No. 8200105

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Moran Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY. AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASTC 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 (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'Moran 3053'

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* 26th *day of* November *in the year of our Lord one thousand nine hundred and* eighty-two

*Attest:*

Kenneth H. Evans
Acting
*Commissioner*
*Plant Variety Protection Office*
*Grain Division*
*Agricultural Marketing Service*

John R Block
*Secretary of Agriculture*

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

FORM APPROVED: OMB NO. 0581-0005

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

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

*(Instructions on reverse)* DM 10/20/82

1. NAME OF APPLICANT(S)
Moran Seeds, Inc.

2. TEMPORARY DESIGNATION
~~NCX 3053~~ MORAN 3053

3. VARIETY NAME
~~None~~ MORAN 3053

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
1155 Harkins Road
Salinas, CA 93901

5. PHONE *(Include area code)*
(408) 757-3651

FOR OFFICIAL USE ONLY
PVPO NUMBER
8200105

6. GENUS AND SPECIES NAME
Lycopersicon esculentum

7. FAMILY NAME *(Botanical)*
Solanaceae

FILING
DATE 4/20/82
TIME 10:30 [X] A.M. [ ] P.M.

8. KIND NAME
Tomato

9. DATE OF DETERMINATION
September, 1979

FEES RECEIVED
AMOUNT FOR FILING $ 500.00
DATE 4/20/82
AMOUNT FOR CERTIFICATE $ 250.00
DATE 10/19/82

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
California

12. DATE OF INCORPORATION
December 29, 1978

13. NAME AND ADDRESS OF APPLICANT REPRESENATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. Frank V. Westerlund
Moran Seeds, Inc.
1155 Harkins Road
Salinas, CA 93901

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

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

b. [X] Exhibit B, Novelty Statement

c. [X] Exhibit C, Objective /Description of the Variety (Request form from Plant Variety Protection Office.)

d. [ ] Exhibit D, Additional Description of the Variety

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

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) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?
[ ] Yes *(If "Yes," give names of countries and dates)*
[X] No

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?
[ ] Yes *(If "Yes, "give names of countries and dates)*
[X] 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 [signature] DATE 4/15/82

SIGNATURE OF APPLICANT DATE

FORM LMGS-470 (9-81) (Edition Of 1-78 is obsolete)

## 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. Department of Agriculture, Agricultural Marketing Service, Livestock, Meat, 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**

**9** 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.

14a 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.

14b 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.

14c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

14d 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.

15 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.)*

16 See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

PVPO

**EXHIBIT A**

**Origin and breeding history of the variety.**

1. ~~NCX~~ MORAN 3053 originated in California from a hand pollinated cross between Rutgers 8828 and a propriatary line which resulted from a cross of A48 (Calif.) times Kecskemeti 1030 (Hungary). The crosses were completed in 1969.

2. Pure line selections were made through the F-8. The F-9 was bulk harvested as line 1074 and assigned NCX 3053 in 1979. Selections were based on horticultural type for machine harvest and for high soluable solids. Yield and adaptation studies were conducted in up to twenty-five locations from 1979 to 1981.

3. NCX 3053 breeds true and no varients have been found.

4. The genetic makeup was stabilized in F-8. Three successive years of field trials showed no offtypes and therefore a homogenous variety. Soluable solids data indicate that NCX 3053 is slightly higher than the standard variety 7879 in most environments.

**EXHIBIT B**

**Novelty statement**

MORAN

~~NCX~~ 3053'most closely resembles VF145-7879 but is easily distinguished from it by its superior firmness, jointless fruit pedicels and darker green and more compact plant.

10/20/82

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, GRAIN, AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

# OBJECTIVE DESCRIPTION OF VARIETY
## TOMATO (Lycopersicon esculentum Mill.)

| Name of applicant | Temporary designation | Variety Name |
|---|---|---|
| Moran Seeds,' Inc. | MORAN ~~NGX~~ 3053 10/27/82 | |
| Address (Street and No. or R.F.D. No., City, State, Zip)<br>Post Office Box 2508<br>El Macero, California 95618 | | FOR OFFICIAL USE ONLY<br>PVPO NUMBER<br>8200105 |

Choose responses which best represent your variety in the characters below. When a single quantitative value is requested (e.g. fruit weight), your answer should be the mean of an adequate, -unbiased sample of plants. The applicant variety should be compared with at least one well-known standard check variety of the same type, and grown in the same trial(s). The characters on this form should be described from plants grown under normal conditions of culture for the variety. Indicate by a check whether trial data are from greenhouse ____ or field X plantings. Trials direct-seeded X or transplanted. ____ Give locations and dates of trials Davis, Ca. Aug 1981 _____. Use leading zeroes when necessary (e.g. 09 or 11). Complete this form as fully as possible for best characterization of the variety.

1. **SEEDLING:** (2-15 cm, well-illuminated)

[2] Anthocyanin in hypocotyl: 1 = absent 2 = present
[1] Cotyledon: 1 = normal 2 = giant

2. **MATURE PLANT:**

[3] Growth: 1 = Indeterminate 2 = semi-determinate 3 = determinate
[2] Size (compared to others of its growth type): 1 = small 2 = medium 3 = large
[2] Habit: 1 = sprawling (decutnbent) 2 = semi-erect 3 = erect
[3] Foliage cover: 1 = light 2 = moderate 3 = heavy

3. **STEM:**

El Internode length (between the 1st and 4th inflorescences):
1 = short ( ) 2 = Intermediate ( ) 3 = long ( )
[3] Branching: 1 = sparse (Brehm's Solid Red) 2 = intermedlate ( )
3 = profuse (UC82)
[1] Branching at cotyledonary or first leafy node: 1 = present 2 = absent
[2] Pubescence: 1 = smooth (no long hairs) 2 = sparsely hairy (scattered long hairs)
3 = densely hairy or canescent
[1] No. of nodes below the first inflorescence:
1 = few ( 2-3 ) 2 = Intermediate ( ) 3 = many ( )
[1] No. of nodes (leaves) between inflorescences
[3] Thickness: 1 = slender, weak 2 = medium thickness 3 = thick, stiff

