



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Regents of the University of California

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. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CELERY

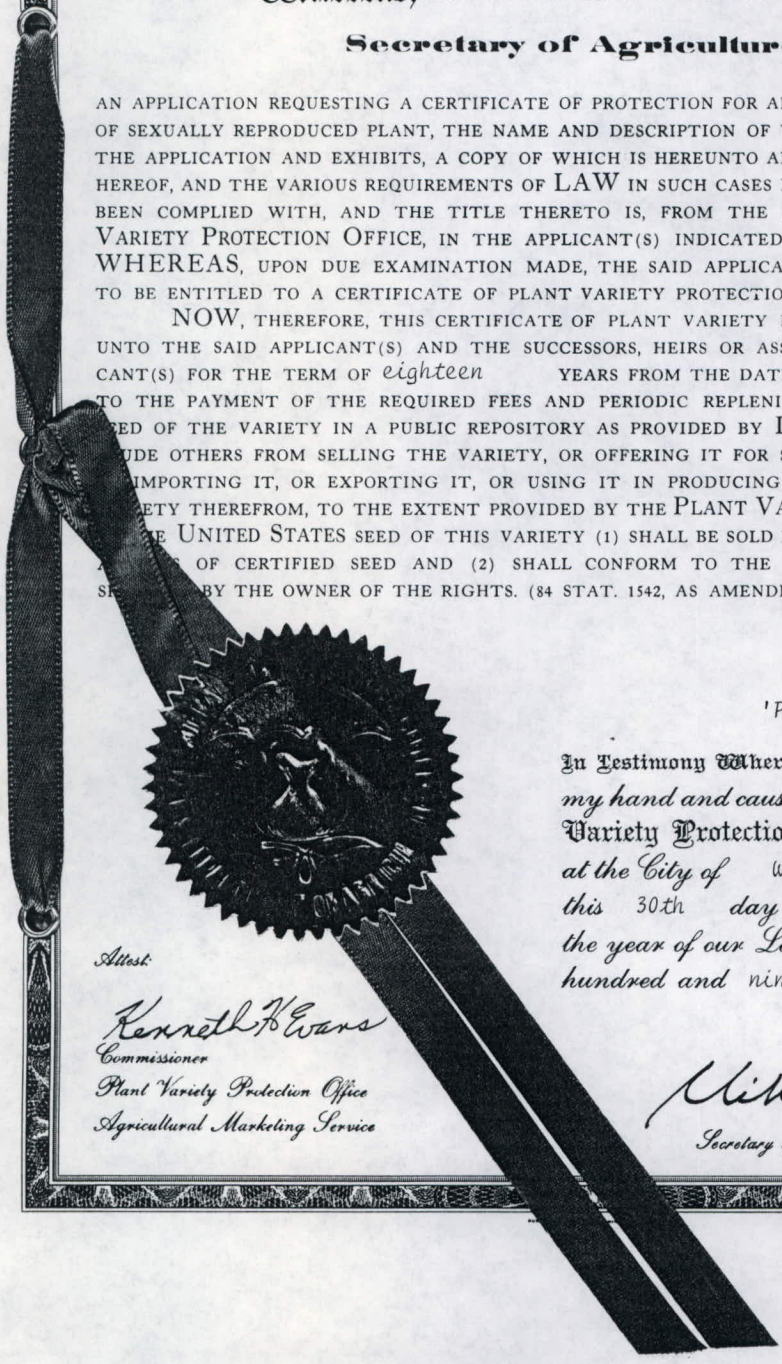
'Promise'

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 30th day of November in the year of our Lord one thousand nine hundred and ninety-four.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Egan
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 SCIENCE DIVISION

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) THE REGENTS OF THE UNIVERSITY OF CALIFORNIA		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. 91 A157		3. VARIETY NAME PROMISE	
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) Kaiser Center 300 Lakeside Drive, 22nd. Floor Oakland, CA 94612		5. PHONE (include area code) (510) 748-6600		FOR OFFICIAL USE ONLY PVPO NUMBER 9400108	
6. GENUS AND SPECIES NAME Apium graveolens L.		7. FAMILY NAME (Botanical) Umbelliferae (Apiaceae)			
8. CROP KIND NAME (Common Name) CELERY		9. DATE OF DETERMINATION October 30, 1991 1992		F I L I N G Date February 28, 1994 Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
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		F I L I N G Filing and Examination Fee: \$ 2325.00 Date February 28, 1994 Certificate Fee: \$ November 14, 1994 Date \$275.00	
12. DATE OF INCORPORATION June 18, 1968		13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Marco Ballarin Office of Technology Transfer - University of California 1320 Harbor Bay Parkway, Suite 150 Alameda, CA 94502 PHONE (include area code): (510) 748-6623			

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 2/25/94
- g. Filing and Examination Fee (\$2,325) 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

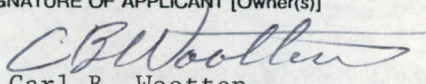
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
 YES (If "YES," through Plant Variety Protection Act Patent Act. Give date: _____).
 NO

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) _____
 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)]  Carl B. Wootten	CAPACITY OR TITLE Director, Office of Technology Transfer	DATE 2/25/94
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A,B,C,E; (3) at least 2,500 viable untreated seeds; (4) check, drawn on a U.S. bank, payable to "Treasurer of the United States" in the amount of \$2,325 (\$275 filing fee and \$2,050 examination fee). (See section 180.175 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for 30 days, then returned to the applicant as unfiled. Mail application and other requirements to: Plant Variety Protection Office, AMS, USDA, Rm. 500, NAL Building, 10301 Baltimore Blvd., Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the Application are self-explanatory unless noted below. Corrections on the Application form and Exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a Certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$275 for issuance of the Certificate.

