPECIES NAME<br>Phaseolus vulgaris | 4. FAMILY NAME *(Botanical)*<br>Leguminoseae | FILING DATE 1·21·75 / TIME 3 — P.M. |
| | 5. DATE OF DETERMINATION<br>January 1975 | FEE RECEIVED $250.00 / BALANCE DUE $ — |
| | | $250.00 / $ — |
| | | $250.00 / $ — |
| 6. NAME OF APPLICANT(S)<br>Rogers Brothers Company | 7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*<br>Rogers Brothers Company<br>P. O. Box 2188<br>Idaho Falls, Idaho 83401 | 8. TELEPHONE AREA CODE AND NUMBER<br>(208)-522-0110 |

| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* | 10. STATE OF INCORPORATION | 11. DATE OF INCORPORATION |
|---|---|---|
| Corporation | Delaware | 1958 |

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:
Charles Green, Administrative Assistant
Rogers Brothers Company
P. O. Box 2188
Idaho Falls, Idaho 83401

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

[X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

[X] 13B. Exhibit B, Botanical Description of the Variety

[X] 13C. Exhibit C, Objective Description of the Variety

[X] 13D. Exhibit D, Data Indicative of Novelty

[X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

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 [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? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

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.

*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.*

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

January 16, 1975 (DATE) — Charles Green (SIGNATURE OF APPLICANT)

January 16, 1975 (DATE) — (SIGNATURE OF APPLICANT)

CENTURY GOLD

Snap Bean

EXHIBIT B

Botanical Description of the Variety

CENTURY GOLD is a late season, wax podded variety that is approximately five days later than Kinghorn Wax. The bush is taller and more spreading than Kinghorn Wax. CENTURY GOLD has a uniquely long, straight pod that has a somewhat oval cross section until nearly prime maturity, at which time it becomes round. There appears to be excessive green retention in the one and two sieve pods, but due to the extremely good holding quality, harvest can be delayed until there is a minimum of pods in this sieve size range, and green retention is therefore not a problem. The external pod color of Century Gold is very good, being nearly comparable to the color of Earliwax. Seed and fiber development are very slow, therefore, at optimum maturity, the amount of five and six sieve pods may be as high as 60%. Fresh yields of CENTURY GOLD have been consistently high in research tests and are as good, or better, than the yields of Earliwax or Kinghorn Wax.

The original selection of CENTURY GOLD segregated for resistance to common bean mosaic virus, but the most recent pure line selections are resistant.

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)
Rogers Brothers Company

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
P. O. Box 2188
Idaho Falls, Idaho 83401

FOR OFFICIAL USE ONLY

PVPO NUMBER
7500049

VARIETY NAME OR TEMPORARY DESIGNATION
Century Gold

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.:**

[2] 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*):

[6][2] GREEN PODS  [6][9] GREEN SHELLS  [9][9] DRY SEEDS

[0][0] NO. DAYS EARLIER THAN Same. [7]
[0][5] NO. DAYS LATER THAN ---------- [3]

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

274

**4. PLANT:**

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

[0][4][1] CM. HEIGHT OR LENGTH OF VINE FROM PRIMARY LEAF NODE

[0][0][3] NUMBER PRIMARY BRANCHES PER MAIN STALK

[3][6] CM. SPREAD

[2] 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][6] 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:**

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

[3] Size: 1 = SMALL (*Earliwax*)  2 = MEDIUM  3 = LARGE (*Tendercrop*)  [ ] CM. PETIOLE LENGTH (*To basal leaflets of first trifoliate leaf*)

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

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

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

PV # 7500049

CENTURY GOLD

SNAP BEAN

EXHIBIT D (REVISED)

CHARACTERISTICS INDICATIVE OF NOVELTY

CENTURY GOLD most nearly resembles Splendorgold, but is uniquely different, as the pods average nearly 3 cm longer than those of Splendorgold, and yields at least 15% more five sieve pods. CENTURY GOLD is nearly five days later than Splendorgold, and the bush is 5 cm, or more, taller than Splendorgold and is more spreading. The seed development of CENTURY GOLD is slower and the holding quality is better than that of Splendorgold. Retention of green pod color until most pods have reached three sieve or larger is a distinctive characteristic of CENTURY GOLD. However, because of the exceptionally long holding quality, harvest can be delayed until nearly all green retention has disappeared.