4. **LEAF (Mature leaf under** the 1st to 3rd inflorescence):

[1] Type: 1 = tomato 2 = potato
[2] Division: 1 = once-pinnate 2 = intermediate (pinnate-bipinnate)
3 = bipinnate, many small leaflets with the large ones
[3] Attitude: 1 = semi-erect 2 = horizontal 3 = drooping
[2] Leaflet blade: 1 = thin 2 = medium 3 = thick
[2] Bases of major leaflets: 1 = even 2 = oblique (the sides offset on petiole)
[2] Margins of major leaflets: 1 = nearly entire 2 = shallowly toothed or scalloped
3 = deeply toothed or cut, especially towards base
[2] Marginal rolling: 1 = absent 2 = present

4. **LEAF (Mature** leaf under-the 1st to 3rd **inflorescences)** (continued):

[1] Surface of major leaflets: 1 = smooth 2 = rugose (bumpy or veiny)
[2] Leaflet: **1** = normal **2** = slightly **wilty** 3 = **wilty**
[2] Shape of major leaflets: 1 = broadly ovate 2 = ovate to lanceolate
3 = slender and lanceolate, tapered to a point
[2] Pubescence or hairiness: 1 = smooth **2 = normal** 3 = **wooly**
[4] Color of leaflets: 1 = light green (Earliaorth) 2 = medium **green** ( )
3 = gray-green ( ) 4 = dark green **(UC82)** 137A)
[2] Color of leaf on check variety (same scale): Variety VF145-7879(146A)

5. **INFLORESCENCE:**

[1] **Type: 1** = simple **(racemose)** 2 = forked (2 **major** axes) 3 = compound (much **branche**
[1] No. of flowers setting fruit (in 2nd or 3rd **inflorescence):**
l-l-4, 2 = 4-8, 3 = 8-12, 4 = 12 or more

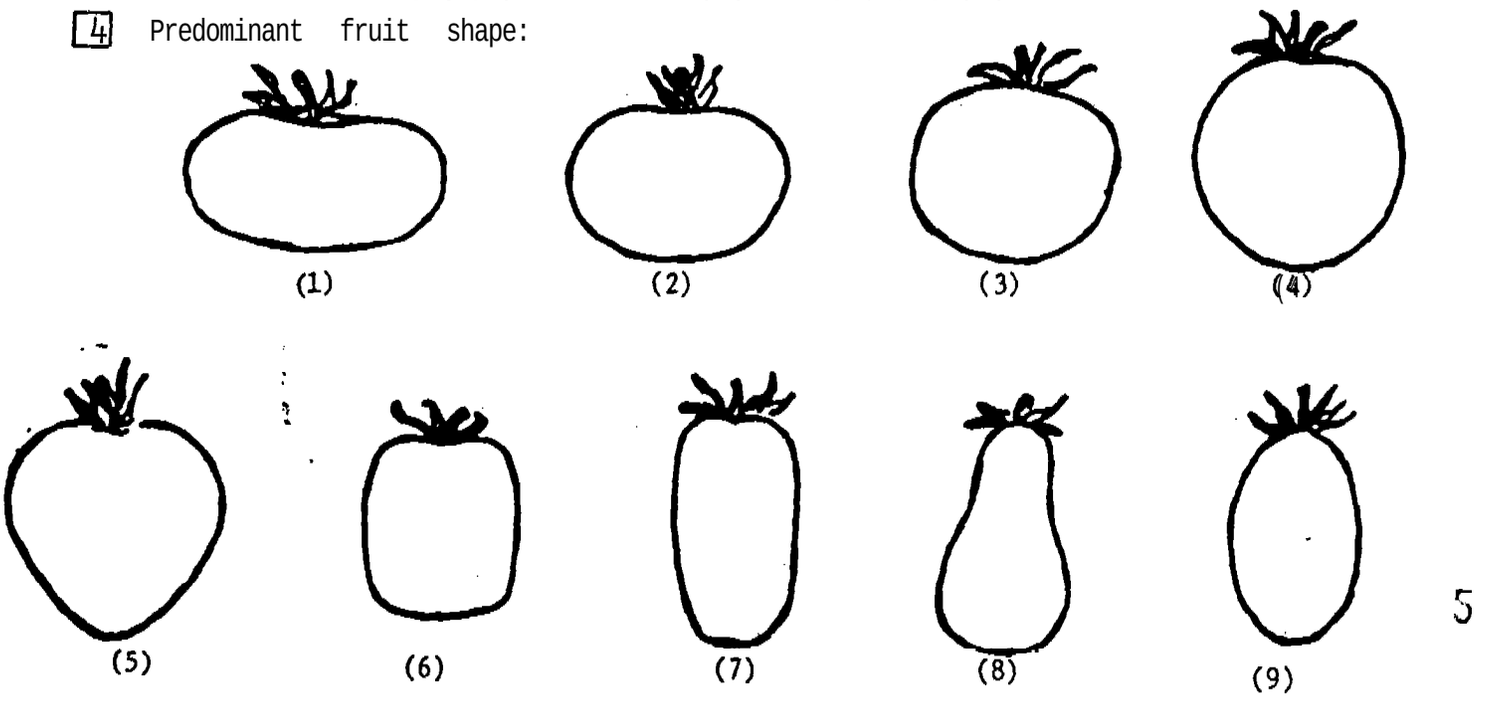
6. FLOWER:

