

No.



8100174

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Agrigenetics Corporation
Vegetable Products Group**

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 (P.L. 85-625, 70 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN

'Profit Maker'



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 28th day of April in the year of our Lord one thousand nine hundred and eighty-three.

Attest

Kenneth F. ...
Acting
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture



1885

Application For Plant Variety Protection

Bush Bean ~~9014~~ *PROFIT MAKER* RJS
Exhibit 13 A

Origin and Breeding History of the Variety

'PROFIT MAKER'
~~9014~~ originated from a hand pollinated cross between Rebel and Sprite in 1973.

Selection was made, starting in the F-2, for upright compact plants with long, straight, round, stringless pods set in the central portion of the plant. Other segregates had short curved pods with some oval in cross-section.

Similar selections were made in the F-3. Some segregates had short pods. In the F-4, the desired type was obtained and lines were bulked in the F-5. In the larger population of the F-6, some plants were found with flat pods and some with suture strings.

Single plant selections were made to eliminate the flat pod type and those with suture strings. In three subsequent generations, no suture strings were found and plants with flat pods were reduced to 1 in 3500.

'PROFIT MAKER'
~~9014~~ has been stabilized, but roguing flat pods will be necessary.

Rebel was developed by Keystone Seed Co. from a cross of Provider x Harvester. Rebel is a compact bush type of fairly early maturity. The pods are round, straight, and pod set is concentrated from center to high in the plant. Color of pods is medium green. Maturity is very even.

Sprite was developed by Northrup-King Co. Plant is wider than Rebel and pod set is not as concentrated or determinate as Rebel. Pods are long, straight, and oval in cross-section. The medium green pods have a heavy pubescence. Maturity is later than Rebel.

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INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (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 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a 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.
- 13b 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 differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a 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 his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.



APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY 9014		1b. VARIETY NAME <i>PROFIT MAKER rjs</i>		FOR OFFICIAL USE ONLY	
				PV NUMBER 8100174	
2. KIND NAME Snapbean		3. GENUS AND SPECIES NAME Phaseolus vulgaris		FILING DATE 9/28/81	TIME 12:00 <u>A.M.</u>
4. FAMILY NAME (BOTANICAL) Leguminosae		5. DATE OF DETERMINATION July 1979		FEE RECEIVED \$ 500.00	DATE 9/28/81
				\$ 250.00	4/8/83
6. NAME OF APPLICANT(S) AGRIGENETICS CORPORATION Vegetable Products Group		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 1438 Hollister, Ca 95023		8. TELEPHONE AREA CODE AND NUMBER 408-637-5782	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION New Mexico		11. DATE OF INCORPORATION 1/9/81	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Albert E. Braun, Agrigenetics Corp. P.O. Box 1438, Hollister, Ca 95023 <i>Dr. Keith Zary - Agrigenetics Corp. 1120 220th Street Farmington, Minn. 55024</i>					

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, Novelty Statement.
- 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- 13D. Exhibit D, Additional Description of the Variety.

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

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? YES NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? YES NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? YES NO

17. The applicant(s) declare(s) that a viable sample of basic seed 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 Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

Sept. 2, 1981
 (DATE)

Phillip E. Hill
 (SIGNATURE OF APPLICANT)

8100174

'PROFIT MAKER' rjs
~~AVX 9014~~

Exhibit 13B

Data Indicative of Novelty

'PROFIT MAKER'
~~AVX 9014~~ most closely resembles 'Sprite'. Primary differences between ~~9014~~ and 'Sprite' are:

1. Pods of ~~AVX 9014~~ are longer than 'Sprite'.
2. Pods of ~~AVX 9014~~ are much more round in cross section than 'Sprite'.
3. Market maturity of ~~AVX 9014~~ is 2 days earlier than 'Sprite'.

Data to support these statements are presented below.



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1.) Pod Length:

'PROFIT MAKER'

Comparison of pod length of '~~AVX 9014~~' and 'Sprite'
during two growing seasons, two years and one location
(Farmington, MN).

Year	Season ^{1.}	\bar{x} Pod Length (cm) ^{2.}		t(.05) ^{3.}	t(df=98)
		AVX 9014	Sprite		
1981	Spring	14.96	13.41	2.64	4.93*
	Fall	14.61	13.12	2.64	3.76*
1982	Spring	14.83	13.61	2.64	3.84*
	Fall	14.68	13.32	2.64	2.71*

1. Spring plantings were May 14, 1981 and May 24, 1982.
Fall plantings were July 6, 1981 and July 7, 1982.
2. Data was acquired by taking the average of all 5 sieve pods from each of 10 plants of each variety in each of 5 replications.
3. t tests were calculated according to Steele and Torre Principles and Procedures of Statistics p. 433.



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2.) Pod Cross-Section:

Comparison of pod cross-sections (ratio of width to thickness)¹ of '~~AVX 9014~~' and 'Sprite' during two years at Farmington, MN. *PROFIT MAKER*

Year	Sieve Size	\bar{x} Width/Thickness Ratio		t(.05)	t(df=98) ²
		AVX 9014 <i>PROFIT MAKER</i>	Sprite		
1981	3	1.01	0.87	2.64	2.83*
	4	0.94	0.83	2.64	2.42
	5	1.00	0.85	2.64	3.81*
	6	1.04	0.90	2.64	3.21*
1982	3	1.11	0.82	2.64	2.96*
	4	1.02	0.86	2.64	4.82*
	5	0.98	0.89	2.64	2.68*
	6	1.07	0.93	2.64	3.61*

-
1. The pod width to thickness ratio was calculated by measuring the width (between sutures) and dividing by the thickness of each pod. This was done for each pod in each sieve size on each plant. Means were then taken for each sieve size on each plant. A total of 10 plants from each of 5 replications for each variety and/or line was used in calculating the statistics.
 2. t tests were calculated according to Steele and Torre Principles and Procedures of Statistics p. 433.

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'PROFIT MAKER'

3). Market Maturity of '~~AVX 9014~~' is 2 Days Earlier Than 'Sprite':

We have no additional data to present other than trials in California, Florida, Minnesota, Idaho, and southern England indicate '~~AVX 9014~~' is consistently earlier in maturity than 'Sprite'. This information is from observations only.

'PROFIT MAKER'

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Application For Plant Variety Protection

Bush Bean ~~9014~~ 'PROFIT MAKER'

Exhibit 13 B

ORIGINAL EXHIBIT
B. DATA RJS 2/22/83

Data Indicative of Novelty

Novelty is based on the unique combination of the following characters.

'PROFIT MAKER'
~~9014~~ closely resembles Sprite, except that (1) pods are longer, (2) pods are near round in cross-section, (3) market maturity is earlier than Sprite.

