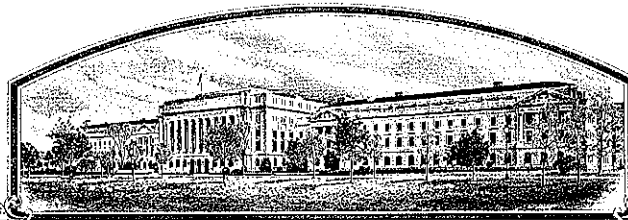


No.

9300161



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## North Carolina Agricultural Research Service

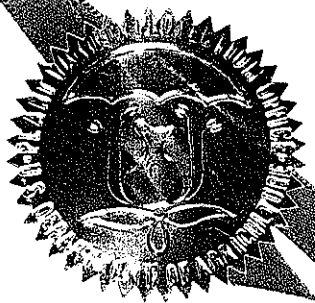
Whereas, THERE HAS BEEN PRESENTED TO THE  
**Secretary of Agriculture**

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 (7 U.S.C. 2321-2324, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'Monte Verde'



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.

31st day of January in the year of our Lord one thousand nine hundred and ninety-seven.

Attest:

*Marsha J. Stanton*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Jan Phillipsman*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

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

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) North Carolina Agricultural Research Service		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. 8322-46-1-1-1	3. VARIETY NAME Monte Verde
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) N.C. State University Box 7643 Raleigh, NC 27695-7643		5. PHONE (Include area code) 919-515-2717	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER 9300161 FILING DATE Mar. 10, 1993 Time 2:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M. FILING DATE 3/10/93 & 4/5/93 Certificate Fee: \$ 300.00 DATE Jan. 8, 1997
6. GENUS AND SPECIES NAME Lycopersion esculentum	7. FAMILY NAME (Botanical) Solanaceae		
8. CROP KIND NAME (Common Name) tomato	9. DATE OF DETERMINATION March 13, 1992		
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  
 NC Foundation Seed Producers, Inc.  
 8220 Riley Road  
 Zebulon, NC 27597  
 PHONE (Include area code): 919-269-5592

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

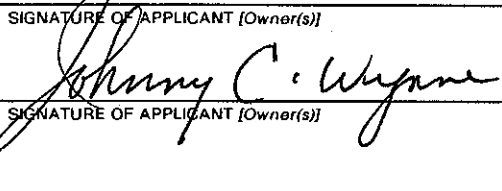
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?  
 YES (If "YES," through  Plant Variety Protection Act  Patent Act. Give date: \_\_\_\_\_)  
 NO

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 Director, NC Agricultural Research Service	DATE 11-12-92
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

Tomato  
'Monte Verde'

14A. Exhibit A:

Pedigree:

8322(X)-46-1-1-1	-	- Flora-Dade
= 'Monte Verde'	-	- Summit

'Monte Verde', an inbred tomato line in the  $F_7$  generation, was developed using the pedigree breeding method. Its pedigree includes the University of Florida release, 'Flora-Dade', and the North Carolina State University release, 'Summit' (registered with the PVP office).

Single plant selections were made in the  $F_2$  through  $F_5$  generations. The  $F_2$  selection was made in the greenhouse based on days from seeding to flowering.  $F_3$ ,  $F_4$ , and  $F_5$  selections were made in field plots at Fletcher, North Carolina. The  $F_6$  generation was bulked.

'Monte Verde' appeared uniform and stable in the  $F_4$  through  $F_7$  generations in research station plots and grower trial plots of several thousand plants in the  $F_7$  generation. No variants or off-types have been observed in 'Monte Verde'.

## Exhibit B. Novelty Statement

'Monte Verde' is most similar to the variety 'Flora-Dade': It differs from 'Flora-Dade' in having larger fruit (Table 1 attached). Fruit of 'Monte Verde' have a smoother blossom scar than fruit of 'Flora-Dade', resulting in less non-marketable fruit as a result of rough blossom scar (catfacing) (Table 2 attached).

Table 1. Mean fruit weight (grams/fruit) of tomato varieties.

Variety	Year			
	1990 <sup>a</sup>	1991 <sup>b</sup>	1991 <sup>c</sup>	1991 <sup>c</sup>
Flora-Dade	210	176	190	213
Monte Verde	241	222	227	267
Summit	-	250	236	281
Colonial	244	213	219	258
Sunny	258	207	210	241
LSD (0.05) <sup>d</sup>	14	23	23	23

<sup>a</sup>Varieties grown in a randomized complete block design with 4 replicates of 6 plants per replicate. Location: Mountain Horticultural Crops Research Station, Fletcher, NC.