| VARIETY | BUSH HEIGHT cm | $\sigma$ | $\sigma^2$ | POD LENGTH cm | $\sigma$ | $\sigma^2$ |
|---|---|---|---|---|---|---|
| Earliwax | 30.47 | 2.81 | 7.91 | 11.81 | 1.24 | 1.55 |
| Kinghorn Wax | 32.57 | 3.28 | 10.74 | 12.54 | 1.09 | 1.19 |
| Splendorgold | 33.43 | 3.18 | 10.12 | 12.17 | 1.04 | 1.09 |
| Century Gold | 38.67 | 3.35 | 11.20 | 15.15 | 1.12 | 1.25 |

POD LETH $\quad \tau = \dfrac{\bar{\psi}_1 - \bar{\psi}_2}{\sqrt{S_{\bar{\psi}_1} + S_{\bar{\psi}_2}}} = \dfrac{2.99}{1.52} = 1.95$ — SIGNIFICANT RJS

BUSH HT $\quad$ " $\quad$ " $\quad = \dfrac{5.24}{4.61} = 1.13$ NOT SIGNIFICANT RJS.

CENTURY GOLD

Snap Bean

EXHIBIT E

Statement of Applicant's Ownership

Rogers Brothers Company, P. O. Box 2188, Idaho Falls, Idaho, believes it to be the sole, original and first breeder of the "CENTURY GOLD" variety of snap bean for which it solicits a certificate of protection.

RECEIVED
JAN 21 1975
AMS, GRAIN DIV.
PVPO

## INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (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 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a 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.

13b 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.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

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

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INSTRUCTIONS: *See Reverse.*

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7 = BUSH BLUE LAKE 274  8 = OTHER *(Specify)*

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[3] Size: 1 = SMALL *(Earliwax)*  2 = MEDIUM  3 = LARGE *(Tendercrop)*  [ ] CM. PETIOLE LENGTH *(To basal leaflets of first trifoliate leaf)*

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

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

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

**6. FLOWERS:**

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

[3] Racemes: 1 = LONG 2 = MEDIUM 3 = SHORT [ ] 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)* Earliwax

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

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

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

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

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

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

[2] Surface: 1 = SHINY 2 = DULL

[1] Surface: 1 = SMOOTH 2 = BLISTERED

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

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

[14] MM. SPUR LENGTH

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

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

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

JEK see letter Feb 9, 1975

[6] NUMBER OF SEEDS PER POD

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

[6] 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:**

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

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

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

[29] GM. WEIGHT PER 100 SEEDS

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

[0 6] MM. WIDTH *(Dorsal to ventral)* [0 5] MM. THICKNESS *(Side to side)*

[1 4] MM. LENGTH [0 1 2] WIDTH / THICKNESS X 10

**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] | ANGULAR LEAF SPOT |
| [0] | BACTERIAL WILT | [2] | COMMON BEAN MOSAIC |
| [0] | ANTHRACNOSE | [1] | YELLOW BEAN MOSAIC |
| [0] | SOUTHERN BEAN MOSAIC | [1] | FUSARIUM ROOT ROT |
| [1] | CURLY TOP | [2] | N.Y. 15 BEAN MOSAIC |
| [0] | POWDERY MILDEW | [0] | BEAN MOSAIC VIRUS 4 |
| [1] | HALO BLIGHT | [1] | FUSCOUS BLIGHT |
| [0] | ALFALFA MOSAIC VIRUS | [0] | ALFALFA MOSAIC VIRUS 2 |
| [0] | POD MOTTLE VIRUS | [0] | RED NODE VIRUS |
| [0] | ROOT KNOT NEMATODE | [ ] | OTHER *(Specify)* _____ |

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

| | | | |
|---|---|---|---|
| [0] | APHIDS | [0] | LEAF HOPPERS |
| [0] | POD BORER | [0] | LYGUS |
| [0] | THRIPS | [0] | WEAVILS |
| [0] | SEED CORN MAGGOT | [ ] | 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.