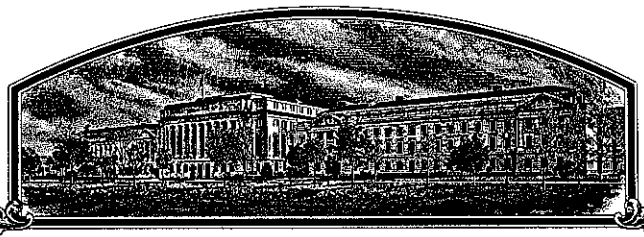


No. 9100052

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North Carolina Agricultural Research Service

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

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

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'Mountain Gold'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington. D C. *this* 31st *day of* January *in the year of our Lord one thousand nine hundred and ninety-two.*

Attest:

Kenneth A. Hoo
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madigan
Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
NC Agricultural Research Service
Dr. R. G. Gardner (Breeder)

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.
8466(X)-3-1A-1

3. VARIETY NAME
Mountain Gold

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
NC State University
Box 7643
Raleigh NC 27695-7643

5. PHONE *(Include area code)*
919-737-2717
704- 684-3562 (Breeder)

FOR OFFICIAL USE ONLY

PVPO NUMBER
9100052

FILING
Date: Dec. 17, 1990
Time: ☑ A.M. ☐ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2150
Date: December 17, 1990
Certificate Fee: $ 250.00
Date: Dec. 23, 1991

6. GENUS AND SPECIES NAME
Lycopersicon esculentum

7. FAMILY NAME *(Botanical)*
Solanaceae

8. CROP KIND NAME *(Common Name)*
Tomato

9. DATE OF DETERMINATION
March 21, 1990

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

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Michael W. Baker, Manager
NC Foundation Seed Producers, Inc.
P.O. Box 33245, Method Station
Raleigh NC 27635
PHONE *(Include area code)*:

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

a. ☒ Exhibit A, Origin and Breeding History of the Variety.
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety.
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office _____.
g. ☒ Filing and Examination Fee ($2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)*
☐ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

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

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

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

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Ronald G. Gardner	Director, NC Agri. Res. Svc.	11/14/90
SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Randolph G. Gardner	Assoc. Prof. of Horticulture (Plant Breeder)	Nov. 13, 1990

Tomato

9100052

Mountain Gold

14A. Exhibit A:

Pedigree:

	NC 8288		
8466(X)-3-1A-1 -BK		Piedmont	
Mountain Gold	822(X)-6-1C -		Flora-Dade $\underline{t}^{v}$
		UF-D78044 -	
			Jubilee

'Mountain Gold', an inbred line in the F_6 generation, was developed using the pedigree breeding method. The objective in this breeding project was to develop a determinate, yellow-fruited (tangerine gene, $\underline{t}$) cultivar as a replacement for the standard indeterminate cultivars 'Sunray' and 'Jubilee'.

The source of the $\underline{t}$ gene in 'Mountain Gold' was a breeding line, UF-D78044, obtained from the University of Florida tomato breeding program in 1981. This line had arisen from a cross between 'Jubilee', which has the $\underline{t}$ gene and a mutant of 'Flora-Dade' containing the $\underline{t}^{v}$ (tangerine virescent) gene. The inbred line 822(X)-6-1C, from a cross between 'Piedmont' and UF-D78044, was crossed with NC 8288 resulting in the line 8466(X)-3-1A-1, which is being released as 'Mountain Gold'.

Single plant selections were made in the F_2 through F_4 generations grown in field plots at Fletcher, N.C. A special bulk was made in the F_5 generation. Seedling inoculation tests in the greenhouse and trials on naturally infested soil showed the F_2 and subsequent generations to be homozygous resistant to race 1 (Ve gene) of Verticillium dahliae. The F_4 was determined homozygous resistant to race 1 and 2 (I, I-2 genes) of Fusarium oxysporum f. sp. lycopersici in greenhouse seedling inoculation tests.

Mountain Gold appeared stable and uniform in the F_4 and F_5 generations in research station plots and in trials of several thousand plants in grower fields. The only offtypes observed were infrequent male steriles, which did not exceed the percentage normally seen in other varieties.