<sup>b</sup>Varieties grown in a randomized complete block design with 4 replicates of 6 plants per replicate. Location: grower field, Tryon, NC.

<sup>c</sup>Varieties grown in a randomized complete block design with 2 replicates of 8 plants per replicate. Location: Mountain Horticultural Crops Research Station, Fletcher, NC.

<sup>d</sup>Data were analyzed by analysis of variance (ANOVA) and means separated by a least significant difference test at the 95% confidence level.

Table 2. Percentage of total harvested tomato fruit weight with rough blossom scar (catfacing) severe enough to be classified as non-marketable (cull).

Variety	Year			
	1990 <sup>a</sup>	1991 <sup>b</sup>	1991 <sup>c</sup>	1991 <sup>c</sup>
Flora-Dade	24	24	19	17
Monte Verde	11	7	13	7
Summit	-	15	23	25
Colonial	21	13	13	10
Sunny	31	18	16	16
LSD (0.05) <sup>d</sup>	5	6	4	9

<sup>a</sup>Varieties grown in a randomized complete block design with 4 replicates of 6 plants per replicate. Location: Mountain Horticultural Crops Research Station, Fletcher, NC.

<sup>b</sup>Varieties grown in a randomized complete block design with 4 replicates of 6 plants per replicate. Location: grower field, Tryon, NC.

<sup>c</sup>Varieties grown in a randomized complete block design with 2 replicates of 8 plants per replicate. Location: Mountain Horticultural Crops Research Station, Fletcher, NC.

<sup>d</sup>Data were analyzed by analysis of variance (ANOVA) and means separated by a least significant difference test (LSD) at the 95% confidence level.

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) N.C. Agricultural Research Service Dr. R.G. Gardner (Breeder)		TEMPORARY DESIGNATION 8322(X)-46-1-1-1	VARIETY NAME Monte Verde
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) N.C. State University Box 7643 Raleigh, NC 27695-7643		<b>FOR OFFICIAL USE ONLY</b>	
		PVPO NUMBER 9300161	

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  plantings. Trials direct-seeded \_\_\_\_\_ or transplanted ; staked  or unstaked \_\_\_\_\_. Give locations and dates of seeding and transplanting here:  
**Fletcher; North Carolina Seeding Dates: 4/17/89; 4/16/90; 3/25/91; 4/16/91; 5/20/91**  
**Transplant Dates: 5/31/89; 5/25/90; 5/2/91; 6/24/91**

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

**1. SEEDLING:**

Anthocyanin in hypocotyl of 2-15 cm. seedling: 1 = Absent 2 = Present  Habit of 3-4 week old seedling: 1 = Normal 2 = Compact

**2. MATURE PLANT (at maximum vegetative development):**

Growth: 1 = Indeterminate 2 = Determinate    Cm. Height

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

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

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

**3. STEM:**

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

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

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

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

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):**

Type: 1 = Tomato 2 = Potato ('Trip-L-Crop')  Morphology (choose illustration on pg. 5 of this form that is most similar)

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

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):

- 2 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 5 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.

- 2 Typical fruit shape:  1 Shape of transverse section:  2 Shape of stem end:
- 2 Shape of blossom end:  2 Shape of pistil scar:

- 2 Abscission layer: 1 = Present (pedicellate) 2 = Absent (jointless)  2 Point of detachment of fruit at harvest: 1 = At pedicel joint 2 = At calyx attachment
- NA   mm length of pedicel (from joint to calyx attachment)
- 0  7  0 mm length of mature fruit (stem axis)  0  6  5 mm length, check var. no.  0  4
- 0  8  7 mm diameter of fruit at widest point  0  7  5 mm diameter, check var. no.  0  4
- 2  3  2 g weight of mature fruit  1  9  6 g weight, check var. no.  0  4
- 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
- 5 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
- 2 Fruit pattern (mature-green stage): 1 = Uniform green 2 = Green-shouldered 3 = Radial stripes on sides of fruit
- 1 Shoulder color if different from base: 1 = Dark green 2 = Grey green 3 = Yellow green
- 5 Fruit color, full-ripe: 1 = White 2 = Yellow 3 = Orange 4 = Pink 5 = Red 6 = Brownish 7 = Greenish 8 = Other (Specify)
- 3 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
- 1 Ripening: 1 = Blossom-to-stem end 2 = Uniform



