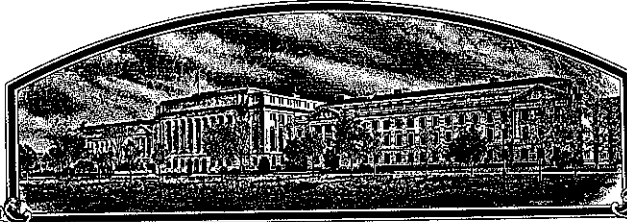


No.

9100051



# 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 (AT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'NC 2C'

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 Heard*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Edward Madison*  
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) NC Agricultural Research Service Dr. R. G. Gardner (Breeder)		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. 8337(X)-3-1P-1A-1A-1	3. VARIETY NAME NC 2C
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 9100051
6. GENUS AND SPECIES NAME Lycopersicon esculentum	7. FAMILY NAME (Botanical) Solanaceae	FILING Date Dec. 17, 1990 Time <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
8. CROP KIND NAME (Common Name) Cherry Tomato	9. DATE OF DETERMINATION March 21, 1990	FEE S Filing and Examination Fee: \$ 2150. Date Dec. 17, 1990	RECEIVED Certificate Fee: \$ 250. Date Dec. 23, 1991
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	
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): 919-737-2821			

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

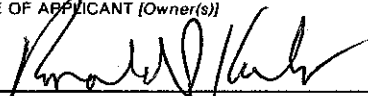
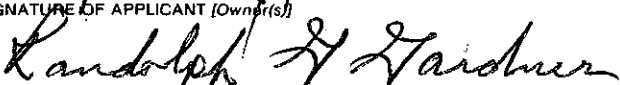
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?  
 YES (If "YES," through  Plant Variety Protection Act       Patent Act. Give date: \_\_\_\_\_ )  
 NO

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 Agri. Res. Svc.	DATE 11/14/90
SIGNATURE OF APPLICANT [Owner(s)] 	CAPACITY OR TITLE Assoc. Prof. of Horticulture (Plant Breeder)	DATE Nov. 13, 1990

14A. Exhibit A:

Pedigree:

8337(X)-3-1P-1A-1A-1 -  
F<sub>7</sub>

Castlette F<sub>1</sub> hybrid

Mini Rose

NC 2C, an inbred cherry tomato line in the F<sub>7</sub> generation, was developed using the pedigree breeding method. Single plant selections were made in the F<sub>2</sub> through F<sub>6</sub> generations grown in field plots at Fletcher, North Carolina. Seedling inoculation tests in the greenhouse showed the F<sub>4</sub> and subsequent generations to be homozygous resistant to race 1 (I gene) of Fusarium oxysporum f. sp. lycopersici and susceptible to race 1 of Verticillium dahliae. A seedling inoculation trial of the F<sub>7</sub> indicated susceptibility to race 2 of F. oxysporum f. sp. lycopersici.

NC 2C appeared stable and uniform in the F<sub>4</sub>-F<sub>7</sub> generations in research station plots. The only offtypes observed were infrequent male steriles, which did not exceed the percentage normally seen in other varieties.

## Exhibit B. Novelty Statement

NC 2C is most similar to the F<sub>1</sub> hybrid 'Castlette'. It differs from 'Castlette' in having the u gene for uniform light green color of non-ripe fruit in contrast to the dark green shoulder color of 'Castlette'. Like 'Castlette', NC 2C has the jointless pedicel character (j-2 gene) which distinguishes it from many other cherry tomato cultivars and lines.

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) NC Agricultural Research Service Dr. R. G. Gardner (Breeder)	TEMPORARY DESIGNATION 8337(X)-3-1P-1A-1A-1 8337(X)-1P-1A-1A-1	VARIETY NAME NC 2C
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 9100051

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: 4/17/86, 4/14/87, 4/15/88, 4/17/89, 4/16/90  
 Transplanting dates: 6/3/86, 5/22/87, 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    | 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:

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  0  0 Cm. Height

2 Growth: 1 = Indeterminate 2 = Determinate

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

2 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

1 No. of nodes between early (1st - 2nd, 2nd - 3rd) inflorescences.  1 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')  2 Morphology (choose illustration on pg. 5 of this form that is most similar)

3 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  8 Number of flowers in inflorescence, average
- 1 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:  1 Shape of pistil scar:

- Abscission layer: 1 = Present (pedicellate) 2 = Absent (jointless)  2 Point of detachment of fruit at harvest: 1 = At pedicel joint 2 = At calyx attachment
- mm length of pedicel (from joint to calyx attachment)
- 0  3  5 mm length of mature fruit (stem axis) . . . . .    mm length, check var. no. . . . .
- 0  3  0 mm diameter of fruit at widest point . . . . .    mm diameter, check var. no. . . . .
- 0  2  0 g weight of mature fruit . . . . .    g weight, check var. no. . . . .
- 1 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
- 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
- 3 Locular gel color of table-ripe fruit: 1 = Green 2 = Yellow 3 = Red
- 2 Ripening: 1 = Blossom-to-stem end 2 = Uniform

