

No.

9100043



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

BEAN

'Etna'



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 H. Egan*  
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)  <b>ASGROW SEED COMPANY</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.  <b>XP B213</b>	3. VARIETY NAME  <b>ETNA</b>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP)  <b>7000 Portage Road 9652 - 190 - 18 Kalamazoo, MI 49001</b>		5. PHONE (Include area code)  <b>616\384-2353</b>	FOR OFFICIAL USE ONLY VPVO NUMBER <div style="text-align: center; font-size: 1.2em;"><b>9100043</b></div>
6. GENUS AND SPECIES NAME <b>Phaseolus vulgaris</b>	7. FAMILY NAME (Botanical) <b>Leguminosae</b>		F I L I N G Date <b>Dec. 10, 1990</b> Time <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.
8. CROP KIND NAME (Common Name) <b>Dry Edible Bean</b>	9. DATE OF DETERMINATION <b>September 1985</b>		F E E S Filing and Examination Fee: <b>\$ 2150.-</b> Date <b>Dec. 10, 1990</b>
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>			R E C E I V E D Certificate Fee: <b>\$ 250.-</b> Date <b>Aug 3, 1992</b>
11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Delaware</b>	12. DATE OF INCORPORATION		
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS  <b>Kathy L. Ward 9652-190-18 Kalamazoo, MI 49001</b>			
616\384-2353 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 11/15/90
- 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)      Offered for sale in the United States June 19, 1990  
 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 <b>Administrator Asgrow Vegetable Research</b>	DATE <b>11/28/90</b>
SIGNATURE OF APPLICANT (Owner(s))	CAPACITY OR TITLE	DATE

## EXHIBIT A

## Origin and Breeding History of Etna (XPB213) Garden Bean

Etna was developed at Asgrow's Western Breeding Station, WBS, Twin Falls, Idaho, by backcrossing the "I" gene for resistance to BCMV into the cranberry variety, Taylor's Horticultural:

2-19-82 Planted Taylor's Horticultural (TH) and Cran 028, an MSU release with resistance to BCMV, in the greenhouse at WBS. Crosses made.

5-21-82 Planted BC0 and TH in the greenhouse at WBS. Selected resistant plants and crossed to TH.

12-20-82 Planted BC1 and TH in the greenhouse at WBS. Selected resistant plants and crossed to TH.

4-1-83 Planted BC2 and TH in the greenhouse at WBS. Selected resistant plants and crossed to TH.

6-24-83 Planted BC3 and TH in the greenhouse at WBS. Selected resistant plants and crossed to TH.

9-16-83 Planted BC4 and TH in the greenhouse at WBS. Selected resistant plants and crossed to TH.

1-24-84 Planted BC5 in the greenhouse at WBS. Selected resistant plants and allowed them to self.

6-8-84 Planted BC5S1 in the field at WBS. Selections made and tested for resistance to BCMV. Any that were still segregating were discarded.

6-13-85 Planted BC5S2 lines in the field at WBS. Selected 4 lines that were uniform and breeding true for horticultural characteristics and for resistance to BCMV. All subsequent increases of Etna trace to the eventual bulk of these four lines.

6-86 Planted BC5S2+1 lines in the field at WBS in replicated yield trial. Observations during the growing season confirmed the 4 lines were uniform and breeding true.

2-10-87 Planted greenhouse increase of above 4 lines. Harvested seed from 18-20 individual plants of each line.

6-2-87 Planted 18-20 progenies of each line in the field at WBS. Observations during the growing season again confirmed the lines were uniform and breeding true, and they were bulked together.

Observations indicate XP-B212 is uniform and stable within commercially acceptable limits. As is true with other dry bean varieties, a small percentage of variants or offtypes can occur within commercially acceptable limits for almost any characteristic during the course of repeated multiplications.

## EXHIBIT B

## Novelty Statement Concerning Etna (XPB 213) Garden Bean

Etna is a cranberry variety developed by backcrossing resistance to bean common mosaic virus into the variety Taylor's Horticultural. To our knowledge the variety that most closely resembles Etna is Taylor's Horticultural. Comparative characteristics that distinguish the two include, but may not be limited to, resistance to BCMV: Etna carries the "I" gene for resistance to BCMV, whereas Taylor's Horticultural does not have this resistance gene.

U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK AND SEED DIVISION

OBJECTIVE DESCRIPTION OF VARIETY  
Dry Edible Bean (*Phaseolus vulgaris* L.)