[1] Calyx: 1 = normal (lobes awl-shaped) 2 = tnacrocalyx (lobes large, leaflike)
**3** = fleshy
[1] Flower color: 1 = yellow **2** = old gold 3 = white or tan
[1] Style **exsertion:** 1 = included 2 = even with stamens 3 = exserted
Style pubescence: 1 = absent 2 **sparse** = dense
[1] Anthers: 1 = all **fused** into tube 2 = separating into 2 or **more** groups at **anthesis**
[1] **Fasciation** (1st flower of 2nd or 3rd **infloresence):**
1 = absent 2 = occasionally present 3 = frequently present

7. FRUIT (3rd fruit of 2nd or 3rd cluster):

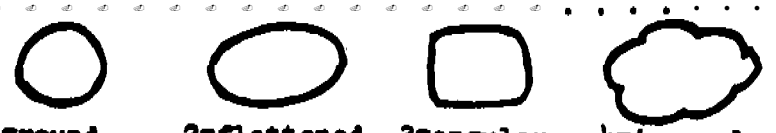
[2] Abscission layer: 1 = present (pedicellate) 2 = absent (jointless)
[- -] **mm.** Length of pedicel (from abscission layer or joint to **calyx** attachment)
[4] Mature fruit: Maximum diameter:
**1** = small cherry **(<20** mm) 2 3 large cherry (20-35 mm)
3 = cocktail (35-48 mm) 4 = U.S. extra small (48-54 **mm)**
**5** = U.S. **small (54-58 mm)** 6 = U.S. medium (58-64 **mm)**
7 = U.S. large **(64-73** mm) **8** = U.S. extra large (73-88 **mm)**
9 = U.S. **maximum** large (88-100 mm) 10 = U.S. maximum large ( > 100 **mm**)
[4] **Maximum** diameter of check variety, **same** classes as above
(Specify name) VF145-7879
[0 7 3] **g** Fruit **weight** [0 8 7] g Check variety VF145-7879

[4] Predominant fruit shape:



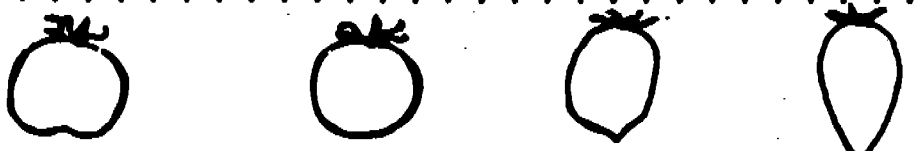
7. FRUIT (3rd fruit of 2nd or 3rd cluster):

[ ] Shape of transverse section:



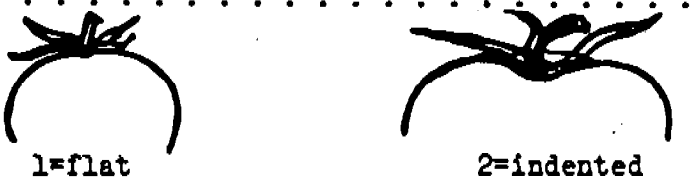
1=round 2=flattened 3=angular 4=irregular

[3] Shape of blossom end:



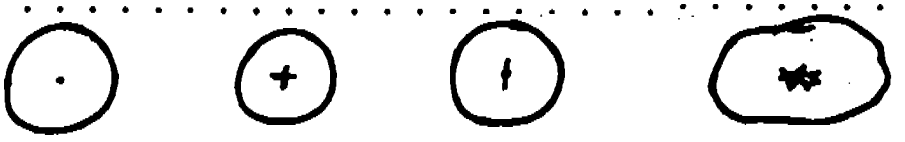
1=indented 2=flat 3=nippled 4=tapered

[ ] Shape of stem end:



1=flat 2=indented

[1] Shape of pistil scar:



1=dot 2=stellate 3=linear 4=irregular

[1] Fruit surface: 1 = smooth 2 = slightly fasciated 3 = moderately fasciated

[1] Fruit color (mature-green stage):
1 = light green ('Lanai', VF145-F5) 2 = Lt. gray-green ( )
3 = apple green ('Heinz 1439 VP') 4 = dark green ( )

[1] Fruit pattern (mature-green stage): 1 = green shouldered 2 = uniform green

[5] Mature fruit color (full-ripe): 1 = white 2 = yellow 3 = tangerine
4 = pink 5 = red 6 = brownish-red
7 = greenish 8 = other (specify) _____

[2] Flesh color (full-ripe): 1 = yellow 2 = red 3 = crimson 4 = other _____

[1] Epidermis: l-normal 2 = easy-peel

[2] Epidermis color: 1 = colorless 2 = yellow

[2] Epidermis thickness: 1 = thin 2 = average 3 = thick

[2] Thickness of pericarp: 1 = thin ( 73 mm) 2 = medium (3-6 mm) 3 = thick ( > 6 mm)

[2] Thickness of pericarp of check variety (same scale) Variety: VF145-7879

[2] Core size: 1 = coreless 2 = small 3 = medium 4 = large

[1] Core shape: 1 = solid, unbranched 2 = branched

[1] Core texture: 1 = soft, edible 2 = tough or fibrous

[2] Stem scar size: 1 = small ( ) 2 = medium ( 7-8 mm) 3 = large (

[3] No. of locules: 1 = two 2 = three and four 3 = five or more

[6] Fruit firmness[1] (minimum table-ripe):
1 - extra-soft ('Gardener') 2 = very soft ('Valiant') 3 = soft ('Campbell 28')
4 = fairly firm ('Tropic') 5 = firm ('MH-1') 6 = very firm ('UC-82')

8. PHENOLOGY (Growing degree days, or heat units on a base temperature of 51° F are preferable--but you may report either growing degree days or calendar days. Circle either "days" for calendar days, or "heat units" for growing degree days):

(Days/heat units from seed to first open flower:
[4][6] days, Application variety
[4][3] days, Check variety No. 1 VF145-7879
[4][8] days, Check variety No. 2 Niagara 3032

(Days/heat units from (seed/transplant (indicate which) to first ripe fruit:
[ ][ ][ ] days, Application variety
[ ][ ][ ] days, Check variety No. 1 VF145-7879
[ ][ ][ ] days, Check variety No. 2 Niagara 3032

[1] For definitions of these subjective terms see Kader & Morris (1976) In: Proc. 2nd Tomato Quality Workshop.