14B. Exhibit B: Novelty Statement

'Mountain Gold' is most similar to 'Sunray' and 'Jubilee'. 'Mountain Gold' differs from 'Sunray' and 'Jubilee' in having the sp gene for determinate growth habit in contrast to the indeterminate habit of 'Sunray' and 'Jubilee'. 'Mountain Gold' has the u gene for uniform light green fruit color of non-ripe fruit in contrast to the dark green fruit shoulder color of 'Sunray' and 'Jubilee'. 'Mountain Gold' has the I and I-2 genes for resistance to races 1 and 2 of Fusarium oxysporum f. sp. lycopersici (fusarium wilt) and the Ve gene for resistance to Verticillium dahliae (verticillium wilt). 'Jubilee' has none of the above disease resistance genes and 'Sunray' has only the I gene.

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN AND SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Tomato)

OBJECTIVE DESCRIPTION OF VARIETY

TOMATO *(Lycopersicon esculentum* Mill.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
NC Agricultural Research Service Dr. R. G. Gardner (Breeder)	8466(X)-3-1A-1	Mountain Gold

ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
NC State University
Box 7643
Raleigh NC 27695-7643

FOR OFFICIAL USE ONLY
PVPO NUMBER
9100052

Choose responses for the following characters which best fit your variety. Complete this form as fully as possible for best characterization of the variety. When a single quantitative value is requested (e.g., fruit weight), your answer should be the mean of an adequate-sized, unbiased sample of plants. Use leading zeroes when necessary (e.g., [0][9] or [0][8][1], etc.). The applicant variety should be compared with at least one well-known standard check variety of the same type (see list of recommended check varieties below), and grown in the same trials. 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 ____ or transplanted X ; staked X or unstaked ____. Give locations and dates of seeding and transplanting here: Fletcher, North Carolina. Seeding dates: 4/15/88, 4/17/89, 4/16/90

Transplant dates: 5/30/88, 5/31/89, 5/25/90

COMPARISONS SHOULD BE MADE TO ONE OR MORE CHECK VARIETIES IN THE FOLLOWING LIST, IF AT ALL POSSIBLE. ENTER THE NUMBER *OF THE CHECK IN BOXES WHERE IDENTITY OF CHECK IS REQUESTED.*

1 = Ace 55 VF
2 = Campbell 37
3 = Chico III
4 = Flora Dade
5 = Florida MH-1
6 = Heinz 1350
7 = Homestead 24
8 = Marglobe
9 = Murietta
10 = New Yorker
11 = Ohio MR-13
12 = Red Cherry Large
13 = Red Rock
14 = Roma VF
15 = Rutgers
16 = Sunray
17 = Tropic
18 = UC 82
19 = VF 134
20 = US 28
21 = VF 145 B 7879
22 = Other *(Specify)* ____

1. SEEDLING:

[2] Anthocyanin in hypocotyl of 2-15 cm. seedling: 1 = Absent 2 = Present

[1] Habit of 3-4 week old seedling: 1 = Normal 2 = Compact

2. MATURE PLANT (at maximum vegetative development):

[1][2][0] Cm. Height

[2] Growth: 1 = Indeterminate 2 = Determinate

[2] Form: 1 = Lax, open 2 = Normal 3 = Compact 4 = Dwarf 5 = Brachytic

[3] Size of canopy (compared to others of similar type): 1 = Small 2 = Medium 3 = Large

[2] Habit: 1 = Sprawling (decumbent) 2 = Semi-erect 3 = Erect ('Dwarf Champion')

3. STEM:

[2] Branching: 1 = Sparse ('Brehm's Solid Red', 'Fireball') 2 = Intermediate ('Westover') 3 = Profuse ('UC 82')

[1] Branching at cotyledonary or first leafy node: 1 = Present 2 = Absent

[2] No. of nodes below the first inflorescence: 1 = 1-4 2 = 4-7 3 = 7-10 4 = 10 or more

[2] No. of nodes between early (1st - 2nd, 2nd - 3rd) inflorescences.

[2] No. of nodes between later-developing inflorescences.