(1) Pod length

Sieve size	'PROFIT MAKER' 9014		Sprite	
	mean length, 95% Conf. level		mean length, 95% Conf. level	
2	9.8 cm.	± 0.75	9.7	± 0.97
3	11.0	± 0.85	11.1	± 0.94
4	13.2	± 1.05	12.4	± 0.88
5	14.9	± 0.94	14.1	± 0.89
6	16.0	± 0.80	14.6	± 0.54

(2) Cross-section of pods

Sieve size	'PROFIT MAKER' 9014		Sprite	
	Width	Thickness	Width	Thickness
3	8	8	8	7
4	9	8.5	9	7.5
5	10	10	10	8.5
6	10.5	11	11	10

'PROFIT MAKER'
(3) Maturity to market stage of ~~9014~~ is 1 to 2 days earlier than Sprite and this is at 1208 heat units and 69 days at Hollister, Cal. Sieve size distribution shows that 6 sieve is produced earlier on 9014.

Sieve size	'PROFIT MAKER' 9014		
	% at 65 days	% at 67 days	% at 69 days
1 & 2	16.2	6.2	7.3
3	19.3	18.9	16.0
4	64.5	38.4	52.1
5	—	36.5	19.4
6	—	—	5.2

17-11-1981
17-11-81

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Sieve size	<u>Sprite</u>		
	% at 65 days	% at 67 days	% at 69 days
1 & 2	25.0	15.2	14.4
3	34.3	34.2	20.3
4	31.7	43.3	48.1
5	9.0	7.3	17.2
6	—	—	—

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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)

AGRIGENETICS CORPORATION VEGETABLE PRODUCTS GROUP

ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)

9870 Fairview Road
Hollister, Ca 95023

FOR OFFICIAL USE ONLY

PVPO NUMBER

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VARIETY NAME OR TEMPORARY DESIGNATION

490147 'PROFIT MAKER'

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 Hollister

California

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)

Rebel

3. PLANT:

^{CMB} 1 = Determinate 2 = Indeterminate

cm height

per letter of 7/21/82 from K. Zary

cm shorter than }

Same as .. } comparison variety from above

cm taller than }

cm spread

Number primary branches near base

cm narrower than }

comparison variety from above
 Branching habit:
1 = compact 2 = open

width same as ... }

cm wider than }

Main stalk: 1 = brittle 2 = wirey

1 = stout 2 = thin

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3. PLANT: (Cont'd)

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

Bush form (illustrated below):



1 = spherical bush form



2 = stem bush form



3 = wide bush form



4 = high bush form

5 = other (specify) _____

4. LEAVES:

1 = smooth 2 = wrinkled

1 = dull 2 = glossy

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

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:

Color: 1 = white 2 = cream 3 = pink 4 = lilac 5 = purple 6 = Other (specify) _____

Days to 50% bloom

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

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
	7.3	16.0	52.1	19.4	5.2

3 sieve	<input type="text" value="1"/> <input type="text" value="2"/> cm length	<input type="text" value="0"/> <input type="text" value="8"/> mm width	<input type="text" value="0"/> <input type="text" value="8"/> mm thickness
4 sieve	<input type="text" value="1"/> <input type="text" value="4"/> cm length	<input type="text" value="0"/> <input type="text" value="9"/> mm width	<input type="text" value="0"/> <input type="text" value="9"/> mm thickness
5 sieve	<input type="text" value="1"/> <input type="text" value="5"/> cm length	<input type="text" value="1"/> <input type="text" value="0"/> mm width	<input type="text" value="1"/> <input type="text" value="0"/> mm thickness
6 sieve	<input type="text" value="1"/> <input type="text" value="6"/> cm length	<input type="text" value="1"/> <input type="text" value="0"/> mm width	<input type="text" value="1"/> <input type="text" value="1"/> mm thickness

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6. FRESH PODS: (Cont'd)

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- 3 Cross section pod shape: 1 = flat 2 = oval 3 = round 4 = heart
- 2 Creaseback: 1 = present 2 = absent
- 3 Pubescence: 1 = none 2 = sparse 3 = considerable
- 1 Spur: 1 = straight 2 = slightly curved 3 = curved
- 1 Constrictions: 1 = none 2 = slight 3 = deep
- 2 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
- 2 Surface: 1 = smooth 2 = rough
- 2 Suture string: 1 = present 2 = absent
- 1 Seed development (Snap Bean): 1 = slow 2 = medium 3 = fast
- 1 Machine harvest: 1 = adapted 2 = not adapted
- 1 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
- CRS* 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) _____
- 1 Color Pattern: 1 = none 2 = splashed 3 = mottled 4 = striped 5 = flecked 6 = dotted
- 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)
- 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 *CRS* 4 Cross section: 1 = elliptical 2 = oval 3 = cordate 4 = round
- 1 Side view:   
 1 = oval to oblong 2 = round 3 = reniform

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

2 1 = truncate ends 2 = rounded ends

3 4 gm/100 seed

gm/100 seed lighter than

gm/100 seed same as 8

comparison variety from page one

CLB *0.* 3 3 gm/100 seed heavier than 1

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):

0 Anthracnose (specify race below) _____

0 Fuscous blight

1 Rust (specify race below) _____

0 Red node virus

0 Powdery mildew

0 Pod mottle virus

1 Fusarium root rot

2 Bean common mosaic virus (specify strain below)
~~Double D. Witte type~~ *Type 8 NY 15*

0 Pythium root rot

2 Mosaic mottle *CLB*

0 Rhizoctonia root rot

0 Black root

0 Pythium wilt

1 Bean yellow mosaic virus

0 Angular leaf spot

0 Curly top

0 Bacterial wilt

2 Other (specify below)
~~N.Y. 15 Sanilac type~~

1 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

Other (specify below) _____

12. PHYSIOLOGICAL RESISTANCE: (0 = not tested 1 = susceptible 2 = resistant)

0 Heat

0 Cold

0 Drought

2 Air pollution

13. COMMENTS:

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Exhibit 13 D

Additional Description of the Variety

The general appearance of ~~9014~~ ^{PROFIT MAKER R/S} is very similar to Sprite in plant size, leaf size and color of pods. The Rebel plant is slightly smaller, but pod color is the same. In maturity, Rebel is earlier than ~~9014~~ or Sprite.

Plant Size	9014 ^{PROFIT MAKER} 95% Conf.level		Sprite 95% Conf.level	
	mean height	55.6 cm.	± 3.3	56.3 cm.
mean width	46.9 cm.	± 3.3	45.0 cm.	± 7.1
	Rebel 95% Conf.level		Tendercrop 95% Conf.level	
	mean height	51.8 cm.	± 4.3	58.0 cm.
mean width	43.6 cm.	± 6.9	45.2 cm.	± 2.7

The size of the center leaflet of the mature plant is the same for 9014 and Sprite, but Rebel is slightly larger.

Sprite - mean length and width 11 x 9 cm.