5

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

<input type="checkbox"/> 1	Ripening:	1 = Inside out	2 = Uniformly	3 = Outside in	<input type="checkbox"/>	Stem scar size:	1 = Small ('Roma')
<input type="checkbox"/> 2	Epidermis color:	1 = Colorless	2 = Yellow			2 = Medium ('Rutgers')	3 = Large
<input type="checkbox"/> 1	Epidermis:	1 = Normal	2 = Easy-peel		<input type="checkbox"/>	Core:	1 = Coreless (absent or smaller than 6x6 mm)
<input type="checkbox"/> 2	Epidermis texture:	1 = Tender	2 = Average	3 = Tough		2 = Present	
<input type="checkbox"/> 2	Thickness of pericarp	<input type="checkbox"/> Thickness of pericarp, check var. no. <input type="checkbox"/> <input type="checkbox"/>					
		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"/> 1	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"/> 1	Early blight defoliation, ( <i>Alternaria solani</i> )	<input type="checkbox"/> 0	Leaf mold, other races (Specify) _____
<input type="checkbox"/> 2	Fusarium wilt, Race 1, ( <i>F. oxysporum f. lycopersici</i> )	<input type="checkbox"/> 0	Nailhead spot ( <i>Alternaria tomato</i> )
<input type="checkbox"/> 1	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"/> 1	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 _____

6

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 <u>Cherry Grande</u>	Check Variety <u>Castlette</u>	Check Variety _____
pH	4.2	4.1	4.1	
Titrateable acidity, as % citric				
Total solids (dry matter, seeds and skin removed)				
Soluble solids, as °Brix at 21° C	4.1	3.9	4.1	

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 <u>Cherry Grande</u>	Check variety <u>Castlette</u>	Check variety _____
Seeding to 50% flower (1 open flower on 50% of plants)	50.2 days	53.5 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"/> 2 | 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). |

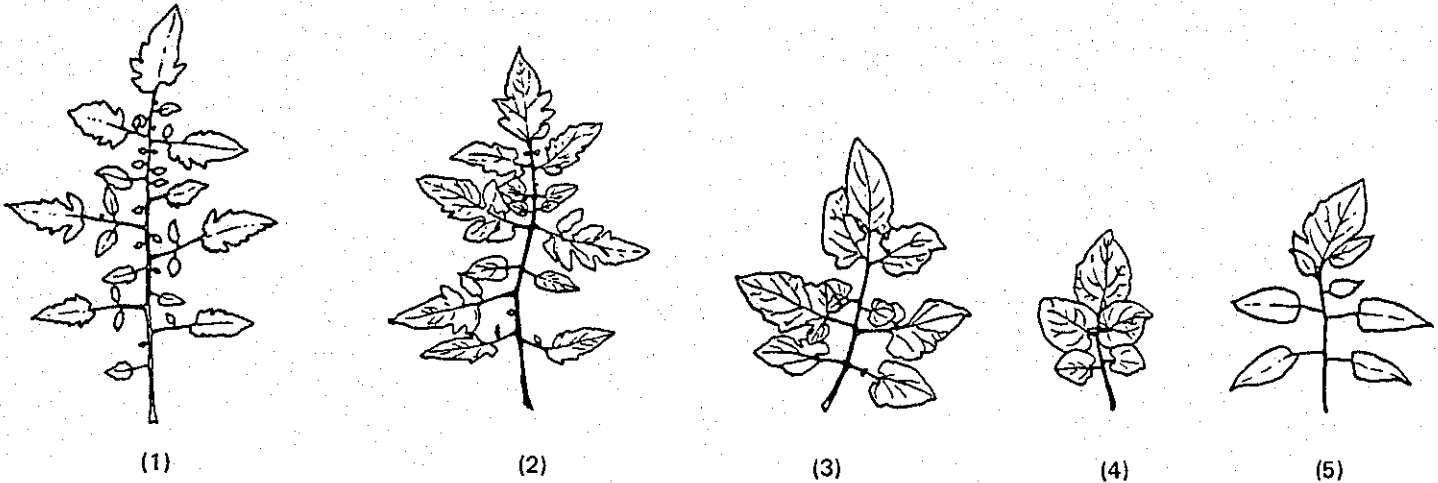
12. ADAPTATION: If more than one category applies, list all in rank order.

- |                                                                                  |                                                    |                                                         |                                                        |
|----------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|
| <input type="checkbox"/> 1                                                       | Culture:                                           | 1 = Field                                               | 2 = Greenhouse                                         |
| <input type="checkbox"/> 2 <input type="checkbox"/> 5                            | Principal use(s):                                  | 1 = Home garden                                         | 2 = Fresh market                                       |
|                                                                                  |                                                    | 4 = Concentrated products                               | 3 = Whole-pack canning                                 |
|                                                                                  |                                                    | 5 = Other (Specify) _____                               | <u>Parent line for F<sub>1</sub> hybrid</u>            |
| <input type="checkbox"/> 1                                                       | Machine harvest:                                   | 1 = Not adapted                                         | 2 = Adapted                                            |
| <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 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 |