[2] Pubescence on younger stems: 1 = Smooth (no long hairs) 2 = Sparsely hairy (scattered long hairs) 3 = Moderately hairy 4 = Densely hairy or wooly

4. LEAF (mature leaf beneath the 3rd inflorescence):

[1] Type: 1 = Tomato 2 = Potato ('Trip-L-Crop')

[3] Morphology *(choose illustration on pg. 5 of this form that is most similar)*

[2] Margins of major leaflets: 1 = Nearly entire 2 = Shallowly toothed or scalloped 3 = Deeply toothed or cut, esp. towards base

[1] Marginal rolling or wiltiness: 1 = Absent 2 = Slight 3 = Moderate 4 = Strong

[ ] Onset of leaflet rolling: 1 = Early-season 2 = Mid-season 3 = Late season

4. LEAF (mature leaf beneath the 3rd inflorescence -- continued):

[1] Surface of major leaflets: 1 = Smooth 2 = Rugose (bumpy or veiny)

[2] Pubescence: 1 = Smooth (no long hairs) 2 = Normal 3 = Hirsute 4 = Wooly

5. INFLORESCENCE (make observations on 3rd inflorescence):

[1] Type: 1 = Simple 2 = Forked (2 major axes) 3 = Compound (much branched)

[0 6] Number of flowers in inflorescence, average

[2] Leafy or "running" inflorescences: 1 = Absent 2 = Occasional 3 = Frequent

6. FLOWER:

[1] Calyx: 1 = Normal, lobes awl-shaped 2 = Macrocalyx, lobes large, leaflike 3 = Fleshy

[1] Calyx-lobes: 1 = Shorter than corolla 2 = Approx. equalling corolla 3 = Distinctly longer than corolla

[1] Corolla color: 1 = Yellow 2 = Old gold 3 = White or tan

[2] Style pubescence: 1 = Absent 2 = Sparse 3 = 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 inflorescence): 1 = Absent 2 = Occasionally present 3 = Frequently present

7. FRUIT (3rd fruit of 2nd or 3rd cluster): *For the first 5 characters below, match your variety with the most similar illustration on pg. 5 of this form.*

[3] Typical fruit shape: [1] Shape of transverse section: [2] Shape of stem end:

[2] Shape of blossom end: [4] Shape of pistil scar:

---

[1] Abscission layer: 1 = Present (pedicellate) 2 = Absent (jointless) [1] Point of detachment of fruit at harvest: 1 = At pedicel joint 2 = At calyx attachment

[1 2] mm length of pedicel (from joint to calyx attachment)

[0 7 0]	mm length of mature fruit (stem axis)	[ ]	mm length, check var. no.	[1 6]
[0 9 2]	mm diameter of fruit at widest point	[ ]	mm diameter, check var. no.	[1 6]
[3 1 5]	g weight of mature fruit	[2 5 0]	g weight, check var. no.	[1 6]

[3] No. of locules: 1 = Two 2 = Three and four 3 = Five or more

[1] Fruit surface: 1 = Smooth 2 = Slightly rough 3 = Moderately rough or ribbed

[1] Fruit base color (mature-green stage): 1 = Light green ('Lanai', 'VF145-F5') 2 = Light gray-green ('Westover') 3 = Apple or medium green ('Heinz 1439 VF') 4 = Yellow green 5 = Dark green

[1] Fruit pattern (mature-green stage): 1 = Uniform green 2 = Green-shouldered 3 = Radial stripes on sides of fruit

[ ] Shoulder color if different from base: 1 = Dark green 2 = Grey green 3 = Yellow green

[3] Fruit color, full-ripe: 1 = White 2 = Yellow 3 = Orange 4 = Pink 5 = Red 6 = Brownish 7 = Greenish 8 = Other *(Specify)* _____

[4] Flesh color, full-ripe: 1 = Yellow 2 = Pink 3 = Red/Crimson 4 = Orange 5 = Other *(Specify)* _____