Plant Variety Protection Office
Telephone: 301/504-5518

ITEM

9. Give the date when there has been at least a tentative determination that the variety has been sexually reproduced with recognized characteristics, whether or not the novelty of those characteristics has been determined. [See section 41(d) of the Plant Variety Protection Act (Act).]
- 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. (See sections 41 and 52 of the Act.)
- 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 are clear differences; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons which clearly indicate novelty.
- 14c. Exhibit C forms are available from the PVPO; specify crop kind. Fill in the Exhibit C (Objective Description of Variety form) to describe your variety.
- 14d. Optional additional characteristics and/or photographs: Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 14e. Section 52(4) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. The applicant may be the actual breeder, the employer of the breeder, the owner through purchase or inheritance, 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 this affirmative decision after the variety has either been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See section 180.16 of the Regulations and Rules of Practice.)
19. See sections 41 (i,j) and 42 of the Act and section 180.7 of the Regulations and Rules of Practice for eligibility requirements.

NOTES:

It is the responsibility of the applicant/owner to keep the PVPO informed of any change of address or change of ownership or assignment during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment is \$25. [See section 101 of the Act, and sections 180.130, 180.131, 180.132, and 180.175(h) of the Regulations and Rules of Practice.]

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Rm. 213, Building 306, Beltsville Agricultural Research Center -- East, Beltsville, MD 20705. Telephone: 301/504-8089.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, Room 404-W Administration Building, Washington, DC 20250; and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503, regarding OMB 0581-0055.

14.A - EXHIBIT A
Origin and Breeding History of 'Promise'

9400108

'Promise' is a celery cultivar originated from the sib-mating of 10 selected F4 plants from the 1988 cross:

87 A121-1 / TU 52-75

where TU 52-75 is Tall Utah 52-75

and 87 A121-1 is an F2 selection from the 1984 cross:

UC1 Selection #4 / TU 52-70R.

In turn, UC1 is a celery breeding line segregating for resistance to Fusarium yellows released by the University of California in 1984 (see Attachment to Exhibit 1)

and TU 52-70R stands for "Tall Utah 52-70R"

Thus the pedigree for 'Promise' may be described as follows:

[UC1 Sel. #4/TU 52-70R (87 A121-1(F2))] / TU 52-75

and the sequence of events bringing to the cultivar may be summarized as:

(UC Sel. #4/TU 52-70R)
selfed
F₂ Sel. 87 A121-1 / TU 52-70R
selfed
F₂ Sel. 88 A140-1
selfed
F₃ Sel. 89 A706-1
selfed
sib mating of 10 selected plants
91 A157 ('Promise')

The crosses and selections described were conducted at the University of California, at Davis, by Dr. Carlos F. Quiros, and by Mr. Vincent D'Antonio, of the Celery Breeding and Research Program.

Four field trials were established at two locations in California (Salinas and Oxnard) in 1991 and 1992, from the breeder seed obtained in 1991. These trials included 13 to 30 entries arranged in a randomized complete block design, with four replications (1991-92 California Celery Research Advisory Board Annual Report).

In none of the trials conducted did 'Promise' exhibit features diverging from its general characteristics.

9400108

Exhibit A - Breeding History

Our statement of Uniformity and stability is as follows: "'Promise' appears stable and uniform through two generations of sib mating during our seed increase program. Less than 1:5000 plants will show slight Fusarium susceptibility in heavily infested soil."

HORTSCIENCE 19(4): 594. 1984.

UC1, *Fusarium* Yellow-Resistant Celery Breeding Line

T.J. Orton¹, S.H. Hulbert, M.E. Durgan, and C.F. Quiros
Department of Vegetable Crops, University of California, Davis,
CA 95616

Additional index words. *Apium graveolens*, celeriac, disease resistance, vegetable breeding

UC1 is a celery, *Apium graveolens* L., breeding line segregating for resistance to *Fusarium* yellows, a disease caused by the pathogen *Fusarium oxysporum* Schlecht., f. sp. *apii*, race 2, prevalent in the soils of California. The inheritance of the disease reaction has been studied by Orton et al. (1). Resistance seems to be dominant over susceptibility and highly heritable under greenhouse screening conditions. The segregation ratios observed, however, were not consistent enough to determine the number of genes involved. The principal value of the line should be as a source of resistant plants that can be obtained by making single plant selections in areas where the disease is present, or by screening procedures in the greenhouse. The resistant plants derived from UC1 will need further improvement for horticultural type in order to obtain *Fusarium* yellows resistant commercial cultivars.