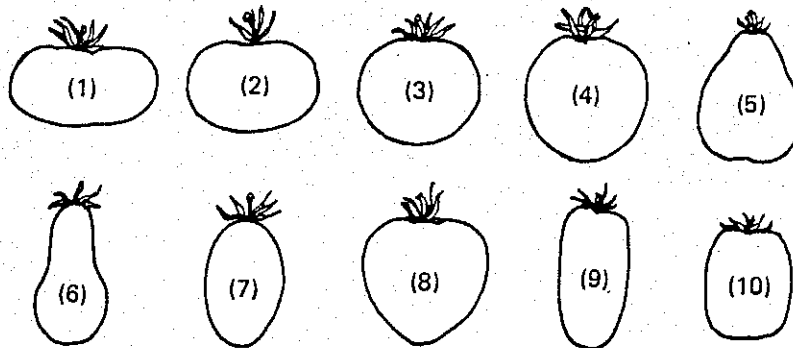


ILLUSTRATIONS OF TOMATO LEAF AND FRUIT CHARACTERISTICS

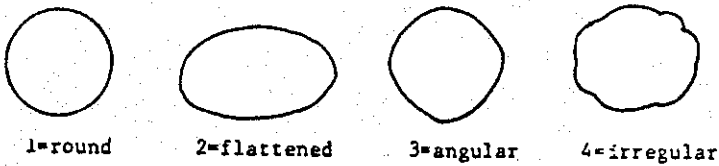
4. LEAF: Morphology:



7. FRUIT: Typical fruit shape:



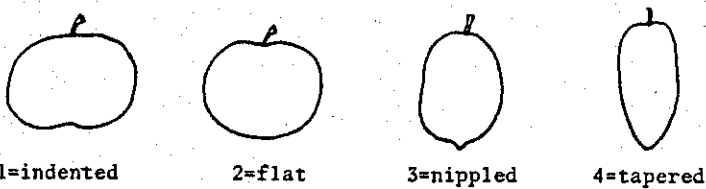
Shape of transverse section:



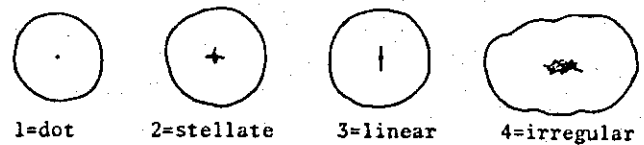
Shape of stem end:



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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Exhibit D. Additional Description of NC 2C

NC 2C produces yields similar to the  $F_1$  hybrid cherry tomato cultivars 'Cherry Grande' and 'Castlette' (Table 1).

NC 2C produces fruit similar in size to 'Castlette' and smaller than 'Cherry Grande' (Tables 2, 3, and 4).

NC 2C is similar in season of maturity to 'Castlette' and later in maturity than 'Cherry Grande' (Table 5).

Table 1. Marketable yield (15-lb. flats/acre) of cherry tomatoes.  
MHCRS, Fletcher, NC

Cultivar or line	Year			
	1986	1987	1988	1989
Cherry Grande	4160	4620	5819	5034
Castlette	4603	6472	6185	4868
Mountain Belle	4095	4771	6086	5133
NC 1C	--	--	4835	3727
NC 2C	4240	6321	6447	4467
LSD(.05)	356	515	730	633

Table 2. Percent of cherry tomato yield with fruit diameter of  
1 1/4" - 1 1/2". MHCRS, Fletcher, NC.

Cultivar or line	Year			
	1986	1987	1988	1989
Cherry Grande	46	48	58	40
Castlette	70	61	56	68
Mountain Belle	50	48	61	70
NC 1C	--	--	49	51
NC 2C	69	58	66	66
LSD(.05)	7	7	6	7

Table 3. Percent of cherry tomato yield with fruit diameter of  
1" - 1 1/4". MHCRS, Fletcher, NC.

Cultivar or line	Year			
	1986	1987	1988	1989
Cherry Grande	6	8	10	4
Castlette	22	29	33	17
Mountain Belle	50	46	37	23
NC 1C	--	--	46	46
NC 2C	18	34	25	28
LSD(.05)	9	9	6	10

Table 4. Percent of cherry tomato yield with fruit diameter greater than 1 1/2". MHCRS, Fletcher, NC.

Cultivar or line	Year			
	1986	1987	1988	1989
Cherry Grande	48	43	32	56
Castlette	8	7	4	14
Mountain Belle	0	4	3	5
NC 1C	--	--	0	0
NC 2C	13	6	7	4
LSD(.05)	3	6	4	7

Table 5. Marketable yield (15-lb. flats/acre) of cherry tomatoes during first two weeks of harvest. MHCRS, Fletcher, NC.

Cultivar or line	Year			
	1986	1987	1988	1989
Cherry Grande	998	3407	1874	1200
Castlette	388	2314	689	431
Mountain Belle	627	2441	1539	849
NC 1C	--	--	1903	751
NC 2C	416	2178	852	486
LSD(.05)	112	285	225	183

**TOMATO****NC 2C**Exhibit E. Statement of The Basis of Applicant's Ownership

NC 2C 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. NC 2C is owned exclusively by the NCARS which retains all rights to its use.