[1] Flesh color: 1 = Uniform 2 = With lighter and darker areas in walls

[2] Locular gel color of table-ripe fruit: 1 = Green 2 = Yellow 3 = Red

[2] Ripening: 1 = Blossom-to-stem end 2 = Uniform

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

[1] Ripening: 1 = Inside out 2 = Uniformly 3 = Outside in

[2] Epidermis color: 1 = Colorless 2 = Yellow

[1] Epidermis: 1 = Normal 2 = Easy-peel

[2] Epidermis texture: 1 = Tender 2 = Average 3 = Tough

[3] Thickness of pericarp . . . . . [3]

1 = Under 3 mm 2 = 3-6 mm 3 = 6-9 mm 4 = Over 9 mm

Thickness of pericarp, check var. no. [1][6]

[2] Stem scar size: 1 = Small ('Roma') 2 = Medium ('Rutgers') 3 = Large

[2] Core: 1 = Coreless (absent or smaller than 6x6 mm) 2 = Present

8. RESISTANCE TO FRUIT DISORDERS (Use code: 0 = Unknown, 1 = Susceptible, 2 = Resistant)

[2]	Blossom end rot	[2]	Catface	[2]	Fruit pox	[2]	Zippering
[2]	Blotchy ripening	[2]	Cracking, concentric	[2]	Gold fleck	[ ]	Other *(Specify)*
[2]	Bursting	[2]	Cracking, radial	[1]	Graywall		

9. DISEASE AND PEST REACTION (Use code: 0 = Not tested, 1 = Susceptible, 2 = Resistant). NOTE: If claim of novelty is based wholly or in substantial part upon disease resistance, trial data should be appended. These should specify the method of testing, the reaction of the application variety, and reaction of well-known check varieties grown in the trial (identified by name).

VIRAL DISEASES:

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

BACTERIAL DISEASES:

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

FUNGAL DISEASES:

[0]	Anthracnose *(Colletotrichum* spp.*)*	[0]	Leaf mold, Race 1 *(Cladosporium fulvum)*
[0]	Brown root rot or corky root, *(Pyrenochaeta lycopersici)*	[0]	Leaf mold, Race 2
[0]	Collar rot or stem canker, *(Alternaria solani)*	[0]	Leaf mold, Race 3
[1]	Early blight defoliation, *(Alternaria solani)*	[0]	Leaf mold, other races *(Specify)* _____
[2]	Fusarium wilt, Race 1, *(F. oxysporum f. lycopersici)*	[0]	Nailhead spot *(Alternaria tomato)*
[2]	Fusarium wilt, Race 2	[0]	Septoria leafspot *(S. lycopersici)*
[0]	Fusarium wilt, Race 3	[0]	Target leafspot *(Corynespora casiicola)*
[0]	Gray leaf spot *(Stemphylium* spp.*)*	[2]	Verticillium wilt, Race 1 *(V. albo-atrum)*
[0]	Late blight, Race 0, *(Phytophthora infestans)*	[0]	Verticillium wilt, Race 2
[0]	Late blight, Race 1	[ ]	Other fungal disease _____
		[ ]	Other fungal disease _____

9. DISEASE AND PEST REACTION (Use code: 0 = Not tested, 1 = Susceptible, 2 = Resistant – Continued)

INSECTS AND PESTS:

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

POLLUTANTS:

[0] Ozone [0] Sulfur dioxide [ ] Other *(Specify)* _____

10. CHEMISTRY AND COMPOSITION OF FULL-RIPE FRUITS: Suggested test methods may be found in "Tomato Products," 5th ed., National Canners Assn. Bull. 27-L. Please specify test methods or give a reference to methods used. Fill in table below with values for the new variety and for at least one well-known check variety of similar type grown in the same trial. Specify names or numbers of check varieties.

	SUBMITTED VARIETY	Check Variety Sunray	Check Variety	Check Variety
pH	4.3	4.3		
Titratable acidity, as % citric				
Total solids (dry matter, seeds and skin removed)				
Soluble solids, as °Brix at 21° C	3.7	4.5		

11. PHENOLOGY: Express length of developmental stages either as calendar days or as heat units (growing degree days), in degrees Celsius. If heat units are used, indicate the base temperature used in their calculation here _____ °C. See paper by Warnock under "References" for method. Give comparative data for at least one check variety; identify checks by name or by number from table on page 1.