Origin

Several accessions of celeriac, *A. graveolens* var. *rapaceum*, and 2 selections of

celery, *A. graveolens* var. *dulce*, were used as the sources of resistance to *Fusarium* yellows in the development of UC1 (Table 1). Six lines were obtained by 3 cycles of crossings between celeriac accessions and 'Tall Utah 52-70R' (52-70R) and 'Tendercrisp'. Four of these lines also included a disease free single plant selection of 52-70R, designated OXN40, obtained from an infested field in Oxnard, Calif. A 7th line was developed by backcrossing the F₁ hybrid of 52-70R, and a resistant accession of celery from China (China 05) to 52-70R (Table 1). Six-week-old seedlings from these lines were screened for *Fusarium* yellows in the greenhouse (2), and then transplanted to a naturally infested field in Salinas, Calif. Of the 800 selected plants transplanted to the field, only 80 plants remained after selecting further for disease resistance and for horticultural type. Open-pollinated seed from the selected plants was collected and bulked as UC1.

Description

Most of the plants in UC1 are vigorous,

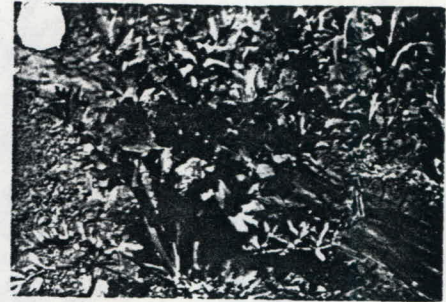


Fig. 1 Typical plant of UC1 celery breeding line.

dark green, and taller than 52-70R (Fig 1). Hollow petioles, side shoots, and other undesirable characteristics carried from the celeriac parents are likely to segregate in this line. From a preliminary greenhouse screening on 4-week-old seedlings of UC1 inoculated with the pathogen; about two-thirds of the plants in the line are resistant to *Fusarium* yellows.

Availability

Five gram seed samples may be obtained from Carlos F. Quiros, Dept. of Vegetable Crops, Univ. of Calif., Davis.

Literature Cited

- Orton, T.J., M.E. Durgan, and S.H. Hulbert, 1984. Studies on the inheritance of resistance of *Fusarium oxysporum* f. sp. *apii* in celery. Plant Dis. (In press).
- Schneider, R.W. 1984. Suppression of *Fusarium* yellows of celery with potassium, chloride and nitrate. Phytopathology (In press).

Received for publication 27 Feb. 1984. The authors are indebted to the Calif. Celery Board for its financial support, and to Gene Hill of Gene Jackson Farms, Salinas, for providing the land and field supervision. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked *advertisement* solely to indicate this fact.

¹Present address: Agrigenetics Corp., Applied Genet. Lab., 3375 Mitchell Lane, Boulder, CO 80301.

Table 1. Pedigree of the *Fusarium* yellows-resistant celery breeding lines and number of plants per line included in the formation of UC1.

Pedigree	No of plants
52-70R × [(PI 176419 × 52-70R) × Tendercrisp]	7
52-70R × [(PI 169001 × OXN40, F2#25) × 52-70R]	26
52-70R × [(PI 169001 × OXN40, F2#17) × Tendercrisp]	3
52-70R × {[(PI 261810 × PI 320912) × 52-70R] × 52-70R}	12
52-70R × [(PI 169001 × OXN40, F2#13) × Tendercrisp]	8
52-70R × [Tendercrisp × (PI 169001 × OXN40, F2#23)]	20
52-70R × (China 05 × 52-70R)	4

14.B - EXHIBIT B
Novelty Statement

'Promise' is most similar to TU 52-70R Improved. The main difference between these cultivars is in the ribbing of the petiole and in their reaction to Fusarium yellows.

The ribbing for 'Promise' is inconspicuous; that for TU 52-70R Improved is moderate.

In terms of their reaction to Fusarium yellows, 'Promise' is more resistant to Fusarium oxysporium race 2, a race predominant in California. A comparison of the two cultivars in their exposure to this pathogen is shown below:

<u>Test Location</u>	<u>Date</u>	<u>Variety</u>	<u>Fusarium Score (1) (LSD 5%)</u>	
Salinas, CA	8/92	'Promise'	1.2	0.5
		'TU52-70R Improved'	2.9	
Oxnard, CA	7/93	'Promise'	1.3	0.2
		'TU52-70R Improved'	4.1	
Lompoc, CA	8/93	'Promise'	1.1	0.7
		'TU52-70R Improved'	3.4	

(1) Score 1 = disease free; Score 5 = dead plant. Average of 60 plants per location: 15 plants X 4 replications.

PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
CELERY (*Apium graveolens* L. var. *dulce* (Miller) Pers.)

