

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

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

BEAN

'Pax'



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 17th day of October in the year of our Lord one thousand nine hundred and seventy-five

Attest:

S. J. Rollin
 Commissioner
 Plant Variety Protection Office
 Grain Division
 Agricultural Marketing Service

Earl L. Baty

Secretary of Agriculture

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF ~~XP-B51~~ 'PAX' Rf⁶

- 1962 Original cross-Roundup x BBL-274 made in fall 1962.
- 1963 F₁ grown at ARC.
F₂ grown in greenhouse, fall 1963
- 1964 Small increase-F₃
- 1965 Small bulk planting from 1964 harvest. Single vine selections made.
- 1966 F₅ Reselected
- 1967 F₆ Single vine selections grown in greenhouse-winter 1966-67.
F₆+1 grown in summer 1967. Small increase of singles.
Reselected.
- 1968 F₈-Small increase and mass selections.
- 1969 F₈+1 -small increase. Yield trial.
- 1970 Increase and mass selection. Yield trial.
- 1971 Increased. Yield trials.
- 1972 Increased. Yield trials. Desig. XP-B51
- 1973 Testing throughout company. Increase and produced 300 single vine selections made for testing on a progeny basis.
- 1974 Testing throughout company. Sampling outside of company.
- Planted the 300 SVS on a single progeny basis. All progenies were evaluated for trueness to type and all progenies saved were very similar. Any progeny thought to be different was removed completely. The seed from remaining progenies was harvested as a bulk, and this has become our basic seed stock.

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1. VARIETY NAME OR TEMPORARY DESIGNATION XP-B51 'PAX' RJS	2. KIND NAME Garden Bean	FOR OFFICIAL USE ONLY	
		PV NUMBER 7500072	
3. GENUS AND SPECIES NAME Phaseolus vulgaris	4. FAMILY NAME (Botanical) Leguminosea	FILING DATE 3.13.75	TIME 10 A.M.
		FEE RECEIVED \$ 250	BALANCE DUE \$ —
6. NAME OF APPLICANT(S) Asgrow/Seed Company	5. DATE OF DETERMINATION 1972	\$ 250	\$ —
		\$ 250	\$ —
		\$ 250	\$ —
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) Kalamazoo, Michigan 49001	8. TELEPHONE AREA CODE AND NUMBER (616) 382-4000	
	10. STATE OF INCORPORATION Delaware	11. DATE OF INCORPORATION March 22, 1968	

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

Allen R. Trotter
Asgrow Seed Company
Kalamazoo, Michigan 49001

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, Botanical Description of the Variety
- 13C. Exhibit C, Objective Description of the Variety
- 13D. Exhibit D, Data Indicative of Novelty
- 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 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.

3/10/75
(DATE)

Allen R. Trotter
(SIGNATURE OF APPLICANT)

(DATE)

1
(SIGNATURE OF APPLICANT)

EXHIBIT B
^{'PAX' Rds}

BOTANICAL DESCRIPTION OF ~~XP-B51~~ SNAP BEAN

^{'PAX' Rds}
~~XP-B51~~ is a small sieve high quality snap bean developed for processing fancy cut beans. It should be harvested at approximately 25% 5 sieve and over and will compete directly with varieties such as Slimgreen and Slenderwhite. The line appears to be very widely adapted.

The plant is large, upright and stiff and bears its pods well up off the ground. The plant has few branches but a large basic frame with strong stem and branches. The medium thick leaves are wrinkled and have a dull surface. The leaves are large and the middle leaflet is taper pointed. There is a slight pubescence on both leaf surfaces and the color is medium green. In summary, the plant could be called a good Tendercrop type and well adapted to machine harvest.

The pods are long, quite straight, smooth with no constrictions, with very low fiber, slow seed development and medium green in color. The pods have a sparse pubescence, no string, and firm flesh. There is very little cavitation and the pod flesh is slow to breakdown as the seeds grow in size.

The flowers and seeds are white.

^{'PAX' Rds}
~~XP-B51~~ has been tested and found to be susceptible to Anthracnose, Curly Top, Halo Blight and resistant to Common Bean and N.Y. 15 bean mosaic viruses. There is no reason to believe that ~~XP-B51~~ ^{'PAX' Rds} is especially resistant to any insects. The wide range of adaptation would suggest that the line is tolerant to a wide range of conditions but resistance cannot be claimed.

Exhibit B is written from several years experience and is thus rather generalized due to the fact that conditions vary from year to year. Exhibit C is compiled from results of a one year replicated trial planted especially for FVP measurements where varieties can be compared in side by side plantings. Exhibits B and C therefore, compliment each other and may vary slightly.