NAME OF APPLICANT(S) Asgrow Seed Company	EXPERIMENTAL NAME XP B213	VARIETY NAME Etna
ADDRESS (Street and No. or R.F.D. No., City, State, ZIP) 7000 Portage Road 9652-190-18 Kalamazoo, MI 49001		FOR OFFICIAL USE ONLY PVPO NO. 9100043

Provide data for all characters unless indicated as "optional." Place numbers in the boxes for the characters or numerical values which best describe this variety. Measured data should be the mean of an appropriate number of well spaced (15-20 cm) plants. The Royal Horticulture Society or any recognized color standard may be used to determine plant color. Designate the color system used below.

COLOR SYSTEM USED	LOCATION OF THE TEST(S) TO EVALUATE THIS VARIETY Twin Falls, Idaho
-------------------	---

1. MARKET CLASS

CLASS	CHECK
<input type="checkbox"/> 8	Seafarer
1 = Navy (Pea)	Aurora
2 = Small White	Midnight
3 = Black	UI-114
4 = Pinto	UI-59
5 = Great Northern	NW-59
6 = Small Red	Viva
7 = Pink	UI-50
8 = Cranberry	Montcalm
9 = Dark Red Kidney	Redcloud
10 = Light Red Kidney	Steuben
11 = Yellow Eye	
12 = Other (specify)	

2. MATURITY

1 1 = Early (80-90 days); 2 = Medium (90-100 days); 3 = Late (>100 days)

0  8  1 Days from planting to harvest maturity

Heat units from planting to harvest maturity (optional). Specify base temperature used: \_\_\_\_\_

0  8  7 Days from planting to harvest maturity of check variety (use check appropriate to market class shown in item 1)

3. PLANT HABIT

1

TYPE

1 = Ia Bush-determinate, strong and erect stem and branches  
 2 = Ib Bush-determinate, weak stem and branches  
 3 = IIa Erect growth habit-indeterminate, guides (runners) short or not developed  
 4 = IIb Erect growth habit-indeterminate, guides medium to long, with no ability to climb  
 5 = IIIa Vine-indeterminate, short guides with no ability to climb  
 6 = IIIb Vine-indeterminate, long guides with ability to climb  
 7 = IVa Indeterminate climbing, pods distributed throughout the plant  
 8 = IVb Indeterminate climbing, pods concentrated on the upper part of the plant

0  3  4 Average height of mature plant, in cm.

Average height of check variety, in cm. (use same check as above)

2 Pod Position: 1 = Low (lower pods touching soil surface)  
 2 = High (lower pods not touching soil surface)  
 3 = Scattered (not concentrated high or low)

1 Adaptability to machine harvest: 1 = Adapted 2 = Not Adapted

2 Lodging resistance: 1 = Good 2 = Fair 3 = Poor

4. LEAFLET MORPHOLOGY (Use terminal leaflet of a fully expanded trifoliolate)

2 1 = Smooth; 2 = Wrinkled

1 1 = Dull; 2 = Glossy; 3 = Semiglossy; 4 = Variable

5 SHAPE:

1 = Ovate      2 = Lanceolate      3 = Deltoid      4 = Cordate      5 = Rhomboid

2 APEX OF LEAFLET:

1 = Acute      2 = Acuminate      3 = Cuspidate      4 = Obtuse

1 BASE OF LEAFLET:

1 = Obtuse      2 = Oblique      3 = Cordate      4 = Cuneate      5 = Attenuate

5. FLOWER COLOR AND DAYS TO BLOOM

5 COLOR OF STANDARD: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

2 COLOR OF KEEL: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

3 COLOR OF WINGS: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

4 5 Days to 50% bloom

6. POD MORPHOLOGY (Green pod morphology optional)

Green Mature  
4 4 COLOR PATTERN: 1 = Solid; 2 = Striped; 3 = Blotched; 4 = Mottled; 5 = Other \_\_\_\_\_

3 5 PRIMARY COLOR: 1 = Purple; 2 = Red; 3 = Green; 4 = Yellow; 5 = Tan; 6 = Brown; 7 = Other \_\_\_\_\_

2 1 COLOR MODIFIER: 1 = Light; 2 = Light Medium; 3 = Medium; 4 = Medium Dark; 5 = Dark

2 1 SECONDARY COLOR: 1 = Purple; 2 = Red; 3 = Green; 4 = Yellow; 5 = Tan; 6 = Brown; 7 = Other \_\_\_\_\_