9014 - mean length and width 11 x 9 cm.

Rebel - mean length and width 12 x 10 cm.

The color of the 4 sieve pods of ~~9014~~ ^{PROFIT MAKER}, Sprite, and Rebel is the same as measured by spectral reflectance. The tristimulus values and trichromatic coefficients are as follows:

	9014 ^{PROFIT MAKER}	Sprite	Rebel
X	20.99	21.10	19.54
Y	24.74	24.73	23.16
Z	12.56	12.56	11.95
x	0.360	0.359	0.357
y	0.424	0.423	0.423

The dominant wave length is 367 nm. for all three varieties and is designated as 'yellow-green' on the Maxwell chart. Brightness is about the same as Y values are not greatly different.

Relative maturity - to market stage.

9014 ^{PROFIT MAKER}	- 1208 H.U.
Sprite	- 1253 H.U.
Rebel	- 1164 H.U.
Tendercrop	- 1300 H.U.

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'PROFIT MAKER' R/S

~~9014~~ is resistant to Bean Common Mosaic and N.Y. 15 virus. Isolates for testing were obtained from Dr. R. Hampton, U.S.D.A. Oregon State University. Type form for Bean Common Mosaic from the variety Double D. Witte and for N.Y. 15 from Sanilac. Both types were active on Sutter Pink but not on 9014.

In Rust trial nurseries, U.S.D.A., ^{'PROFIT MAKER'}~~9014~~ was found to be susceptible to several races of Rust (not specified). Also, 9014 showed some resistance to air pollution. 9014 is not resistant to Bean yellow mosaic virus, but incidence is rather rare.

'PROFIT MAKER'

The seeds of both ~~9014~~ and Sprite are white with a faint vein like appearance. Seed weight is also the same when grown under similar conditions. Seedling stage is normal for both varieties and anthocyanin pigment is absent.

References :

- Color: Principles of Color Technology
 Billmeyer & Saltzman
 Bausch and Lomb Operations Manual
 Statistics: Statistical Methods
 G.W. Snedecor

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PLANT VARIETY PROTECTION CERTIFICATE

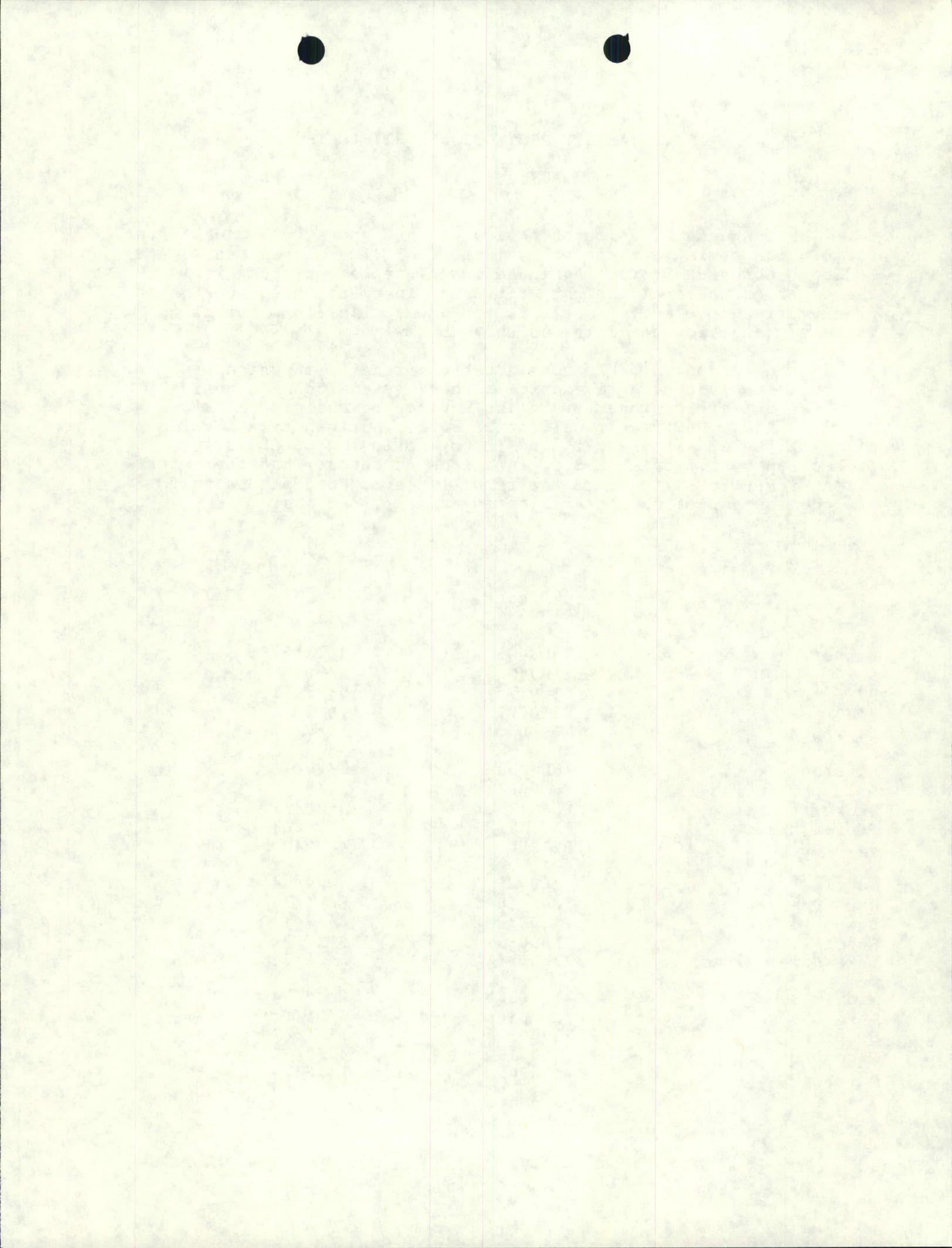
ASSIGNMENT

The Sunseeds Division of Agrigenetics Corporation, a Delaware corporation having a place of business at 3575 Mitchell Lane, Boulder, Colorado 80301 ("Agrigenetics"), represents that it is the owner of the entire right, title and interest in and to the plant variety protection certificates and applications for plant variety protection certificates shown below.