8. **PHENOLOGY (Growing** degree days, or **heat units** on a base temperature of **51°** F **are** preferable--but you **may report** either growing degree days or calendar days. Circle either "days" or calendar days, or "heat **units**" for growing degree days) (Continued):

**Days/heat units** from seed/transplant (indicate which) to once-over harvest, if **applicable:**

[125] **days, Application variety** [125] days, Check variety No. 1 VF145-7879
[135] days, Check variety No. 2 Niagara 3032

Days/heat units from breaker to **full-ripe** stage:

[07] days, Application variety [008] days, Check variety No. 1 VF145-7879
[010] days, Check variety No. 2 Niagara 3032

N/A **Shelf** life of ripe fruit:

[ ] days, Application variety [ ] days, Check variety No. 1 _____
[ ] days, Check variety No. 2 _____

[4] Fruiting season: 1 = long **('Marglobe')** 2 = medium **('Westover')**
3 = short, concentrated **('VF** 145') 4 = very concentrated **('UC** 82')

[3] Relative maturity: 1 = early 2 = medium early 3 = **medium**
4 = medium late 5 = late

9. ADAPTATION (if more than one category applies, list all in rank order):

[1] Culture: 1 = field 2 = greenhouse
[1] 1 = unstaked 2 = staked or trellised
[3] Principal use(s): 1 = home garden 2 = fresh market
3 = processing 4 = other _____

[2] **Machine** harvest: 1 = not adapted 2 = adapted

[8 9] **Recommended** region: 1 = **Northeast/Midatlantic** 2 = Southeast
3 = Midwest/Great Lakes 4 = South-central
5 = Great Plains 6 = Intermountain West
7 = Northwest 8 = Central California
9 = Southwest/So. **Calififorniа** 10 = General
11 = Other (specify) _____

[2] Growing season temperature: 1 = **cool** 2 = normal warm 3 = hot 4 = general
[2] Growing season humidity: 1 = humid 2 = semi-arid 3 = general
[3] Soils: 1 = mineral 2 = organic 3 = general

10. RESISTANCE OR TOLERANCE TO ENVIRONMENTAL STRESS:

[3] High temperature fruit set (subjective evaluation based on fruit set at temperatures **that normally** inhibit set in area of evaluation):
**1 = poor 2 = fair 3 =** good ('Summertime') **AREA Imperial Valley,** Ca.

[2] **Low** temperature fruit set (subjective evaluation baaed on **fruit** set at low temperatures **that normally** inhibit germination): 1 = **poor** 2 = **fair** 3 = good **('Veecrop')**
**AREA** Davis, **California**

[2] **Low temperature** seed germination: 1 = poor ( ) 2 = **fair** ( )
**3 = good** ( )

11. **RESISTANCE** TO FRUIT DISORDERS (Use code: 0-unknown, 1=**susceptible, 2**=**resistant**):

[2] **Blossom end rot**
[2] **Catface**
[0] **Cracking, concentric**
[0] **Gold fleck**
[2] **Bursting**
[0] **Cracking, radial**
[0] **Fruit pox**
[2] **Graywall or blotchy** ripening

12. DISEASE AND PEST REACTION (Use code: 0=not tested, 1-susceptible, 2=resistant) If claim of novelty is based wholly or in part upon disease resistance, trial data should be appended (Exhib D) and should include date and location of trial(s), method of testing, reaction of application variety, and reaction of check varieties (identified by name).

Viral Diseases:

- [0] Cucumber mosaic
- [0] Tobacco mosaic, Race 0
- [0] Tobacco mosaic, Race 22 (Tm 22)
- [ ] Other (specify) _____
- [0] Curly top
- [0] Tobacco mosaic, Race 1 (Tm 1)
- [0] Tomato spotted wilt
- [0] Potato-Y virus
- [0] Tobacco mosaic, Race 2 (Tm
- [0] Tomato yellows

Bacterial Diseases:

- [0] Bacterial canker (Corynebacterium michiganense)
- [0] Bacterial speck (Pseudomonas tomato)
- [0] Bacterial wilt (Pseudomonas solanacearum)
- [ ] Other bacterial disease (specify) _____
- [0] Bacterial soft rot (Erwinia carotovora)
- [0] Bacterial spot (Xanthomonas vesicatorium)

Fungal Diseases:

- [0] Anthracnose (Colletotrichum spp.)
- [0] Brown root rot or corky root (Pyrenochaeta lycopersici)
- [0] Early blight (Altemaria solani) defoliation
- [1] Fusarium wilt, Race 2 (F. oxysporum f. lycopersici)
- [0] Late blight, Race 0 (Phytophthora infestans)
- [0] Leaf mold, Race 1 (Cladosporium fulvum)
- [0] Leaf mold, Race 3 (C. fulvum)
- [0] Nailhead spot (Altemaria tomato)
- [0] Rhizoctonia soil rot (R. solani)
- [0] Southern blight (Sclerotium rolfsii)
- [2] Verticillium tilt, Race 1 (V. albo-atrum)
- [ ] Other fungal diseases (specify) _____
- [0] Botrytis rot or mold (B. cinerea)
- [0] Collar rot or stem canker (Altemaria solani
- [2] Fusarium wilt, Race 1 (F. oxysporum f. lycopersi
- [0] Gray leaf spot (Stemphylium solani, S. floridar
- [0] Late blight, Race 1 (Phytophthora infestans)
- [0] Leaf mold, Race 2 (C. fulvum)
- [0] Leaf mold, other races (specify) _____
- [0] Phytophthora root rot (P. parasitica)
- [0] Septoria leaf blight (Septorla spp.)
- [0] Target leafspot (Corynespora casiicola)
- [0] Verticillium wilt, Race 2 (V. albo-atrum)