	APPLICATION VARIETY	Check variety Sunray	Check variety	Check variety
Seeding to 50% flower (1 open flower on 50% of plants)	60.8 days	66.8 days		
Seed to once-over harvest *(if applicable)*				

[2] Fruiting season: 1 = Long ('Marglobe') 2 = Medium ('Westover') 3 = Short, concentrated ('VF 145') 4 = Very concentrated ('UC 82')

[4] Relative maturity in areas tested: 1 = Early 2 = Medium early 3 = Medium 4 = Medium late 5 = Late 6 = Variable (if relative maturity is known to differ by location or environment, please explain on separate sheet).

12. ADAPTATION: If more than one category applies, list all in rank order.

[1] Culture: 1 = Field 2 = Greenhouse

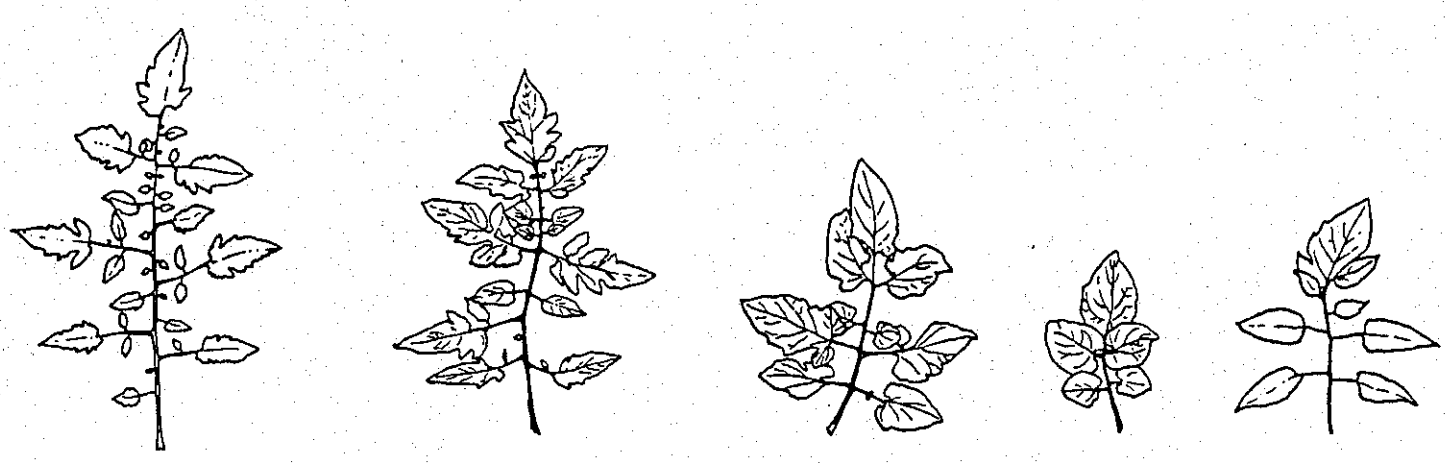
[2] Principal use(s): 1 = Home garden 2 = Fresh market 3 = Whole-pack canning 4 = Concentrated products 5 = Other *(Specify)* _____

[1] Machine harvest: 1 = Not adapted 2 = Adapted

[3 2 1] Regions to which adaptation has been demonstrated:
1 = Northeast 2 = Mid Atlantic 3 = Southeast 4 = Florida
5 = Great Plains 6 = South-central 7 = Intermountain West 8 = Northwest
9 = California: Sacramento and Upper San Joaquin Valley
10 = California: Coastal areas 11 = California: Southern San Joaquin Valley & deserts

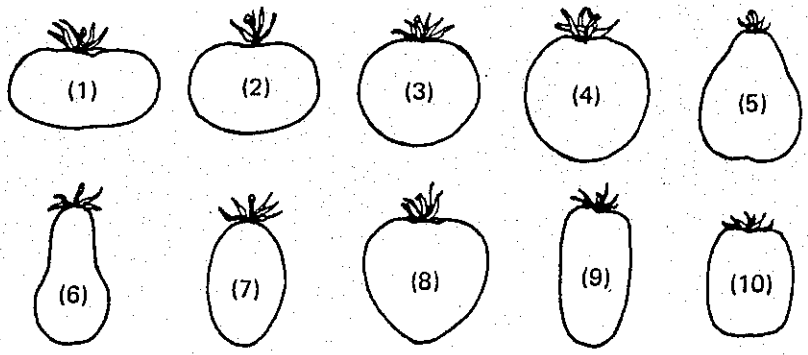
ILLUSTRATIONS OF TOMATO LEAF AND FRUIT CHARACTERISTICS

4. LEAF: Morphology:



(1) (2) (3) (4) (5)