For good and valuable consideration, receipt of which is hereby acknowledged, Agrigenetics hereby assigns to UF Genetics, Inc., a Delaware corporation having a place of business at 9800 Fairview Road, Hollister, California 95024, Agrigenetics' entire right, title and interest in and to the following plant variety protection certificates and applications therefore, together with all Agrigenetics' rights to the sexually reproduced plants that are the subject of such certificates and applications:

I. Registered Certificates

<u>Title</u>	<u>Certificate Number</u>	<u>Date</u>
Empress	7900045	4/15/82
9014	Ap8100174	9/28/81
9293	Ap8100175	9/28/81
9400	Ap8200007	10/22/81
Paymaster	7600058	12/7/77
Lakeland	7600059	1/26/78
Triumph	7600061	12/30/77
Broker's Choice	8100175	4/28/83
Profit Maker	8100174	4/28/83
Shannon	8200007	4/28/83
Sunrise	7100029	6/24/74
Lake Shasta	7100030	8/12/74
Lake Erie	7100031	8/12/74
Rebel	7100033	9/30/74
Lake Superior	7100034	5/21/74
Miami	7100036	2/28/74
Lake Geneva	7200068	5/21/74
Scanion	7300001	11/15/74
Picoverde	7300016	4/10/73
Raider	7400069	7/26/74



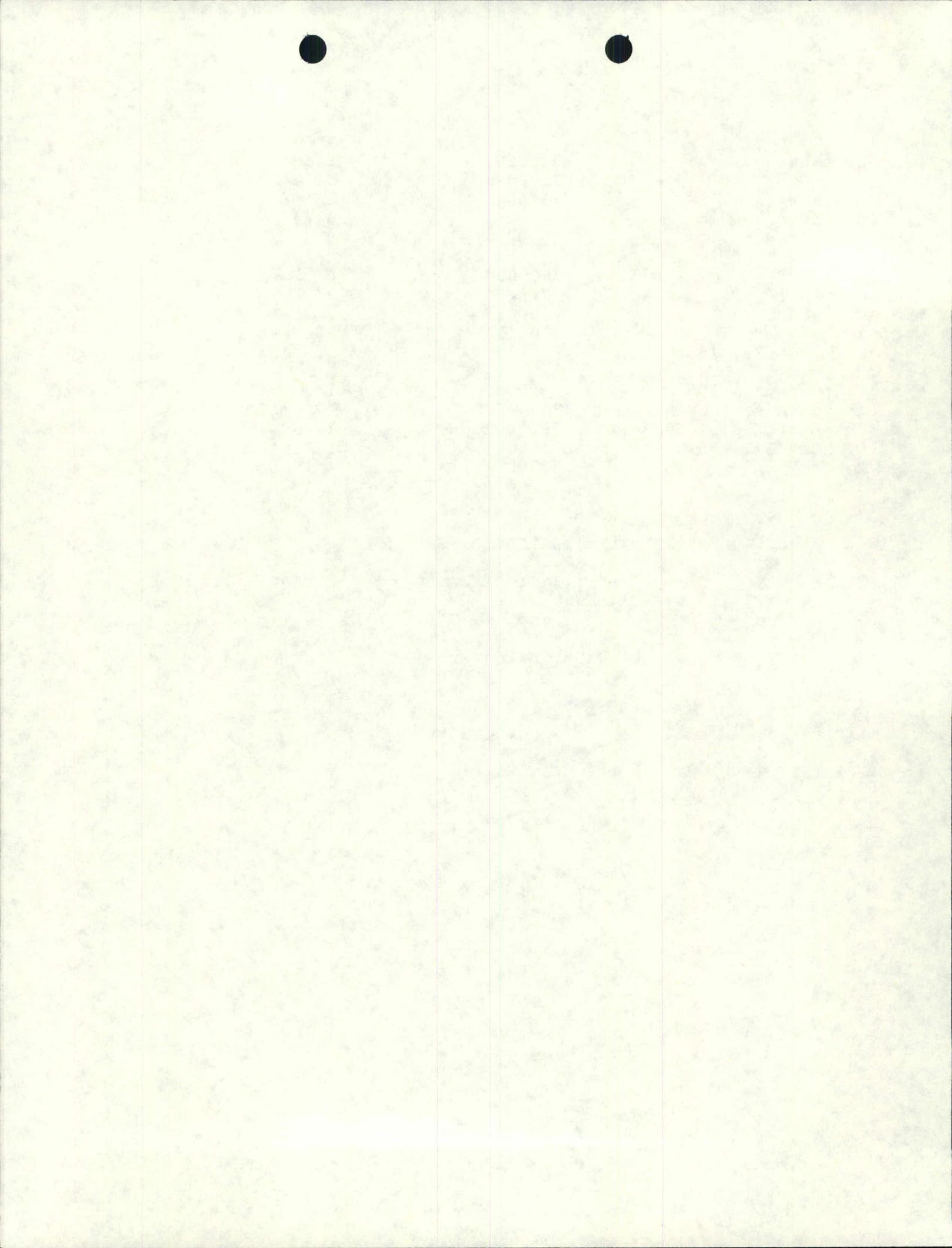
Lake Largo	7400104	9/30/74
Lake Seneca	7500096	11/24/75
Chaparral	7600052	5/16/77
Costaverde	7600053	8/24/77
Gustoverde	7600054	8/24/77
Mesaverde	7600055	5/31/77
Conquest	7700058	7/26/77
Commander	7900067	7/26/79
Keygold	8000111	10/16/80
Snapbean, Exp. 163	7600058	12/7/77
Snapbean, Exp. 195	7600059	1/6/78
'Green Genes' Bean	7600060	12/7/77
Snapbean, Exp. 116-0	7600061	12/30/77
Mikado (AVX 450)	Ap8400037	12/30/83
Mystro	8500064	4/16/85

II. Pending Certificate Applications

<u>Title</u>	<u>Application Number</u>	<u>Filing Date</u>
Cajun Queen	Pending	--
Mendota	Pending	--
Sunset	Pending	--
Alpine	Pending	--
Polaris	Pending	--

AGRIGENETICS CORPORATION

By: Murray Colvin
 Title: Executive Vice President



COMMONWEALTH OF MASSACHUSETTS)

County of Suffolk)

On this 30th day of April, 1986, before me appeared
W. Murray Johnson, the person who signed this
instrument, who acknowledged that he signed it as a free act on
behalf of Agrigenetics Corporation.

Susan J. Haherty
Notary Public
My Commission Expires: 11/21/91





From Technology To Life

P.O. Box 1438, 2320 Technology Parkway, Building 11 Suite A, Hollister, CA 95024-1438 USA 408/636-9505 TWX 910-3720254

June 7, 1988

Kenneth H. Evans, Commissioner
Plant Variety Protection Office
National Agriculture
Library Building, Room 500
Beltsville, MD 20705

Re: Change of Assignment.

Dear Mr. Evans:

This letter is in reference to your correspondence to me, dated July 14, 1987. I wish to make it clear that this change of assignment is to indicate a name change only, from U.F. Genetics, Inc. to Sunseeds Genetics, Inc.

Also, in reference to 'Mystro' tomato, have Item 1 read Sunseeds Genetics, Inc. and issue the certificate to Sunseeds Genetics, Inc.

Enclosed please find a check in the amount of \$170.00 to cover the cost of changing the certificates.