1 1 CROSS SECTION SHAPE: 1 = Flat 2 = Pear 3 = Round 4 = Figure Eight

1 1 POD CURVATURE: 1 = Straight 2 = Slightly Curved 3 = Curved 4 = Recurved

1 2 POD BEAK ORIENTATION: 1 = Straight 2 = Curved Upward 3 = Curved Downward 4 = Variable  
Average beak length, in cm. \_\_\_\_\_

1 2 CONSTRICTIONS: 1 = None; 2 = Slight; 3 = Deep

5 5 Average number of seeds per pod

7. SEED COLOR

3 1 = Shiny; 2 = Dull; 3 = Semishiny; 4 = Variable 2 1 = Monochrome; 2 = Polychrome

3 PRIMARY COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other \_\_\_\_\_

7 SECONDARY COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other \_\_\_\_\_

4 COLOR PATTERN: 1 = Solid; 2 = Splashed; 3 = Mottled; 4 = Striped; 5 = Flecked; 6 = Dotted

2 HILAR RING: 1 = Absent; 2 = Present

2 HILAR RING COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other \_\_\_\_\_

8. SEED SHAPE AND WEIGHT

2 SHAPE OF SEED TAKEN FROM MIDDLE OF POD: 1 = Round 2 = Oval 3 = Cuboid 4 = Kidney 5 = Truncate Fastigate

5 0 Dry seed weight in g/100g seeds (adjusted to 12% moisture)

9. ANTHOCYANIN PIGMENTATION

1 = ABSENT  
2 = PRESENT

<input checked="" type="checkbox"/> Flowers	<input checked="" type="checkbox"/> Stems	<input checked="" type="checkbox"/> Pods	<input checked="" type="checkbox"/> Seeds
<input checked="" type="checkbox"/> Leaves	<input checked="" type="checkbox"/> Petioles	<input checked="" type="checkbox"/> Peduncles	<input checked="" type="checkbox"/> Nodes

10. KNOWN DISEASE REACTION

DISEASES - COMMON NAME: Anthracnose, Rust, Powdery mildew, Fusarium root rot, Pythium root rot, Rhizoctonia root rot, Pythium wilt, Sclerotinia white mold, Angular leaf spot, Bacterial wilt, Halo blight, Fuscous blight, Common bacterial blight, Red node virus, Pod mottle virus, Bean common mosaic virus, Bean yellow mosaic virus, Curly top virus, Bacterial brown spot, Bean southern mosaic virus, Other (specify) \_\_\_\_\_

REACTION: 1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance

(Give the common name (CN), scientific name (SN), and race(s), where applicable)

DISEASE: CN Bean Common Mosaic; SN \_\_\_\_\_; Race(s) 'I' gene resistance to all races

DISEASE: CN \_\_\_\_\_; SN \_\_\_\_\_; Race(s) \_\_\_\_\_

DISEASE: CN \_\_\_\_\_; SN \_\_\_\_\_; Race(s) \_\_\_\_\_

DISEASE: CN \_\_\_\_\_; SN \_\_\_\_\_; Race(s) \_\_\_\_\_

DISEASE: CN \_\_\_\_\_; SN \_\_\_\_\_; Race(s) \_\_\_\_\_

DISEASE: CN \_\_\_\_\_; SN \_\_\_\_\_; Race(s) \_\_\_\_\_

11. KNOWN INSECT/NEMATODE RESISTANCE

PESTS - COMMON NAME: Aphids, Bean pod weevil, Bruchid beetle, Corn earworm, Flea beetle, Leaf hopper, Lesion nematode, Lygus Mexican bean beetle, Root knot nematode, Corn seed maggot, Spider mites, Thrips, Weevils, Western bean cutworm, Other (specify) \_\_\_\_\_

REACTION: 1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance

(Give the common name (CN), scientific name (SN), and biotype, where applicable)

PEST: CN \_\_\_\_\_; SN \_\_\_\_\_; Biotype \_\_\_\_\_

PEST: CN \_\_\_\_\_; SN \_\_\_\_\_; Biotype \_\_\_\_\_

PEST: CN \_\_\_\_\_; SN \_\_\_\_\_; Biotype \_\_\_\_\_

12. KNOWN PHYSIOLOGICAL STRESS REACTION

1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance  
 Heat  Cold  Drought  Air Pollution

Nutrient toxicity or deficiency (specify nutrient) \_\_\_\_\_  
Other \_\_\_\_\_

13. COMMENTS

Asgrow Seed Company  
PVP Application  
29 November 1990

**EXHIBIT E**

**STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP**

ETNA was developed by David M. Webster, Asgrow Plant Breeder. 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.