7. FRUIT: Typical fruit shape:



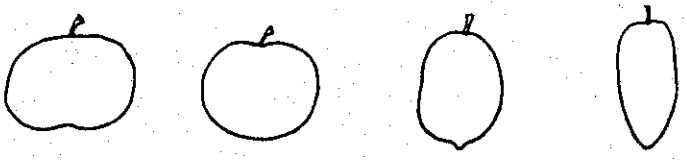
Shape of transverse section:

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

Shape of stem end:

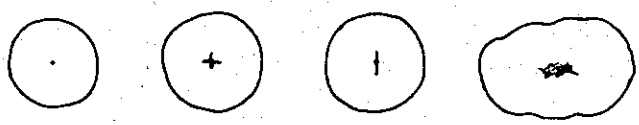
1=flat 2=indented

Shape of blossom end:



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

Shape of pistil scar:



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

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".

Warnock, S.J. 1978. Using Tomato Heat Units. Leaflet No. 6, Campbell Institute for Agricultural Research, Camden, NJ. 10 p.

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 Park.

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

8

14D. Exhibit D. Additional Description of 'Mountain Gold'

'Mountain Gold' produces higher total and graded fruit yields than 'Sunray' (Table 1).

'Mountain Gold' has much better resistance to fruit angularity and puffiness than 'Sunray', resulting in a lower percentage of off-shape fruit (Table 2).

'Mountain Gold' is earlier in maturity and has larger fruit than 'Sunray' (Tables 3 and 4).

Table 1. Yield (20-lb boxes/acre) of 'Mountain Gold' tomato compared to 'Sunray', Fletcher, N.C.

Cultivar	Total yield 1988	Total yield 1989	Marketable yield 1988	Marketable yield 1989	Combination grade 1988	Combination grade 1989
Mountain Gold	4506	4134	4000	3663	2785	2063
Sunray	4040	3152	3004	1949	924	627
LSD (.05)	487	770	443	609	382	446

Table 2. Fruit defects of 'Mountain Gold' tomato compared to 'Sunray', Fletcher, N.C.

Cultivar	Rough blossom scar (%)	Fruit cracking (%)	Off-shape (%)
Mountain Gold	13	17	21
Sunray	16	22	72
LSD (.05)	NS	NS	6

Table 3. Early season (1st. 2 weeks of harvest) of 'Mountain Gold' tomato compared to 'Sunray', Fletcher, N.C.

Cultivar	20-lb boxes/acre 1988	20-lb boxes/acre 1989
Mountain Gold	1151	1042
Sunray	947	601
LSD (.05)	198	240

Table 4. Fruit size of 'Mountain Gold' tomato compared to 'Sunray', Fletcher, N.C.

Cultivar	Fruit wt. (gms/fruit) 1988	Fruit wt. (gms/fruit) 1989	% Jumbo (>3½" diam) 1988	% Jumbo (>3½" diam) 1989	% Extra-lg. (3-3½" diam) 1988	% Extra-lg. (3-3½" diam) 1989	% Large (2½-3" diam) 1988	% Large (2½-3" diam) 1989
Mountain Gold	318	313	63	56	34	38	3	6
Sunray	241	259	19	40	64	40	17	20
LSD (.05)	14	23	9	14	9	NS	4	8

TOMATO

Mountain Gold

Exhibit E. Statement of The Basis of Applicant's Ownership

Mountain Gold was developed by Dr. R. G. Gardner, Associate Professor of Horticultural Science and plant breeder with the N. C. Agricultural Research Service (NCARS), College of Agriculture and Life Sciences, N. C. State University. Mountain Gold is owned exclusively by the NCARS which retains all rights to its use.