Title	Certificate No.	Date
Empress	7900045	4/15/82
9014	Ap8100174	9/28/81
9293	Ap8100175	9/28/81
9400	Ap8200007	10/22/81
Paymaster	7600058	12/7/77
Lakeland	7600059	1/26/78
Triumph	7600061	12/30/77
Broker's Choice	8100175	4/28/83
Profit Maker	8100174	4/28/83
Shannon	8200007	4/28/83
Sunrise	7100029	6/24/74
Lake Shasta	7100030	8/12/74
Lake Erie	7100031	8/12/74
Rebel	7100033	9/30/74
Lake Superior	7100034	5/21/74

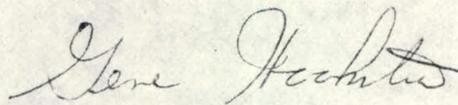
SUNSEEDS



June 7, 1988
Kenneth H. Evans
Page 2

<u>Title</u>	<u>Certificate No.</u>	<u>Date</u>
Miami	7100036	2/28/74
Lake Geneva	7200068	5/21/74
Scanion	7300001	11/15/74
Picoverde	7300016	4/10/73
Raider	7400069	7/26/74
Lake Largo	7400104	9/30/74
Lake Seneca	7500096	11/24/75
Chaparral	7600052	5/16/77
Costaverde	7600053	8/24/77
Gustoverde	7600054	8/24/77
Mesaverde	7600055	5/32/77
Conquest	7700058	7/26/77
Commander	7900067	7/26/79
Keygold	8000111	10/16/80
Snapbean, Exp. 163	7600058	12/7/77
Snapbean, Exp. 195	7600059	1/6/78
'Green Genes' Bean	7600060	12/7/77
Snapbean, Exp. 116-0	7600061	12/30/77
Mikado (AVX 450)	Ap8400037	12/30/83

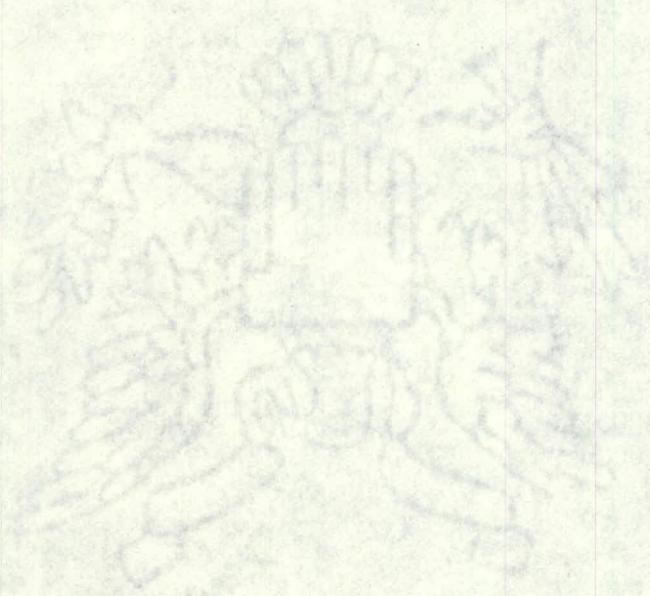
Sincerely,



Gene Hookstra
Vice President, Research

GH/mo

enc: Check
Copy of Correspondence from K.H. Evans



8100174

BILL OF SALE AND ASSIGNMENT

FOR VALUE RECEIVED, Sunseeds Genetics Inc, a Delaware Corporation, with its principal offices at 2320 Technology Parkway, Hollister, California, ("Sun") does hereby sell, transfer, assign and convey to Rogers Brothers Seed Company, a Delaware Corporation with principal offices at 1755 Westgate Drive, Boise, Idaho, ("Rogers") the following:

1. All Sun's intangible assets relating to its pea, snap pea, garden bean, runner bean, cow pea, dry bean, and lima bean business ("Products").
2. All plant variety protection rights and all plant variety protected materials along with the rights to use the names thereof including all varieties listed on Schedule A attached hereto and incorporated herein by this reference.
3. All proprietary plant varieties and all other proprietary information relating thereto which are related to Products.
4. All patents, patent application and patent applications relating to the Products.
5. All research property relating to Products including notebooks, findings, pedigrees, records of experiments and their results, seed stocks, know how, techniques, all other proprietary information in whatever form stored, germ plasm, the germ plasm uses, seed samples and their coding and indexing methods.
6. All trademarks, trade names, service marks and copyrights which apply to the Products excluding any name which includes the corporate name of Sun and its affiliates.
7. Any and all other intangible assets and property rights relating to Products not specifically mentioned herein.