7500072
XP-B51 'PAX' RJS

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 6 NUMBER FLOWERS PER RACEME

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

2 Color: 1 = LIGHT GREEN (Bountiful) 2 = MEDIUM GREEN (Tendergreen) 3 = DARK GREEN (Wade)
4 = LIGHT YELLOW (Brittlowax) 5 = GOLDEN YELLOW (Cherokee Wax) 6 = GREEN-RED VARIAGATED (Horticultural)
7 = OTHER (Specify) _____

1 5 CM. LENGTH 0 9 MM. WIDTH (Between sutures) 1 0 MM. THICKNESS 0 9 $\frac{\text{WIDTH}}{\text{THICKNESS}} \times 10$

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

1 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

1 Pod flesh: 1 = LIGHT 2 = DARK 1 Pod flesh: 1 = FIRM 2 = WATERY

15 MM. SPUR LENGTH 2 Suture string: 1 = PRESENT 2 = ABSENT

1 Fiber: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE 1 Seed development: 1 = SLOW 2 = MEDIUM 3 = FAST

7 NUMBER OF SEEDS PER POD NUMBER PODS PER PLANT (Once over harvest)

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 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 = SPLASHED 2 = MOTTLED 3 = STRIPED 4 = FLECKED 5 = DOTTED

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

4 Cross section: 1 = ELLIPTICAL 2 = OVAL 3 = CORDATE 4 = ROUND 31 GM. WEIGHT PER 100 SEEDS

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

0 5 MM. WIDTH (Dorsal to ventrad) 0 5 MM. THICKNESS (Side to side)

1 4 MM. LENGTH 0 1 0 $\frac{\text{WIDTH}}{\text{THICKNESS}} \times 10$

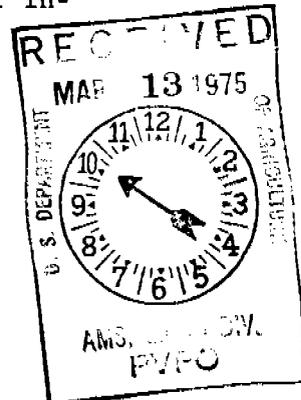
5

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.



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

FLOWERS STEMS PODS SEEDS LEAVES

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

<input type="checkbox"/> RUST (Specify race) _____	<input type="checkbox"/> ANGULAR LEAF SPOT
<input type="checkbox"/> BACTERIAL WILT	<input checked="" type="checkbox"/> COMMON BEAN MOSAIC
<input checked="" type="checkbox"/> ANTHRACNOSE	<input type="checkbox"/> YELLOW BEAN MOSAIC
<input type="checkbox"/> SOUTHERN BEAN MOSAIC	<input type="checkbox"/> FUSARIUM ROOT ROT
<input checked="" type="checkbox"/> CURLY TOP	<input checked="" type="checkbox"/> N.Y. 15 BEAN MOSAIC
<input type="checkbox"/> POWDERY MILDEW	<input type="checkbox"/> BEAN MOSAIC VIRUS 4
<input checked="" type="checkbox"/> HALO BLIGHT	<input type="checkbox"/> FUSCOUS BLIGHT
<input type="checkbox"/> ALFALFA MOSAIC VIRUS	<input type="checkbox"/> ALFALFA MOSAIC VIRUS 2
<input type="checkbox"/> POD MOTTLE VIRUS	<input type="checkbox"/> RED NODE VIRUS
<input type="checkbox"/> ROOT KNOT NEMATODE	<input type="checkbox"/> OTHER (Specify) _____

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

<input type="checkbox"/> APHIDS	<input type="checkbox"/> LEAF HOPPERS
<input type="checkbox"/> POD BORER	<input type="checkbox"/> LYGUS
<input type="checkbox"/> THRIPS	<input type="checkbox"/> WEAVILS
<input type="checkbox"/> SEED CORN MAGGOT	<input type="checkbox"/> OTHER (Specify) _____

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

HEAT COLD 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.

EXHIBIT D

PROOF OF NOVELTY OF XP-B51 'PAX' RJS

'PAX' RJS

XP-B51 is a small sieve bean developed for the processor who wants to pack four sieve fancy cut beans. It resembles Slimgreen, Slenderwhite and Eagle in different characteristics.

'PAX' RJS

XP-B51 differs radically from Slimgreen but a few specific examples are as follows:

- 1. Pod length--the average pod length for 1972, 1973 and 1974 yield trials at Twin Falls, Idaho:

'PAX' RJS
 XP-B51 153mm
 Slimgreen 126mm

- 2. Fiber development--XP-B51 develops much less fiber than Slimgreen.
- 3. Seed development--Slimgreen is a fast seed developer and B51 very slow.
- 4. Earliness--Slimgreen is much earlier than XP-B51.
- 5. Plant type etc., etc.

'PAX' RJS

XP-B51 differs from Slenderwhite in many characteristics but a few are as follows:

- 1. Pod length--the varieties were compared in the replicated trial only in 1974. The pod lengths are;

'PAX' RJS
 XP-B51 152mm
 Slimgreen 129mm
 SLENDERWHITE RJS

- 2. Pod color--there is a very great difference in pod color. Slenderwhite pods are a glossy yellow green whereas B51 pods are a normal medium green.

- 3. Plant type--B51 is a larger and more upright plant.

'PAX' RJS
 XP-B51 MOST CLOSELY RESEMBLES 'EAGLE'. (PER LETTER OF 4/4/75 FROM DR. ATKIN RJS)
 Eagle and XP-B51 are quite similar in plant and pod type but the sieve size of the two varieties is quite different. Following are detailed data from the replicated yield trials where a sequence of harvests are made:

SEE PAGE 2 EXHIBIT D FOR TABLE

EXHIBIT E

Statement of the Basis of Applicant's Ownership

Bean ~~XP-B57~~ 'PAX' Rds.

'PAX' Rds

Bean ~~XP-B57~~ was originated and developed by Dr. W. F. Pierce, Dr. C. G. Briggs, and Dr. John Atkin, all Asgrow plant breeders. By agreement between employee and Asgrow Seed Company, all rights to any invention, discovery, or development made by an employee are assigned to the company. No rights to such invention, discovery, or development are retained by the employee.