NAME OF APPLICANT(S) THE REGENTS OF THE UNIVERSITY OF CALIFORNIA	TEMPORARY DESIGNATION 91A157	VARIETY NAME PROMISE
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) KAISER CENTER - 300 LAKEVIEW DRIVE 22nd Floor OAKLAND, CA 94612		FOR OFFICIAL USE ONLY PVPO NUMBER 9400108

Place numbers in the boxes to designate the expressions which are characteristic of the application variety. Data for quantitative plant characters should be based on a minimum of 50 plants. Include leading zeros when necessary (e.g.,) for quantitative data. Comparative data should be determined from varieties entered in the same trial with the same planting or transplant date. Plant colors may be precisely designated by using any recognized color chart, e.g., The National Bureau of Standards Color Kit 2107.

COMPARISON VARIETIES
(For Use Below)

- 1 = Tall Utah 52-70R Improved 2 = Florida 683 3 = Summer Pascal 4 = Tall Golden Self Blanching

1. TYPE:

- 1 = Crystal Jumbo (Tall Utah 52-70R Improved)
2 = Ordinary Utah (Tall Utah 10-B)
3 = Pascal (Summer Pascal)
4 = Green Intermediates (Slow Bolting Green No. 96)
5 = Yellow (Tall Golden Self Blanching)
6 = Other (Specify) _____

2. MATURITY:

Number of days from transplanting to harvest date (during principal production period of growing location):

Days in Western U.S. (Specify growing location and transplant date): SALINAS, CA 6/10/92

Days earlier than

Same as

Days later than

Comparison Varieties

Days in Eastern U.S. (Specify growing location and transplant date): HUDSONVILLE, MI 6/6/91

Days earlier than

Same as

Days later than

Comparison Varieties

Class (as determined by number of days from transplanting to harvest maturity):

In Western U.S.

1 = Very Early
(< or = 70 days)

2 = Early
(71 - 85 days)

In Eastern U.S.

3 = Midseason
(86 - 100 days)

4 = Late
(101 - 115 days)

5 = Very Late
(> or = 116 days)

3. PLANT (At Harvest Maturity):

9400108

Height (from crown to top of leaves):

Mean:

Most common range:

cm

to cm

cm taller than

Same as

cm shorter than

Comparison Varieties

LSD .05 = . cm

Height class (as determined by mean plant height):

1 = Short (< 48cm)

2 = Medium (48-61cm)

3 = Tall (> 61cm)

. Number of outer petioles (40cm or longer) per plant

. More than

Same as

. Less than

Comparison Varieties

LSD .05 = .

. Number of inner petioles (less than 40cm) per plant

. More than

Same as

. Less than

Comparison Varieties

LSD .05 = .

Stalk Shape ("Stalk" refers to a market trimmed plant):

1 = Cylindrical
(Tall Utah 52-70R Improved)

2 = Flaring
(Summer Pascal)

3 = Spindle
(Tall Utah 10-B)

Stalk Conformation:

1 = Compact
(Tall Utah 52-70R Improved)

2 = Slightly Open
(June-Belle)

3 = Loose
(Summer Pascal)

Heart Formation:

1 = Sparse (Summer Pascal)

2 = Medium

3 = Full (Tall Utah 52-70R Improved)

4. PETIOLE (Outer marketable petioles of stalk; use same petioles and number of petioles for length, width, and thickness measurements):

Length (from butt to first joint):

Mean:

Most common range:

cm

to cm

mm longer than

Same as

mm shorter than

Comparison Varieties

LSD .05 = . mm

Feb - 8 1984

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4. PETIOLE (Continued)

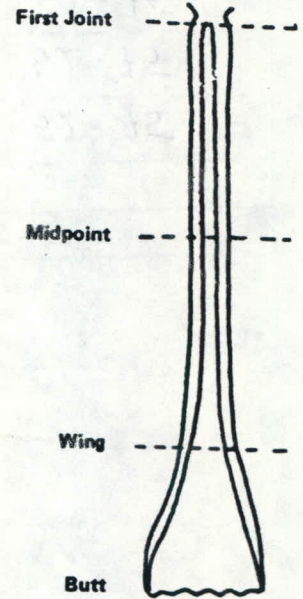
DIAGRAM OF PETIOLE

Length Class (as determined by mean petiole length):

- 2 1 = Short (< 20cm)
- 2 = Medium (20-30cm)
- 3 = Long (> 30cm)

Width (at midpoint between wing and first joint):

- 2 2 mm
 - mm wider than
 - Same as 1
 - mm narrower than
- Comparison Varieties
LSD .05 = 1 1 mm



Thickness (at midpoint between wing and first joint):

- 1 3 mm
 - mm thicker than
 - Same as 1
 - mm thinner than
- Comparison Varieties
LSD .05 = 0 7 mm

CROSS SECTION AT MIDPOINT



Site of Thickness Determination

Cross-sectional Shape (at midpoint between wing and first joint):

- 3 1 = Deeply Cupped
- 2 = Moderately Cupped
- 3 = Slightly Cupped
- 4 = Nearly Flat

Color (Unblanched at harvest):