Insect and Pests:

- [0] Colorado potato beetle (Leptinotarsa decemlineata)
- [1] Root knot nematode (Meloidogyne incognita)
- [0] Spider mites (Tetranychus spp.)
- [0] Sugar beet army worm (Spodopfora exigua)
- [0] Tobacco flea beetle (Epitrix hirtipennis)
- [0] Tomato hornworm (Manduca quinquemaculata)
- [0] Tomato fruitworm (Heliothis zea)
- [0] Whitefly (Trialeurodes vaporariorum)
- [ ] Other (specify) _____

'ollutants:

[0] Ozone . [0] Sulfur dioxide [ ] Other (specify) _____

REFERENCES

Anonymous, 1976, All About Tomatoes. Ortho Books, Chevron Chemical Co., San Francisco. In three volumes: Midwest/Northeast Edition, West Edition, and South Edition.

Ware, G. W. & J. P. McCollum, 1968. Producing Vegetable Crops. The Interstate Printer & Publishers, Inc., Danville, Illinois. (Chapter 30, pp. 451-473, "Tomatoes".)

Webb, R. E., T. H. Barksdale, & A. K. Stoner, 1973, "Tomatoes" pp. 344-361 In: Nelson, R.R. (Ed Breeding Plants for Disease Resistance. Pennsylvania State University Press, University Par

Young, P. A. & J. W. MacArthur, 1947. Horticultural characters of tomatoes. Bull. Texas Agric Exper. Station No. 698.

EXHIBIT D

~~Data indicative of novelty~~.

MORAN

~~NCX~~ 3053'most closely resembles VF145-7879 except it has (1) jointless stem pedicel (2) firmer fruit (3) more compact and darker green plant.

ADDITIONAL DESCRIPTION OF VARIETY

The enclosed data is from the 1980 and 1981 trials of a major California processor. This data compares the performance of NCX 3053 with industry standards in 58 different locations.

# ASSIGNMENT

WHEREAS, Moran Seeds, Inc. ("Moran"), a corporation duly organized and existing under the laws of the State of Delaware is the owner of United States Plant Variety Protection Certificates (the "Certificates"), listed in Exhibit A hereto and Pending United States Plant Variety Protection Applications (the "Applications"), listed in Exhibit B hereto: and

WHEREAS, in accordance with a Technology Transfer Agreement (the "Transfer Agreement") among Celanese Corporation ("Celanese"), Moran Seeds, Inc., Joseph Harris Company, Inc., CelPril Industries,. Inc., Harris Moran International B.V. ("Sellers"), Virginia Chemicals, Inc., Les Produits Organiques du Santerre-Orsan S.A. ("Orsan"), HMS Acquisition Inc., CP Acquisition Inc., and Exploitatiemaatschappij Wolwevershaven B.V., dated January&, 1985, and a Purchase Agreement dated December 7, 1985, as amended, among Celanese, Sellers and Orsan, Orsan has purchased from Moran said Certificates and Applications.

NOW, THEREFORE, in accordance with said Transfer Agreement and Purchase Agreement, Moran assigns to Orsan all of its rights, title and interest in and to said Certificates and Applications.

Moran hereby authorizes Orsan to apply for and obtain the recordation of this Assignment. Moran agrees that it shall, without further consideration, promptly and duly cause to be performed such lawful acts and execution of any other documents as Orsan may reasonably request in order for Orsan to obtain the full benefits of this Assignment and to permit Orsan to be duly recorded in each office, bureau and tribunal in the appropriate jurisdiction as the registered owner or proprietor of each of the rights hereby assigned. such instruments and documents shall include, without limitation, such applications, affidavits and other documents for filing in such jurisdictions as Orsan may from time to time reasonably request.

By these presents Orsan does hereby accept this Assignment and authorize the recording thereof with the appropriate authorities aforesaid.

IN WITNESS WHEREOF, the parties have caused this Assignment to be executed by its proper officers thereunto duly authorized this 10th day of January, 1985.

MORAN SEEDS, INC.,
Assignor

By: _____
David A. Jenkins
Vice President

LES PRODUITS ORGANIQTJES DU SANTERRE-ORSAN S.A.
Assignee

By: _____
Title: Attorney-in-fact

STATE OF New York

COUNTY OF New York

Before me, a **Notary Public,** in and for said County, personally appeared David Jenkins who acknowledged that he is Vice President of Moran Seeds, Inc., the corporation which executed the foregoing instrument and who acknowledged he signed said instrument on behalf of said corporation by authority of its Board of Directors; and that said instrument is the free corporate act and deed of said Moran Seeds, Inc.

Sworn before me at New York **this** 10th **day** of January, **19**85

Alex C. Lengyel

NOTARY PUBLIC

(Notary Public)

My Commission Expires:

ALEX C. LENGYEL
Notary Public, State of New York
Qualified in Bronx County
Commission Expires March 30, 1986

STATE OF New York

COUNTY OF New York

Before me, a Notary Public, in and for said County, personally appeared Patrice LaHoday who acknowledged that he is Attorney-in-Fact of Les Produits Organiques du Santerre-Orsan S.A., the corporation which executed the foregoing instrument and who acknowledged he signed said instrument on behalf of said corporation by authority of its Board of Directors; and that said instrument is the free corporate act and deed of said Les Produits Organiques du Santerre-Orsan S.A.