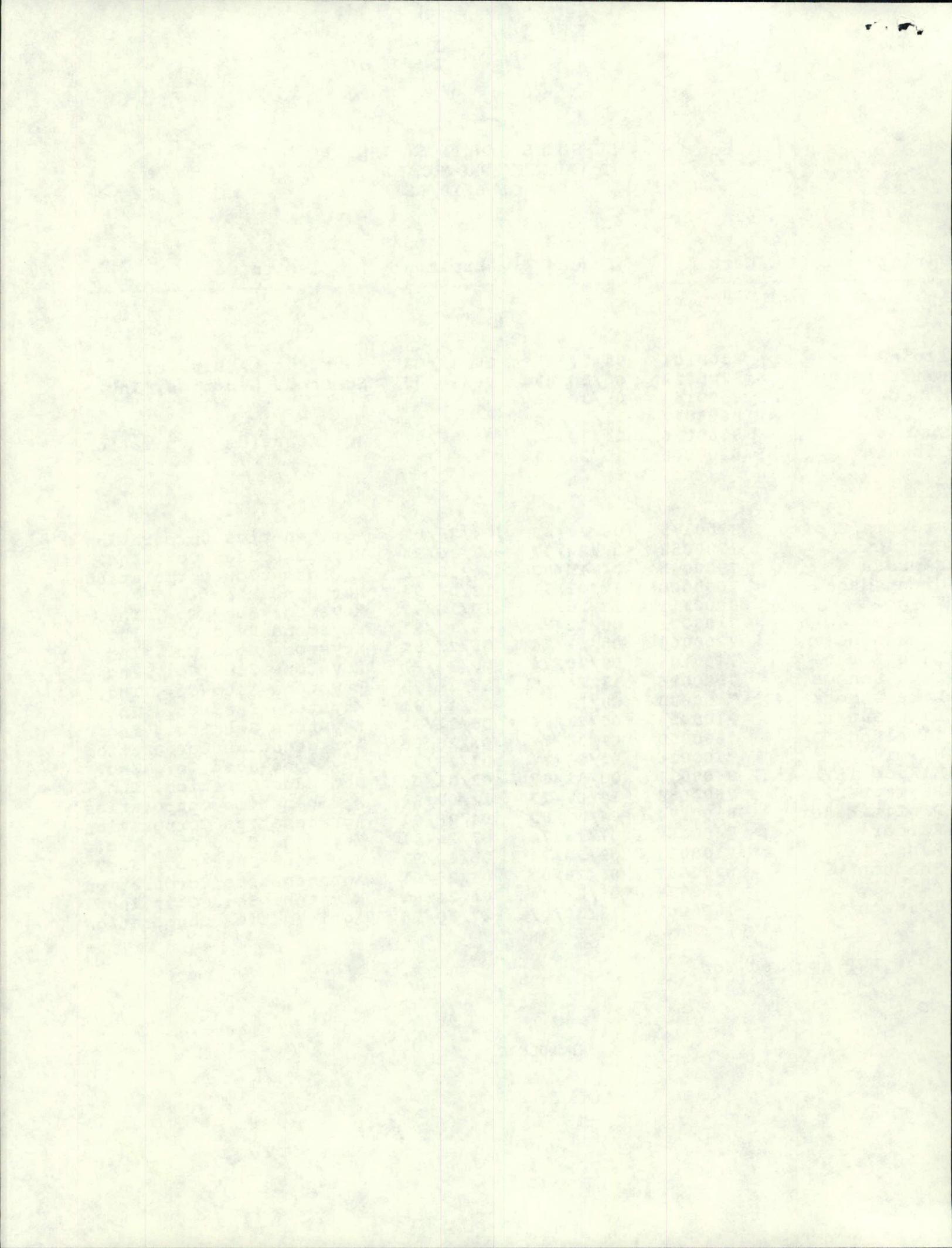


8100174

SUNSEEDS GENETICS, INC.
 PLANT VARIETY PROTECTION - USA
 AS OF 8/10/88

Variety	Cert #	Issued	Expires	Issued To
<u>Peas</u>				
Alpine	8500101	09/27/85	09/27/03	Sunseeds, A Div. of Agri. Sunseeds Genetics, Inc.
Blizzard	8700022	06/30/87	06/30/05	
Mendota	AP 8500163	05/30/85		
Polaris	AP 8600017	11/12/85		
Sunset	8300074	04/30/84	04/30/02	Agrigenetics Corporation
Titania	AP 8200008	10/26/81		
<u>Beans</u>				
Brokers Choice	8100175	04/28/83	04/28/01	Agrigenetics Corporation
Conquest	7700058	07/26/77	07/26/94	Keystone Seed Co., Inc.
Empress	7900045	04/15/82	04/15/00	Agrigenetics Corporation
Green Genes	7600060	12/07/77	12/07/94	Northrup King
Keygold	8000111	10/16/80	10/16/97	Keystone Seed Co., Inc.
Lake Erie	7100031	08/12/74	08/12/91	Keystone Seed Co., Inc.
Lake Geneva	7200068	05/21/74	05/21/91	Keystone Seed Co., Inc.
Lake Largo	7400104	09/30/74	09/30/91	Keystone Seed Co., Inc.
Lake Seneca	7500096	11/24/75	11/24/92	Keystone Seed Co., Inc.
Lake Shasta	7100030	08/12/74	08/12/91	Keystone Seed Co., Inc.
Lake Superior	7100034	05/21/74	05/21/91	Keystone Seed Co., Inc.
Lakeland	7600059	01/26/78	01/26/95	Agrigenetics Corporation
Miami	7100036	02/28/74	02/28/91	Keystone Seed Co., Inc.
Mikado (AVX 450)	8400037	03/31/87	03/31/05	Sunseeds Genetics, Inc.
Paymaster	7600058	12/07/77	12/07/94	Agrigenetics Corporation
Profit Maker	8100174	04/28/83	04/28/01	Agrigenetics Corporation
Raider	7400069	07/26/74	07/26/91	Keystone Seed Co., Inc.
Rebel	7100033	09/30/74	09/30/91	Keystone Seed Co., Inc.
Shannon	8200007	04/28/83	04/28/01	Agrigenetics Corporation
Sunrise	7100029	06/24/74	06/24/91	Keystone Seed Co., Inc.
Triumph	7600061	12/30/77	12/30/94	Agrigenetics Corporation

AP = PVP applied for



DATED this the 26 day of May, 1989.

SUNSEEDS GENETICS INC:

BY [Signature]
its: EXECUTIVE VICE PRESIDENT

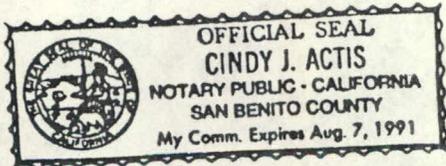
ATTEST:

[Signature]

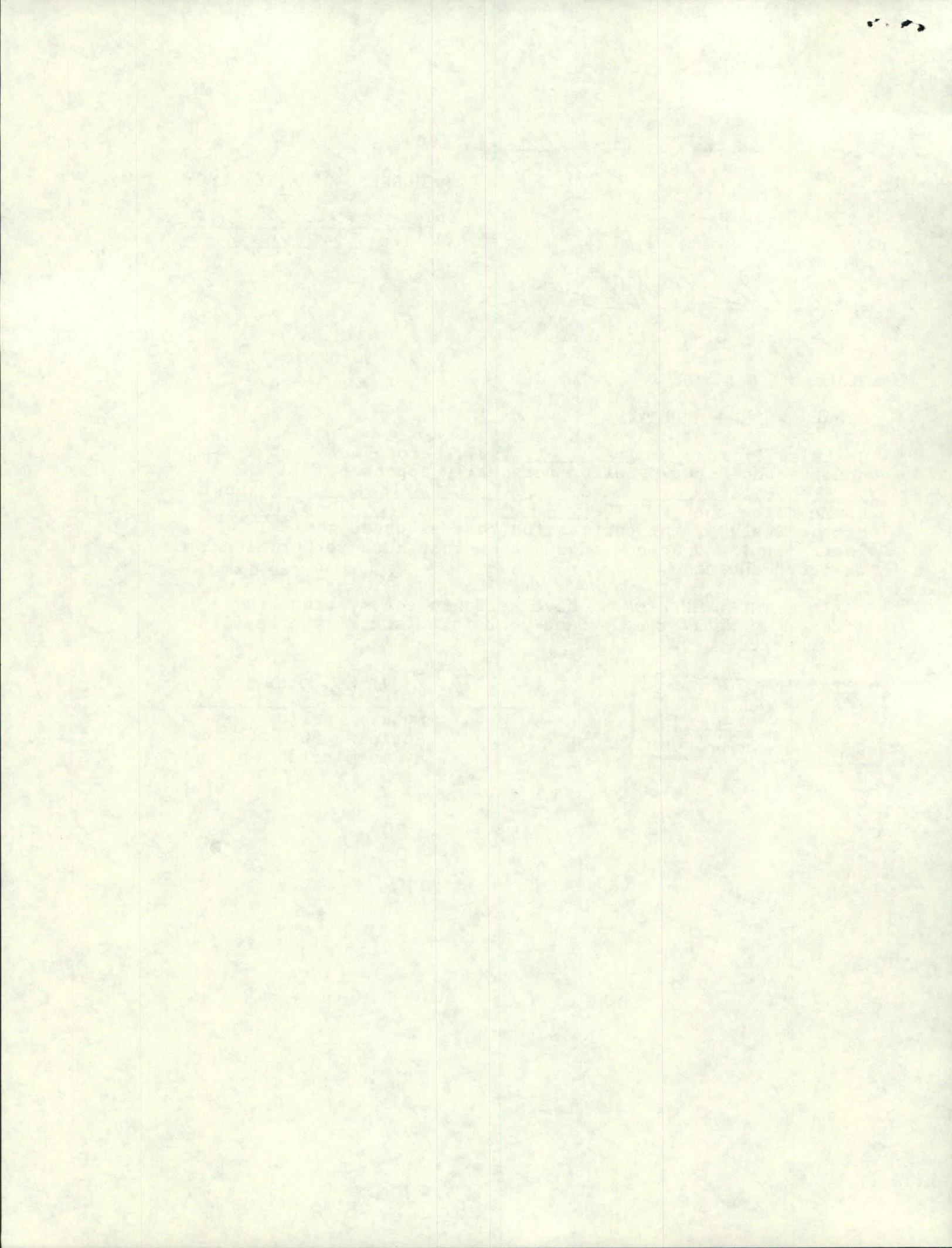
State of CALIFORNIA)
County of SAN BENITO) ss)