- 4 1 = Yellow (Tall Golden Self Blanching)
- 3 = Medium Green (June-Belle)
- 5 = Very Dark Green (Tall Utah 52-75)
- 2 = Light Green (Earlibelle)
- 4 = Dark Green (Tall Utah 52-70R Improved)

Color Chart Value (Specify chart used; ROYAL HORTICULTURAL SOCIETY, LONDON, RHS, CHART FAN, # 3)

Application Variety PROMISE - VALUE: 144A
 Comparison Variety TU 52-70R IMPROVED VALUE: 144A

Anthocyanin:

- 1 1 = Absent
- 2 = Present

Stringiness:

- 3 1 = Very Slight (June-Belle)
- 2 = Moderate (Florida 683)
- 3 = Normal (Tall Utah 52-70R Improved)

Ribbing:

- 1 1 = Inconspicuous (Summer Pascal)
- 2 = Moderate (Tall Utah 52-70R Improved)
- 3 = Prominent (Tall Golden Self Blanching)



Glossiness:

- 2 1 = Dull (Summer Pascal)
- 2 = Moderately Glossy (Tall Utah 52-70R Improved)
- 3 = Glossy (Golden Detroit)

FEB 28 1994

5. LEAF BLADE (Of outermost petioles of trimmed plant):

Color of Upper Surface:

2

1 = Yellowish Green
(Tall Golden Self Blanching)

2 = Dark Green
(Tall Utah 52-70R Improved)

3 = Other (Specify) _____

Color Chart Value (Specify chart used; ROYAL HORTICULTURAL SOC. LONDON, R.H.S., COLOR CHART FAN # 3)

Application Variety PROMISE - VALUE: 138A

Comparison Variety TU 52-70R IMPROVED - VALUE: 138A

6. BOLTING:

Class:

1

1 = Easy Bolting (Tall Utah 52-70R Improved)
3 = Very Slow Bolting (Tall Non-Bolting Golden Plume)

2 = Slow Bolting (Slow Bolting Green No. 96)

0 0 3

% Plants Bolted in Seedling Year (Specify growing location and transplant date for field tests, or temperature and length of vernalization period for artificial induction; CAMARILLO, CA 1/14/93):

% More plants bolted than

Same % plants bolted as 1

% Less plants bolted than 1

1 = Tall Utah 52-70R Improved
2 = Florida 683
3 = Golden Plume
4 = Slow Bolting Green No. 96

7. STRESS TOLERANCE (0 = untested, 1 = susceptible, 2 = tolerant; data from replicated tests comparing the application variety with the indicated susceptible (S) and tolerant (T) check varieties should be provided whenever possible in Exhibit D):

2

Adaxial Crackstem (Boron Deficiency; S = Utah 10-B, T = Tall Utah 52-70R Improved)

2

Abaxial Crackstem (Boron Deficiency; S = Florimart, T = Florida 683)

2

Leaf Margin Chlorosis (Magnesium Deficiency; S = Utah 10-B, T = Tall Utah 52-75)

2

Blackheart (Calcium Deficiency; S = Florida 683)

2

Pithiness (Nutritional Deficiency; S = Tall Utah 52-70R Improved, T = Florida 2-13)

Other (Specify) _____

8. DISEASE RESISTANCE (0 = untested, 1 = susceptible, 2 = resistant; data from replicated tests comparing the application variety with the indicated susceptible (S) and resistant (R) check varieties should be provided whenever possible in Exhibit D):

0

Bacterial Leaf Spot (*Pseudomonas cichorii*; S = Florida 683, R = Florimart)

0

Early Blight (*Cercospora apii*; S = Florida 683, R = Florimart)

1

Late Blight (*Septoria* spp.; S = Florida 683)

2

Fusarium Yellows, Race 1 (*Fusarium oxysporum* f. sp. *apii*; S = Fordhook, R = Tall Utah 52-70R Improved)

2

Fusarium Yellows, Race 2 (*Fusarium oxysporum* f. sp. *apii*; S = Tall Utah 52-70R Improved)

1

Western Celery Mosaic (*Marmor umbelliferarum*; S = Florida 683)

1

Southern Celery Mosaic (*Marmor cucumeris* var. *commelinae*; S = Florida 683)

0

Pink Rot (*Sclerotinia* spp.; S = Florida 683)

Other (Specify) _____

9. INDICATE THE VARIETY THAT MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
Plant Height	TU 52-75	Leaf Color	TU 52-75
Petiole Color	TU 52-75	Maturity	TU 52-75
Petiole Length	TU 52-75	Bolting Resistance	TU 52-75

NOTE: Any additional descriptive information and supporting documentation may be provided as Exhibit D.

14.D - EXHIBIT

A fingerprint profile was developed for 'Promise', based on 21 DNA-based RAPD markers. 'Promise' was compared against the varieties TU 52-70R Improved (R), TU 52-75 (75), 'Conquistador' (Cq), and our breeding line, 'UC 10' (10).

10-mer primers from the company Operon (Alameda, CA) were used to generate RAPD markers using standard RAPD amplification conditions and celery genomic DNA isolated from leaves.