Sworn before me at New York this 10th day of January, 1985.

Alex C. Lengyel
NOTARY PUBLIC

(Notary Public)

My Commission Expires:

ALEX C. LENGYEL
Notary Public, State of New York
No. [illegible]
Qualified in New York County
Commission Expires [illegible] 30, 1986

Exhibit A

## United States Plant Variety Protection Certificates

| Cert. No. | Date Issued | Kind | Variety Name | Owner |
|---|---|---|---|---|
| 7200145 | 10/30/74 | Garden Bean | Gem | Moran Seeds, Inc. |
| 7200146 | 11/15/74 | Watermelon | Charleston 76 | Moran Seeds, Inc. |
| 7400013 | 5/9/74 | Lettuce | Calmaria | Moran Seeds, Inc. |
| 7400014 | 6/19/74 | Lettuce | Cal K-60 | Moran Seeds, Inc. |
| 7400071 | 6/19/74 | Lettuce | Cabrillo | Moran Seeds, Inc. |
| 7600032 | 9/15/77 | Lettuce | Vanagara | Moran Seeds, Inc. |
| 7600039 | 12/8/77 | Lettuce | Morangold | Moran Seeds, Inc. |
| 7800028 | 5/31/79 | Muskmelon | Valley Gold | Moran Seeds, Inc. |
| 7900038 | 1/14/82 | Garden Bean | Blue Duet | Moran Seeds, Inc. |
| 7900039 | 7/15/82 | Snapbean | Score | Moran Seeds, Inc. |
| 7900066 | 11/27/79 | Cauliflower | Snowball 123 | Moran Seeds, Inc. |
| 8000020 | 7/31/80 | Muskmelon | Top Net | Moran Seeds, Inc. |
| 8000082 | 12/10/81 | Lettuce | Delmar | Moran Seeds, Inc. |
| 8200019 | 10/28/82 | Onion | OMO M | Moran Seeds, Inc.<br>Oshita, Inc. |
| 8200061 | 3/24/83 | Watermelon | Sun Gold | Moran Seeds, Inc. |
| 8200104 | 10/28/82 | Tomato | Advantage | Moran Seeds, Inc. |
| 8200105 | 11/26/82 | Tomato | Moran 3053 | Moran Seeds, Inc. |
| 8200027 | 4/23/83 | Lettuce | El Toro | Moran Seeds, Inc. |
| 8100172 | 9/29/83 | Lettuce | Van Mor | Moran Seeds, Inc. |
| 8300113 | 8/31/84 | Muskmelon | Top Net SR | Moran Seeds, Inc. |

Exhibit B

## Pending United States Plant Variety Protection Applications

| Application No. | Filing Date | Kind | Variety Name | Owner |
|---|---|---|---|---|
| 8100167 | 9/9/81 | Lettuce | Yuma | Moran Seeds, Inc. |
| 8300155 | 7/18/83 | Celery | Bishop | Moran Seeds, Inc. |
| 8300156 | 7/18/83 | Celery | Deacon | Moran Seeds, Inc. |
| 8300172 | 9/1/83 | Tomato | Diego | Moran Seeds, Inc. |
| 8400013 | 12/1/83 | Lettuce | Greenfield | Moran Seeds, Inc. |

8200105

# DEED OF ASSIGNMENT

WHEREAS, Les Produits Organiques du Santerre - ORSAN (S.A.), a French corporation having a place of business at 16 rue Ballus, 75009 Paris, France (hereinafter referred to as "ASSIGNOR") owns and is using the Plant Variety Protection Certificates listed on the attached Exhibit for the indicated varieties which were awarded to ASSIGNOR by the Secretary of Agriculture on the indicated dates upon applications filed with the United States Plant Variety Protection Office; and

WHEREAS, Arisix (S. A.), a French corporation having a place of business at 6 1 rue des Belles Feuilles, 75 116 Paris, France,

(hereinafter referred to as "ASSIGNEE") is desirous of acquiring the entire right, title and interest in and to the said varieties and Plant Variety Protection Certificates;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged, ASSIGNOR has sold, assigned and transferred, and by these presents does sell, assign and transfer unto said ASSIGNEE, and ASSIGNEE'S successors and assigns, all right, title and interest in and to the said varieties and said Plant Variety Protection Certificates in the United States including reissues, and including the right to enforce such rights against any past, present or future violation thereof, the said interest to be held and enjoyed by said ASSIGNEE as fully and exclusively as it would have been and enjoyed by said ASSIGNOR had this assignment and transfer not been made, to the full end and term of any right, title and interest assigned and transferred hereby.

ASSIGNOR further agrees that it will, without charge to said ASSIGNEE, but at ASSIGNEE's expense, cooperate with ASSIGNEE in the assignment of said Certificates and the perfection of all rights thereto, execute, verify, acknowledge and deliver all such further papers and instruments of assignment and transfer

thereof, and will perform such other acts as ASSIGNEE lawfully may request, to obtain or maintain the listed Certificates and to vest title thereto in said ASSIGNEE or ASSIGNEE's successors and assigns.

IN TESTIMONY WHEREOF, an authorized representative of ASSIGNOR has hereunto signed its name to this assignment on the date indicated below.

Les Produits Organiques du Santerre
- ORSAN (S.A.)

Date: 1/11/95

PHILIPPE ROLLIER
Print Name

PRESIDENT
Print Title

On this date, _____ 1993, before me, the undersigned notary public, personally appeared the above-named assignor, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same.