On this 26th day of May, 1989, before me, the undersigned Notary Public, personally appeared WILLIAM FRAZIER and ROBERT VAN MARTER known to me to be the EXECUTIVE V.P. and V.P. OF FINANCE respectively of the corporation that executed the instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal, the day and year in this certificate first above written.



Cindy J Actis
Notary Public
Residing at: Hollister, CA
My commission expires: 8/7/91



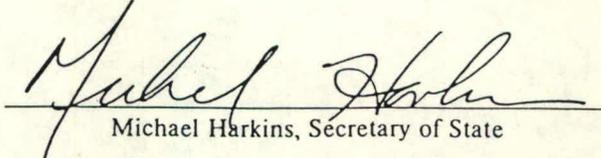
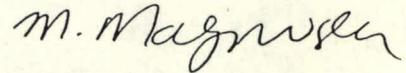
State of Delaware



Office of Secretary of State

I, MICHAEL HARKINS, SECRETARY OF STATE OF THE STATE OF DELAWARE
DO HEREBY CERTIFY THAT "ROGERS BROTHERS SEED COMPANY", FILED A
CERTIFICATE OF AMENDMENT, CHANGING ITS CORPORATE TITLE TO "ROGERS
NK SEED CO.", ON THE TWENTY-SIXTH DAY OF DECEMBER, A.D. 1990, AT 10:01
O'CLOCK A.M.




Michael Harkins, Secretary of State
AUTHENTICATION: 
DATE: 10/08/1991

DO NOT WRITE IN THIS SPACE

AMENDED
STATEMENT AND DESIGNATION
BY
FOREIGN CORPORATION

ROGERS NK SEED CO.

_____, a corporation
organized and existing under the laws of Delaware,
and which is presently qualified for the transaction of intrastate business in the
State of California, makes the following statements and/or designation:

That the name of the corporation has been changed to that hereinabove set forth
and that the name relinquished at the time of such change was _____

ROGERS BROTHERS SEED COMPANY

ROGERS NK SEED CO.
(Name of Corporation)

William B. Albers
(Signature of corporate officer)

William B. Albers, President
(Typed name and title of officer signing)

INSTRUCTIONS:

1. If this Amended Statement shows a change of corporate name, there must be attached to this Amended Statement a certificate of an authorized public official of the state or place of incorporation, that such change of name was made in accordance with the laws of that state or place.
2. For filing this Amended Statement there is a fee of \$15.00.

State of Delaware

PAGE 1

Office of the Secretary of State

I, WILLIAM T. QUILLEN, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THAT THE SAID "ROGERS NK SEED CO.", FILED A CERTIFICATE OF AMENDMENT, CHANGING ITS NAME TO "ROGERS SEED CO.", THE FIFTH DAY OF MAY, A.D. 1994, AT 9 O'CLOCK A.M.



William T. Quillen

William T. Quillen, Secretary of State

0810041 8320

AUTHENTICATION: 7120759

DATE: 05 16 94

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
ROGERS NK SEED CO.

Adopted in accordance with the provisions
of Section 242 of the General Corporation
Law of the State of Delaware

EFFECTIVE DATE: June 1, 1994

We, Willem van Overschot, President, and Richard B. Geller, Secretary, of Rogers NK Seed Co., a corporation existing under the laws of the State of Delaware, do hereby certify as follows:

FIRST: The Certificate of Incorporation of the corporation was filed on 2/27/75.

SECOND: The Certificate of Incorporation of said corporation has been amended as follows:

By striking out the whole of Article I thereof as it now exists and inserting in lieu and instead thereof, a new Article I, reading as follows:

ARTICLE I

Name

The name of the Corporation is ROGERS SEED CO.

THIRD: Such amendment has been duly adopted in accordance with the provisions of the General Corporation Law of the State of Delaware, by the unanimous written consent of all of the stockholders entitled to vote in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

FOURTH: See attached Written Consent of Sole Shareholder and Board of Directors' Resolution.

IN WITNESS WHEREOF, we have signed this certificate this 13th day of April,
1994.

Willem van Overschot
Willem van Overschot, President

Richard B. Geller
Richard B. Geller, Secretary

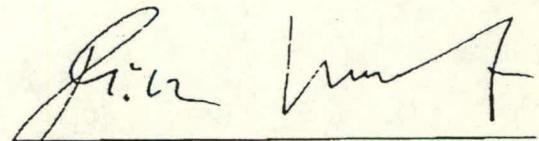
ROGERS NK SEED CO.

WRITTEN CONSENT OF SOLE SHAREHOLDER

SANDOZ CORPORATION, owner of all of the issued and outstanding shares of ROGERS NK SEED CO., hereby consents, pursuant to Section 228 of the Delaware General Corporation Law, to the adoption of the following resolution as and for the act of the shareholder:

RESOLVED, that SANDOZ CORPORATION, as sole shareholder, approves the amendment to Article I of the Certificate of Incorporation of ROGERS NK SEED CO., changing its name to **ROGERS SEED CO.**

Dated: April 22, 1994



Heinz P. Imhof,
Chief Executive Officer
Sandoz Corporation

100 100 30

00

ROGERS NK SEED CO.