The Following profile was obtained: (1=presence, 0=absence)

<u>Markers</u>	<u>'Promise'</u>	<u>10</u>	<u>R</u>	<u>75</u>	<u>Cq</u>
A18-2200	1	1	1	1	1
A18-1650	1	0	0	1	1
B08-1650	1	0	0	1	0
B10-1400	0	0	0	0	1
B10-1200	1	1	1	0	0
B10-1000	1	1	1	1	0
B10-800	1	1	1	1	0
M15-1700	0	1	0	0	0
M15-1200	0	1	0	0	0
M15-1100	1	0	0	1	0
006-800	1	0	0	0	0
006-700	1	0	1	0	0
007-1650	1	1	1	1	0
007-900	1	1	1	1	0
007-800	0	0	0	0	1
007-480	0	1	0	0	0
007-430	0	1	1	0	0
009-1100	1	0	0	0	1
009-950	0	0	0	1	0
009-800	0	1	0	0	0
009-750	0	0	1	0	0

'Promise' is a fresh market celery stalk variety which meets the quality standards of California growers. The novel feature of this variety is its high level of resistance to Fusarium yellows, a fungal disease which normally will make unmarketable celery plants. The source for resistance used to develop this variety was 'UC1', a resistant line released by the Department of Vegetable Crops of the University of California, in 1984.

14.E - EXHIBIT EStatement of Basis of Applicants Ownership

Pursuant to University of California (UC) patent policy applying to UC personnel (see attached copy of form UPAY 585-1 (R5/91), The Regents requested and obtained from Dr. Carlos F. Quiros and Mr. Vincent D'Antonio the assignment of their rights, title and interests in the 'Promise' cultivar (see attached copy of the assignment of rights).

Having in its possession an assignment from the breeders, The Regents of the University of California is the owner of all rights, title, and interest in and to the celery cultivar 'Promise.'



**UNIVERSITY OF CALIFORNIA
STATE OATH of ALLEGIANCE
and
PATENT AGREEMENT**
UPAY 585 (R5/91)

EMPLOYEE'S NAME (Last, first, middle initial)	DATE PREPARED
DEPARTMENT	MO DY YR
	EMPLOYMENT DATE
	MO DY YR

STATE OATH OF ALLEGIANCE

I do solemnly swear (or affirm) that I will support and defend the Constitution of the United States and the Constitution of the State of California against all enemies, foreign and domestic; that I will bear true faith and allegiance to the Constitution of the United States and the Constitution of the State of California; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties upon which I am about to enter.

Taken and subscribed before me this

_____ day of _____, 19 _____

Signature of Authorized Official

Title

_____ County _____ State

Signature of Officer or Employee (DO NOT Sign Until in The Presence of Proper Witness)

NOTE: No fee may be charged for administering this oath.

Oath must be administered by either (1) a person having general authority by law to administer oaths—for example: Notaries Public, Civil Executive Officers (Section 1001 of Government Code), Judicial Officers, Justices of the Peace, and county officials named in Sections 24000, 24057 of Government Code; such as, district attorneys, sheriffs, county clerks, members of boards of supervisors, etc., or (2) by any University Officer or employee who has been authorized in writing by The Regents to administer such oaths.

WHO MUST SIGN THE OATH: All persons (other than aliens) employed by the University, in common with all other California public employees, whether with or without compensation, must sign the Oath. (Calif. Constitution, Article XX, Section 2, Calif. Government Codes, Sections 3100-3102.)

All persons re-employed by the University after a termination of service must sign a new Oath if the date of re-employment is more than one year after the date on which the previous Oath was signed (Calif. Government Code, Section 3102).

WHEN MUST OATH BE SIGNED: The Oath must be signed **BEFORE** the individual enters upon the duties of employment. (Calif. Constitution, Article XX, Section 3: Calif. Government Code Section 3102.)

WHERE OATHS ARE FILED: The Oaths of all employees of the University shall be filed with the Campus Accounting Office.

FAILURE TO SIGN OATH: No compensation for service performed prior to his subscribing to the Oath or affirmation may be paid to a University employee. And no reimbursement for expenses incurred may be made prior to his subscribing to the Oath or affirmation. (Calif. Government Code, section 3107.)

PENALTIES: "Every person who, while taking and subscribing to the Oath or affirmation required by this chapter, states as true any material which he knows to be false, is guilty of perjury, and is punishable by imprisonment in the state prison not less than one or more than 14 years." (Calif. Government Code, Section 3108.)

UNIVERSITY OF CALIFORNIA PATENT POLICY

I. PREAMBLE

It is the intent of the President of the University of California, in administering intellectual property rights for the public benefit, to encourage and assist members of the faculty, staff, and others associated with the University in the use of the patent system with respect to their discoveries and inventions in a manner that is equitable to all parties involved.

The University recognizes the need for and desirability of encouraging the broad utilization of the results of University research, not only by scholars but also in practical application for the general public benefit, and acknowledges the importance of the patent system in bringing innovative research findings to practical application.

Within the University, innovative research findings often give rise to patentable inventions as fortuitous by-products, even though the research was conducted for the primary purpose of gaining new knowledge.