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

9300161

<input type="checkbox"/> 1	Ripening:	1 = Inside out	2 = Uniformly	3 = Outside in	<input type="checkbox"/> 2	Stem scar size:	1 = Small ('Roma')	2 = Medium ('Rutgers')	3 = Large
<input type="checkbox"/> 2	Epidermis color:	1 = Colorless	2 = Yellow						
<input type="checkbox"/> 1	Epidermis:	1 = Normal	2 = Easy-peel		<input type="checkbox"/> 2	Core:	1 = Coreless (absent or smaller than 6x6 mm)	2 = Present	
<input type="checkbox"/> 2	Epidermis texture:	1 = Tender	2 = Average	3 = Tough					
<input type="checkbox"/> 3	Thickness of pericarp				<input type="checkbox"/> 3	Thickness of pericarp, check var. no.	<input type="checkbox"/> 0 <input type="checkbox"/> 4		
		1 = Under 3 mm	2 = 3-6 mm	3 = 6-9 mm			4 = Over 9 mm		

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

<input type="checkbox"/> 2	Blossom end rot	<input type="checkbox"/> 2	Catface	<input type="checkbox"/> 2	Fruit pox	<input type="checkbox"/> 2	Zippering
<input type="checkbox"/> 2	Blotchy ripening	<input type="checkbox"/> 2	Cracking, concentric	<input type="checkbox"/> 2	Gold fleck	<input type="checkbox"/>	Other (Specify)
<input type="checkbox"/> 2	Bursting	<input type="checkbox"/> 2	Cracking, radial	<input type="checkbox"/> 2	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:

<input type="checkbox"/> 0	Cucumber mosaic	<input type="checkbox"/> 0	Tobacco mosaic, Race 0	<input type="checkbox"/> 0	Tobacco mosaic, Race 2 <sup>2</sup>
<input type="checkbox"/> 0	Curly top	<input type="checkbox"/> 0	Tobacco mosaic, Race 1	<input type="checkbox"/> 0	Tomato spotted wilt
<input type="checkbox"/> 0	Potato-Y virus	<input type="checkbox"/> 0	Tobacco mosaic, Race 2	<input type="checkbox"/> 0	Tomato yellows
<input type="checkbox"/>	Other virus (Specify)				

BACTERIAL DISEASES:

<input type="checkbox"/> 0	Bacterial canker ( <i>Corynebacterium michiganense</i> )	<input type="checkbox"/> 0	Bacterial spot ( <i>Xanthomonas vesicatorium</i> )
<input type="checkbox"/> 0	Bacterial soft rot ( <i>Erwinia carotovora</i> )	<input type="checkbox"/> 0	Bacterial wilt, ( <i>Pseudomonas solanacearum</i> )
<input type="checkbox"/> 0	Bacterial speck ( <i>Pseudomonas tomato</i> )	<input type="checkbox"/>	Other bacterial disease (Specify)

FUNGAL DISEASES:

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

8

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

INSECTS AND PESTS:

<input type="checkbox"/> 0	Colorado potato beetle ( <i>Leptinotarsa decemlineata</i> )	<input type="checkbox"/> 0	Tomato hornworm ( <i>Manduca quinquemaculata</i> )
<input type="checkbox"/> 0	Southern root knot nematode ( <i>Meloidogyne incognita</i> )	<input type="checkbox"/> 0	Tomato fruitworm ( <i>Heliothis zea</i> )
<input type="checkbox"/> 0	Spider mites ( <i>Tetranychus</i> spp.)	<input type="checkbox"/> 0	Whitefly ( <i>Trialeurodes vaporariorum</i> )
<input type="checkbox"/> 0	Sugar beet army worm ( <i>Spodoptera exigua</i> )	<input type="checkbox"/>	Other (Specify) _____
<input type="checkbox"/> 0	Tobacco flea beetle ( <i>Epitrix hirtipennis</i> )		

POLLUTANTS:

<input type="checkbox"/> 0	Ozone	<input type="checkbox"/> 0	Sulfur dioxide	<input type="checkbox"/>	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	Check Variety	Check Variety
pH				
Titrate acidity, as % citric				
Total solids (dry matter, seeds and skin removed)				
Soluble solids, as °Brix				