RESOLUTION

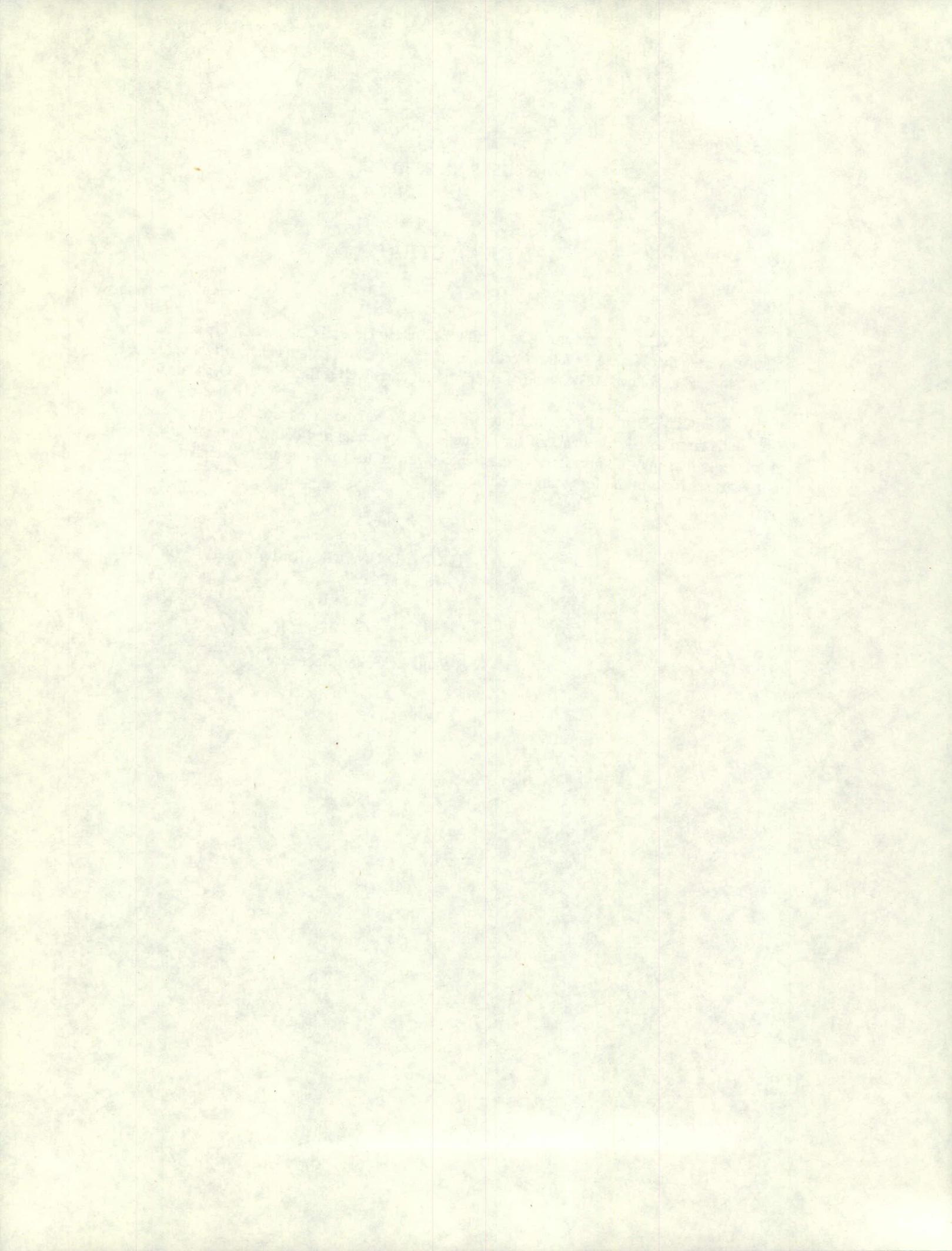
RESOLVED, that according to Section 242 of the General Corporation Law of the State of Delaware, that Article I of the Certificate of Incorporation be amended, effective June 1, 1994, to read as follows: The name of the Corporation is **ROGERS SEED CO.**; and, further,

RESOLVED, that the appropriate officers of Rogers NK Seed Co. be, and they hereby are, authorized to take any and all further action and execute and deliver any and all further documents that may be necessary or desirable in order to carry out and effectuate fully the purposes set forth in the foregoing resolution.

ADOPTED UNANIMOUSLY BY THE BOARD
MARCH 31, 1994

Richard B. Geller

Richard B. Geller, Secretary



State of Delaware
Office of the Secretary of State

PAGE 1

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:

"ROGERS SEED CO.", A DELAWARE CORPORATION,

WITH AND INTO "NOVARTIS SEEDS, INC." UNDER THE NAME OF "NOVARTIS SEEDS, INC.", A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE TWENTY-FIFTH DAY OF JUNE, A.D. 1997, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.



Edward J. Freel

Edward J. Freel, Secretary of State

0829320 8100M
971211787

AUTHENTICATION: 8531908
06-26-97

DATE:

STATE OF DELAWARE
SECRETARY OF STATE
DIVISION OF CORPORATIONS
FILED 09:00 AM 06/25/1997
971211787 - 0829320

**CERTIFICATE OF MERGER
OF
ROGERS SEED CO.
INTO
NOVARTIS SEEDS, INC.**

The undersigned corporation organized and existing under and by virtue of the General Corporation Law of Delaware,

DOES HEREBY CERTIFY:

FIRST: That the name and state of incorporation of each on the constituent corporations of the merger is as follows:

NAME	STATE OF INCORPORATION
Novartis Seeds, Inc.	Delaware
Rogers Seed Co.	Delaware

SECOND: That an Agreement and Plan of Merger between the parties to the merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations in accordance with the requirements of section 251 of the General Corporation Law of Delaware

THIRD: That the name of the surviving corporation is Novartis Seeds, Inc.

FOURTH: That the Certificate of Incorporation of Novartis Seeds, Inc., a Delaware corporation which will survive the merger, shall be the Certificate of Incorporation of the surviving corporation.

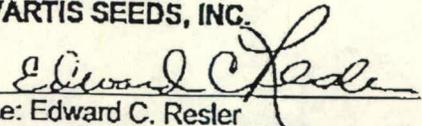
FIFTH: That the executed Agreement and Plan of Merger is on file at the principal place of business of the surviving corporation, the address of which is 7500 Olson Memorial Highway, Golden Valley, MN 55427.

SIXTH: That a copy of the Agreement and Plan of Merger will be furnished by the surviving corporation, on request and without cost, to any stockholder of any constituent corporation.

SEVENTH: That this Certificate of Merger shall be effective on July 1, 1997.

Dated June 23, 1997

NOVARTIS SEEDS, INC.

By: 
Name: Edward C. Resler
Title: Vice President & General Counsel