To encourage the practical application of University research for the broad public benefit, to appraise and determine relative rights and equities of all parties concerned, to facilitate patent applications, licensing, equitable distribution of royalties, if any, to assist in obtaining funds for research, to provide for the use of invention-related income for the further support of research and education, and to provide a uniform procedure in patent matters when the University has a right or equity, the following University of California Patent Policy is adopted.

II. STATEMENT OF POLICY

- A. An agreement to assign inventions and patents to the University, except those resulting from permissible consulting activities without use of University facilities, shall be mandatory for all employees, for persons not employed by the University but who use University research facilities, and for those who receive gift, grant, or contract funds through the University. Exemptions from such agreements to assign may be authorized in those circumstances when the mission of the University is better served by such action, provided that overriding obligations to other parties are met and such exemptions are not inconsistent with other University policies.
- B. Those individuals who have so agreed to assign inventions and patents shall promptly report and fully disclose the conception and/or reduction to practice of potentially patentable inventions to the Director of the Office of Technology Transfer. They shall execute such declarations, assignments, or other documents as may be necessary in the course of invention evaluation, patent prosecution, or protection of patent or analogous property rights, to assure that title in such inventions shall be held by the University or by such other parties designated by the University as may be appropriate under the circumstances. Such circumstances would include, but not be limited to, those situations when there are overriding patent obligations of the

University arising from gifts, grants, contracts, or other agreements with outside organizations.

In the absence of overriding obligations to outside sponsors of research, the University may release patent rights to the inventor in those circumstances when:

- (1) the University elects not to file a patent application and the inventor is prepared to do so, or
- (2) the equity of the situation clearly indicates such release should be given, provided in either case that no further research or development to develop that invention will be conducted involving University support or facilities, and provided further that a shop right is granted to the University.

C. Subject to restrictions arising from overriding obligations of the University pursuant to gifts, grants, contracts, or other agreements with outside organizations, the University agrees, for and in consideration of said assignment of patent rights, to pay annually to the named inventor(s), or to the inventor(s)' heirs, successors, or assigns, 50% of the first \$100,000 of cumulative net royalties and fees per invention received by the University, 35% of the next \$400,000 of cumulative net royalties and fees per invention received by the University, and 20% of all additional cumulative

UNIVERSITY PATENT POLICY, continued . . .

net royalties and fees per invention received by the University. Net royalties are defined as gross royalties and fees, less 15% thereof for administrative costs, and less the costs of patenting, protecting, and preserving patent rights, maintaining patents, the licensing of patent and related property rights, and such other costs, taxes or reimbursements as may be necessary or required by law.

When there are two or more inventors, each inventor shall share equally in the inventor's share of royalties, unless all inventors previously have agreed in writing to

a different distribution of such share.

Distribution of the inventor's share shall be made annually in February from the amount received during the penultimate calendar year. In the event of any litigation, actual or imminent, or any other action to protect patent rights, the University may withhold distribution and impound royalties until resolution of the matter.

D. In the disposition of any net income accruing to the University from patents, first consideration shall be given to the support of research.

III. PATENT RESPONSIBILITIES AND ADMINISTRATION

- A. Pursuant to Standing Order 100.4(gg), the President has responsibility for all matters relating to patents in which the University of California is in any way concerned.
B. The President is advised on such matters by the Intellectual Property Advisory Council (IPAC), which is chaired by the Senior Vice President—Academic Affairs.
C. The Senior Vice President—Administration is responsible for implementation of this Policy, including the following:

- 2. Evaluating the patent or analogous property rights or equities held by the University in an invention, and negotiating agreements with cooperating organizations, if any, with respect to such rights or equities.
3. Negotiating licenses and license option agreements with other parties concerning patent and/or analogous property rights held by the University.
4. Directing and arranging for the collection and appropriate distribution of royalties and fees.
5. Assisting University officers in negotiating agreements with cooperating organizations concerning prospective rights to patentable inventions or discoveries made as a result of research carried out under grants, contracts, or other agreements to be funded in whole or in part by such cooperating organizations, and negotiating with Federal agencies regarding the disposition of patent rights.
6. Recommending to the President appropriate action on exemptions from the agreement to assign inventions and patents to the University as required by Section II, A., above.

Revised April 16, 1990

PATENT AGREEMENT

(Please read Patent Policy on reverse side and above.)

This agreement is made by me with The Regents of the University of California, a corporation, hereinafter called "University," in part consideration of my employment, and of wages and/or salary to be paid to me during any period of my employment, by University, and/or my utilization of University research facilities and/or my receipt of gift, grant, or contract research funds through the University.

By execution of this agreement I understand that I am not waiving any rights to a percentage of royalty payments received by University, as set forth in University Patent Policy, hereinafter called "Policy." I also understand and agree that the University has the right to change the Policy at any time, including the percentage of net royalty payments paid to me.