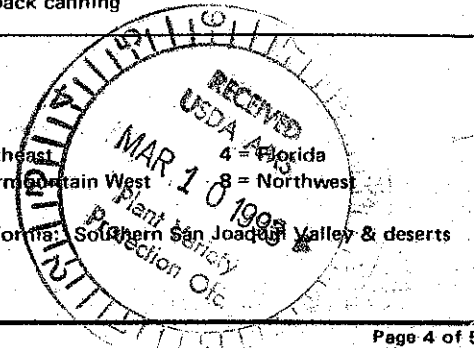
11. PHENOLOGY: Express length of developmental stages either as calendar days or as heat units (growing degree days), in degrees Celsius. If heat units are used, indicate the base temperature used in their calculation here \_\_\_\_\_ °C. See paper by Warnock under "References" for method. Give comparative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

	APPLICATION VARIETY	Check variety Flora-Dade (04)	Check variety	Check variety
Seeding to 50% flower (1 open flower on 50% of plants)	61 days	56 days		
Seed to once-over harvest (if applicable)				

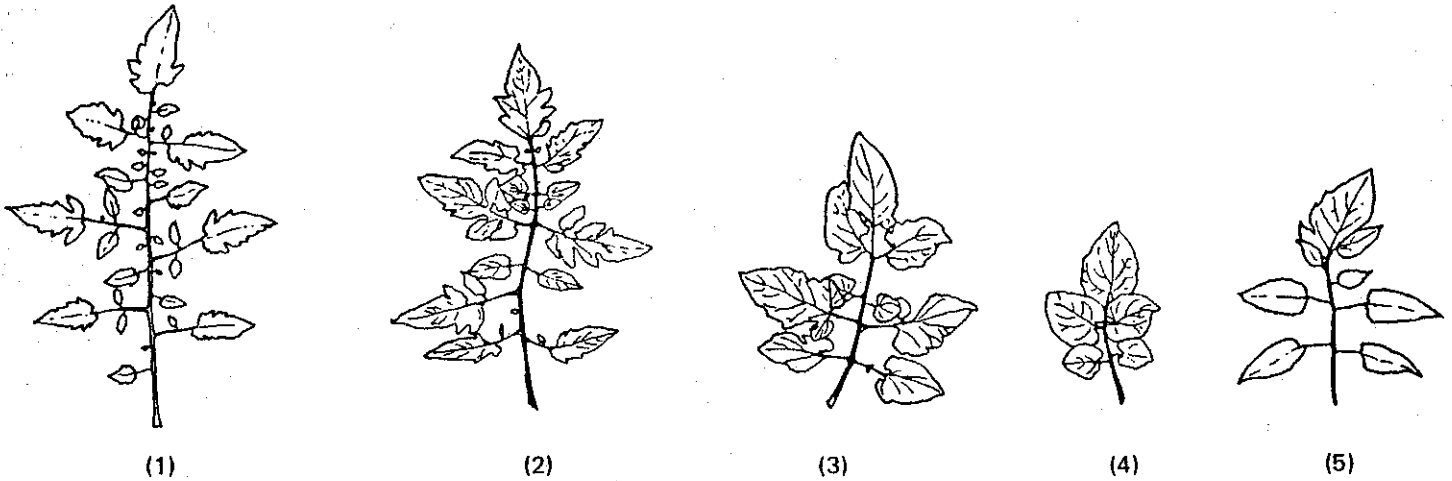
<input type="checkbox"/> 2	Fruiting season:	1 = Long ('Marglobe')	2 = Medium ('Westover')	3 = Short, concentrated ('VF 145')
		4 = Very concentrated ('UC 82')		
<input type="checkbox"/> 3	Relative maturity in areas tested:	1 = Early	2 = Medium early	3 = Medium
		4 = Medium late	5 = Late	6 = Variable (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.