(Notaire)

Seal/Stamp

VU pour certification manuscrite de signature figurant ci-contre de Mr Philippe ROLLIER Président de la Société ROLLER 6 ES
Fait à Paris, le 1/1/1995
Notaires

# DEED OF ASSIGNMENT

WHEREAS, Arisix (S.A.), a French corporation having a place of business at 61 rue des Belles Feuilles, 75 116 Paris, France (hereinafter referred to as "ASSIGNOR") owns and is using the Plant Variety Protection Certificates listed on the attached Exhibit for the indicated varieties which were awarded to ASSIGNOR by the Secretary of Agriculture on the indicated dates upon applications filed with the United States Plant Variety Protection Office; and

WHEREAS, Clause (S.A.), a French corporation having a place of business at 1 Avenue Lucien Clause, 91221 Bretigny sur ORGE Cedex, France,

(hereinafter referred to as "ASSIGNEE") is desirous of acquiring the entire right, title and interest in and to the said varieties and Plant Variety Protection Certificates;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged, ASSIGNOR has sold, assigned and transferred, and by these presents does sell, assign and transfer unto said ASSIGNEE, and ASSIGNEE'S successors and assigns, all right, title and interest in and to the said varieties and said Plant Variety Protection Certificates in the United States including reissues, and including the right to enforce such rights against any past, present or future violation thereof, the said interest to be held and enjoyed by said ASSIGNEE as fully and exclusively as it would have been and enjoyed by said ASSIGNOR had this assignment and transfer not been made, to the full end and term of any right, title and interest assigned and transferred hereby.

ASSIGNOR further agrees that it will, without charge to said ASSIGNEE, but at ASSIGNEE's expense, cooperate with ASSIGNEE in the assignment of said Certificates and the perfection of all rights thereto, execute, verify, acknowledge and deliver all such further papers and instruments of assignment and transfer

thereof, and will perform such other acts as ASSIGNEE lawfully may request, to obtain or maintain the listed Certificates and to vest title thereto in said ASSIGNEE or ASSIGNEE's successors and assigns.

IN TESTIMONY WHEREOF, an authorized representative of ASSIGNOR has hereunto signed its name to this assignment on the date indicated below.

Arisix (S.A.)

Date: 1/11/95

P DE SAINT RAPT

Print Name

PRESIDENT

Print Title

On this date, _____, 1993, before me, the undersigned notary public, personally appeared the above-named assignor, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same.

(Notaire)

Seal/Stamp

Vu pour certification matérielle de la signature figurant ci-contre, de M. de SAINT RAPT par le Bourges
Fait à Paris, le 1/1/1995
S.C.P. B. CHEUVREUX - R. BOURGES Notaires 77, Bd Malesherbes, 75008 PARIS

## *EXHIBIT*

1

| Certif. # | Date Status Begins | Crop | Variety Name | |
|---|---|---|---|---|
| ~~7600032~~ | ~~09/15/77~~ | ~~Lettuce~~ | ~~Vanagara~~ | Expired |
| ~~7600039~~ | ~~12/08/77~~ | ~~Lettuce~~ | ~~Morangold~~ | Expired |
| ~~7605018~~ | ~~09/28/77~~ | ~~Marigold~~ | ~~Cabaret Orange~~ | Expired |
| 7800028 | 05/3 1/79 | Muskmelon | Valley Gold | |
| 7800033 | 12/21/78 | Radish | Fancy Red | |
| 7800086 | 01/25/79 | Lettuce | Deep Red | |
| 7900038 | 01/14/82 | Garden Bean | Blue Duet | |
| 7900039 | 07/15/82 | Garden Bean | Score | |
| 7900066 | 11/27/79 | Cauliflower | Snowball 123 | |
| 8000020 | 07/31/80 | Muskmelon | Top Net | |
| 8000082 | 12/10/81 | Lettuce | Delmar | |
| 8100167 | 3/29/85 | Lettuce | Yuma | |
| 8100172 | 09/29/83 | Lettuce | Van Mor | |
| 8200027 | 04/23/83 | Lettuce | El Toro | |
| 8200045 | 09/23/82 | Turnip | Royal Gem | |
| 8200061 | 03/24/83 | Watermelon | Sun Gold | |
| 8200068 | 12/30/82 | Egg Plant | Little Fingers | |
| 8200104 | 10/28/82 | Tomato | Advantage | |
| 8200105 | 11/26/82 | Tomato | Moran 3053 | |
| 8300024 | 12/30/83 | Radish | Red King | |
| 8300113 | 08/31/84 | Muskmelon | Top Net SR | |
| 8300155 | 02/22/85 | Celery | Bishop | |
| 8300156 | 01/25/85 | Celery | Deacon | |
| 8300172 | 11/29/85 | Tomato | Harris Morgan 3075 | |
| 8400013 | 2/19/88 | Lettuce | Greenfield | |
| 8600032 | 03/11/88 | Tomato | Murrieta II | |

## PLANT VARIETY PROTECTION REGISTRATION ASSIGNMENTS

### Clause, S.A. to Harris Moran Seed Company

**WHEREAS,** Clause, S.A. ("Assignor"), a corporation organized and existing under the laws of France, has sold and transferred assets, including plant variety protection registrations, to Harris Moran Seed Company ('Assignee"), a corporation organized and existing under the laws of the State of Maryland;