I agree that every possibly patentable device, process, plant, or product, hereinafter referred to as "invention," which I conceive or develop while employed by University, or during the course of my utilization of any University research facilities or any connection with my use of gift, grant, or contract research funds received through the University, shall be examined by University to determine rights and equities therein in accordance with the Policy, and I shall promptly furnish University with complete information with respect to each.

In the event any such invention shall be deemed by University to be patentable, and University desires, pursuant to determination by University as to its rights and equities therein, to seek patent protection thereon, I shall execute any documents and do all things necessary, at University's expense, to assign to University all rights, title and interest therein and to assist University in securing patent protection thereon. The scope of this provision is limited by California Labor Code section 2870, to which notice is given below. In the event I protest the University's determination regarding any rights or interest in an invention, I agree: (a) to proceed with any University requested assignment or assistance; (b) to give University notice of that protest no later than the execution date of any of the above-described documents or assignment; and (c) to reimburse University for all expenses and costs it encounters in its patent application attempts, if any such protest is subsequently sustained or agreed to.

I shall do all things necessary to enable University to perform its obligations to grantors of funds for research or contracting agencies as said obligations have been undertaken by University.

University may relinquish to me all or a part of its right to any such invention, if, in its judgment, the criteria set forth in the Policy have been met.

I agree to be bound hereunder for and during any periods of employment by University or for any period during which I conceive or develop any invention during the course of my utilization of any University research facilities, or any gift, grant, or contract research funds received through the University.

In signing this agreement I understand that the law, of which notification is given below, applies to me, that I am still required to disclose all my inventions to the University.

NOTICE

This agreement does not apply to an invention which qualifies under the provisions of Labor Code section 2870 of the State of California which provides that (a) Any provisions in an employment agreement which provides that an employee shall assign, or offer to assign, any of his or her rights in an invention to his or her employer shall not apply to an invention that the employee developed entirely on his or her own time without using the employer's equipment, supplies, facilities, or trade secret information except for those inventions that either: (1) Relate at the time of conception or reduction to practice of the invention to the employer's business, or actual or demonstrably anticipated research or development of the employer. (2) Result from any work performed by the employee for the employer. (b) To the extent a provision in an employment agreement purports to require an employee to assign an invention otherwise excluded from being required to be assigned under subdivision (a), the provision is against the public policy of this state and is unenforceable.

In any suit or action arising under this law the burden of proof shall be on the individual claiming the benefits of its provisions.

Employee/Guest Name _____ Witness Signature: _____ Date: _____
(Please Print)

Employee/Guest Signature: _____ Date: _____
(Please complete withholding certificate and State Oath, also.)

RETN: ACCOUNTING—5 yrs. after separation, except in cases of disability, retirement or disciplinary action, in which cases retain until age 70.
Other Copies: 0-5 years after separation.

ATTACH TO PERSONNEL ACTION FORM (UPAY 560)

FEB 28 1994 13

ATTACHMENT 2 TO EXHIBIT E.

ASSIGNMENTU.C. Case No. 93-050-1

For good and valuable consideration, the receipt of which is hereby acknowledged, ASSIGNOR(S),

1. Carlos F. Quiros 2. Vincent D'Antonio

hereby sell(s), assign(s) and transfer(s) to ASSIGNEE, The Regents of the University of California, a California Corporation, having its statewide administrative offices located 300 Lakeside Drive, 22nd Fl., Oakland, CA 94612-3550, and the successors, assigns and legal representatives of the ASSIGNEE all of its/their right, title and interest for the United States and its territorial possessions and in all foreign countries in and to, any and all improvements which are disclosed in the invention entitled:

PROMISE

and which is found in

- (a) U.S. Plant Variety Protection application as above entitled and listing the above named person(s) as inventor(s)
- (b) U.S. Plant Variety Protection application serial no. _____, filed on _____
- (c) U.S. Plant Variety Protection Certificate no.: _____, granted on _____

and any legal equivalent thereof or right corresponding thereto in a foreign country, including the right to claim priority in and to, all patents and certificates of variety protection to be obtained for said invention by the above application or any extension thereof, and any reissue, reexamination or extension of said Certificate of Plant Variety Protection and all rights under all International Union for the Protection of Varieties of Plants;

ASSIGNOR(S) hereby covenant(s) that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment;

ASSIGNOR(S) further covenant(s) that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Certificate of Plant Variety Protection and legal equivalents as may be known and accessible to ASSIGNOR and will testify as to the same in any interference, litigation, or proceeding relating thereto and will promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue or enforce said application, said invention and said Certificate of Plant Variety Protection and said equivalents thereof which may be necessary or desirable to carry out the purposes thereof. An attorney of record is authorized and requested by the execution of this assignment to insert into this assignment the filing date and serial number of said application when officially known.

AND the ASSIGNOR(S) request(s) the Commissioner of Plant Variety Protection Office to issue said Certificate of Plant Variety Protection of the United States and any reissue or extension thereof to the ASSIGNEE, The Regents of the University of California.

executed this

2 day of February, 19942 day of FEB, 1994

Signature of Inventor(s)

Carlos F. Quiros C.F. QUIROSVincent D'Antonio VINCENT D'ANTO