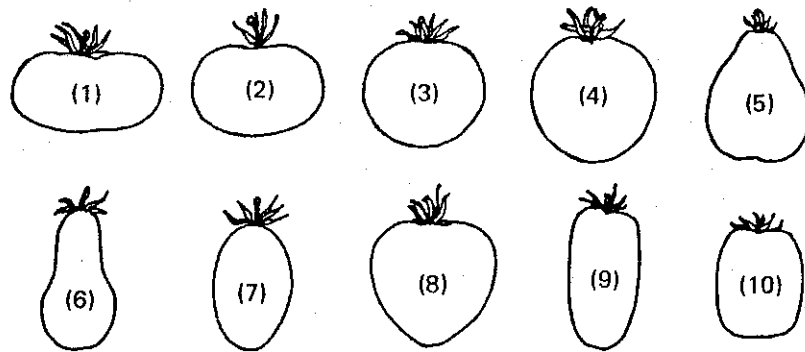
<input type="checkbox"/> 1	Culture:	1 = Field	2 = Greenhouse
<input type="checkbox"/> 2	Principal use(s):	1 = Home garden	2 = Fresh market
		4 = Concentrated products	3 = Whole-pack canning
		5 = Other (Specify) _____	
<input type="checkbox"/> 1	Machine harvest:	1 = Not adapted	2 = Adapted
<input type="checkbox"/> 3	Regions to which adaptation has been demonstrated:	1 = Northeast	2 = Mid Atlantic
		5 = Great Plains	6 = South-central
		9 = California: Sacramento and Upper San Joaquin Valley	7 = Intermountain West
		10 = California: Coastal areas	8 = Northwest
			11 = California: Southern San Joaquin Valley & deserts



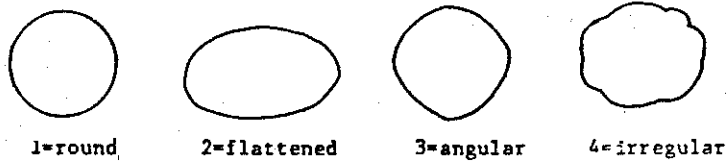
4. LEAF: Morphology:



7. FRUIT: Typical fruit shape:



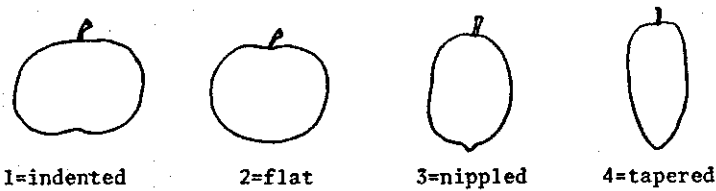
Shape of transverse section:



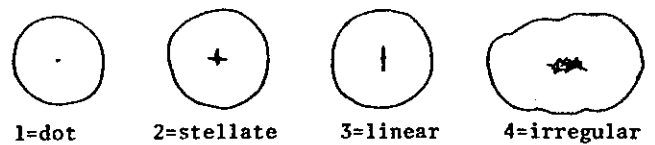
Shape of stem end:



Shape of blossom end:



Shape of pistil scar:



REFERENCES

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

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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.

U.S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL MARKETING SERVICE  
 SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

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).

**EXHIBIT E  
 STATEMENT OF THE BASIS OF OWNERSHIP**

1. NAME OF APPLICANT(S) North Carolina Agricultural Research Service Dr. R. G. Gardner (Breeder)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER 8322(X)-46-1-1-1	3. VARIETY NAME 'Monte Verde'
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) North Carolina State University Box 7643 Raleigh, NC 27695-7643	5. TELEPHONE (include area code) (704) 684-3562	6. FAX (include area code) (704) 684-8715
7. PVPO NUMBER 9300161		

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain.

YES     NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country \_\_\_\_\_

YES     NO

10. Is the applicant the original breeder? If no, please answer the following:

a. If original rights to variety were owned by individual(s):  
 Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country \_\_\_\_\_

YES     NO

b. If original rights to variety were owned by a company:  
 Is the original breeder(s) U.S. based company? If no, give name of country \_\_\_\_\_

YES     NO

11. Additional explanation on ownership (If needed, use reverse for extra space):

'Monte Verde' was developed by Dr. R. G. Gardner, Professor of Horticultural Science and plant breeder with the NC Ag. Research Service, NC State University, 2016 Fanning Bridge Road, Fletcher, NC 28732-9216. Phone:(704) 684-3562, FAX: (704) 684-8715

**PLEASE NOTE:**

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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**TOMATO****MONTE VERDE****Exhibit E. Statement of The Basis of Applicant's Ownership**

Monte Verde was developed by Dr. R. G. Gardner, 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. Monte Verde is owned exclusively by the NCARS which retains all rights to its use.