**WHEREAS,** Assignor, is the owner of the following plant variety protection registrations:

| VARIETY NAME | Registration No. | Issue Rate |
|---|---|---|
| BLUE DUET | 790003 8 | 01/14/82 |
| SCORE | 7900039 | 07/15/82 |
| TOP NET SR | 8300113 | 08/31/84 |
| TOP NET | 8000020 | 07/31/80 |
| SNOWBALL 123 | 7900066 | 11/27/79 |
| BISHOP | 8300155 | 02/22/85 |
| DEACON | 8300156 | 01/25/85 |
| LITTLE FINGERS | 8200068 | 12/30/82 |
| EL TORO MI | 8200027 | 04/28/83 |
| DELMAR MI | 8000082 | 12/10/81 |
| GREENFIELD MI | 8400013 | 02/19/88 |
| VAN MOR MI | 8100172 | 03/29/83 |
| YUMA MI | 8100167 | 03/29/85 |

| | | |
|---|---|---|
| RED KING | 8300024 | 12/30/83 |
| MORAN 3053 | 8200105 | 11/26/82 |
| ADVANTAGE | 8200104 | 10/28/82 |
| HARRIS MORAN 3075 | 8300172 | 11/29/85 |
| ROYAL GEM | 8200045 | 09/23/82 |
| SUN GOLD | 8200061 | 03/24/83 |

**WHEREAS,** Assignor is desirous of selling and Assignee is desirous of acquiring the aforesaid plant variety protection registrations of Assignor.

**NOW THEREFORE,** for $10.00 and other good and valuable consideration, the receipt of which is hereby acknowledged, Assignor, by these presents sells, assigns and transfers to Assignee, its successors and assigns, all right title and interest in and to the above-referenced plant variety protection registrations, to be held and enjoyed by said Assignee, as fully as the same would have been enjoyed by said Assignor, had this assignment not been made.

Assignor also assigns and transfers to Assignee, any and all causes of action, claims, demands, or other rights occasioned from or because of any and all past infringement of any of the above referenced plant variety protection registrations.

Assignor further agrees tbat upon request, it will execute any and all documents necessary to vest all rights, title and interest in and to the above-referenced plant variety protection registrations

IN **WITNESS WHEREOF,** said Assignor, has affixed its signature hereto this 22 day of January, **1997**

**CLAUSE, S.A.**

By: _____

Name: John W. Fowler

Title: Chairman

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# ASSIGNMENT OF INTELLECTUAL, PROPERTY

WHEREAS, HARRIS MORAN SEED COMPANY, a corporation duly organized and existing under the laws of the State of Maryland, having its principal place of business at 45 11 Willow Road, Suite 3, Pleasanton, California 94588 ("Assignor"), has, pursuant to that certain Bill of Sale and Assignment dated as of June 30, 1997, transferred to FERRY-MORSE SEED COMPANY (CALIFORNIA), a corporation duly organized and existing under the laws of the State of California, having its principal place of business at 555 Codoni Avenue, P.O. Box 4938, Modesto, California 95352-4938 ("Assignee"), all of the intellectual property Assignor had adopted, used and was using as of the effective date of this Assignment, including without limitation, the intellectual property represented by the United States Plant Variety Protection Certificates of Assignor identified on Schedule A hereto (collectively, the "Property"); and

WHEREAS, on the date hereof, Assignee has changed its name to "Harris Moran Seed Company";

NOW, THEREFORE, effective by this instrument as of the close of business on June 30, 1997, and for good and valuable consideration, receipt of which is hereby acknowledged, Assignor hereby assigns to Assignee any and all right, title and interest worldwide in and to the Property and any and all recordations thereof, including, but not limited to, the use of the Property in any manner, all benefit of any and all prior use of the Property, and any and all rights to initiate claims-or proceedings for past, present& future infringements of Assignor's rights, title and interest in and to the Property.

Dated: as of June 30, 1997

HARRIS MORAN SEED COMPANY

By: _____
Philip Ashcraft, President

NEWY01A:171511:1:09/26/97
26757-I

A490370

ENDORSED
FILED
In the office of the Secretary of State
of the State of California

JUN 30 1997

BILL JONES, Secretary of State

# CERTIFICATE OF AMENDMENT

# OF THE

# ARTICLES OF INCORPORATION

# OF

# FERRY-MORSE SEED COMPANY (CALIFORNIA)
(a California corporation)

---

To the Secretary of State
State of California

Pursuant to the provisions of the General Corporation Law of the State of California, the undersigned officers of FERRY-MORSE SEED COMPANY (CALIFORNIA), a California corporation (the "Corporation"), do hereby certify as follows:

1. The name of the Corporation is Ferry-Morse Seed Company (California).

2. Article One of the Corporation's Articles of Incorporation, which relates to the name of the Corporation, is hereby amended in its entirety to read as follows:

One. The name of this Corporation is:
HARRIS MORAN SEED COMPANY.

3. The amendment herein provided for has been approved by the Corporation's Board of Directors.

4. The amendment herein provided for was approved by the written consent of the Corporation's sole shareholder in accordance with the provisions of Section 902 of the California General Corporation Law. The total number of outstanding shares of the corporation is 5,000.

IN WITNESS WHEREOF, each of the undersigned does hereby declare under the penalty of perjury that he or she signed the foregoing Certificate of Amendment as of June 30,

1997, in the Town of Modesto, State of California, in the official capacity set forth beneath his or her signature and that the statements set forth in this certificate are true of his or her own knowledge.

Yves Queste, President

Helen Andritsakis, Secretary



NEWY01A:163794:1:06/25/97
26757-1

A493976

# State of California

## SECRETARY OF STATE

OFFICE OF THE SECRETARY OF STATE

VB

2 PAGES

*I, BILL JONES*, **Secretary** of State of the State of California, hereby certify:

That the attached transcript has been compared with the record on file in this office, of which it purports to be a copy, and that it is full, true and correct.

***IN WITNESS*** WHEREOF, I execute this certificate and affix the Great Seal of the State of California this

JUN 30 1997

THE GREAT SEAL OF THE STATE OF CALIFORNIA

EUREKA

Bill Jones

Secretary of State

SEC/STATE FORM CE-107 (REV. 4/97)

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