

NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE
NORTH CAROLINA STATE UNIVERSITY
RALEIGH, NORTH CAROLINA

NOTICE OF RELEASE OF NC 109 TOMATO BREEDING LINE

The North Carolina Agricultural Research Service announces the release of a new fresh-market tomato breeding line, NC 109.

NC 109, an inbred line in the F_8 generation, originated from the cross of NC 50-7 x T5 (Fig. 1). NC 50-7 is one of the parent lines of the F_1 hybrid 'Mountain Pride'. T5 is an inbred tomato line developed in the University of California fresh-market tomato breeding program.

NC 109 has a vigorous determinate plant (sp gene). Foliage is dark green and develops a heavy canopy providing excellent fruit coverage. Plant height when staked and pruned is greater than that of currently grown determinate cultivars by 12 inches or more.

NC 109 has flattened globe shape fruit which are very smooth and symmetrical in shape with a pinpoint blossom scar. The smooth blossom scar of NC 109 is based on a constriction at the base of the style which breaks above the fruit surface leaving a small stylar scar. The constricted style character appears to be controlled by a single incompletely dominate gene and is distinct from the genes n (nipped blossom) and bk (beaked blossom), which produce pinpoint blossom scars but are often associated with nipping or beakiness of the blossom end. Non-ripe fruit of NC 109 are a uniform, light green color (u gene). Fruit ripen to a uniform red exterior and interior color and are firm in the ripe stage. Fruit pedicels are jointed.

NC 109 is late in maturity. Fruit size is comparable to or slightly larger than 'Flora-Dade' and smaller than cultivars currently grown in North Carolina.

NC 109 had non-graded yield lower than standard named cultivars in an early season trial in 1991 but equivalent to the standard named cultivars in a late season trial. Percent U.S. Combination Grade fruit for NC 109 was high resulting in yields of U.S. Combination Grade fruit being equivalent to or higher than standard named cultivars.

NC 109 is resistant (I gene) to race 1 of Fusarium oxysporum f sp lycopersici (fusarium wilt) and is resistant (Ve gene) to Verticillium dahliae (verticillium wilt). It is resistant to radial and concentric fruit crack and has moderate resistance to weather check.

NC 109 has shown good combining ability in crosses with determinate lines having early maturity and large fruit size. In F_1 hybrids with lines having the n gene for nipped blossom end, blossom scars are consistently pinpoint without the objectionable nipping which sometimes occurs with the n gene in homozygous condition. In addition, the non-curved foliage of NC 109 is dominant to the undesirable curled foliage in lines having the n gene.

NC 109 is being released primarily as a parent line for use in production of the F_1 hybrid 'Mountain Fresh', which was released on an exclusive basis for seed production and sales to Ferry-Morse Seed Co. Because of its consistently smooth blossom scar and its good combining ability in crosses, NC 109 should prove useful to other breeders. Breeder seed will be maintained by the North Carolina Agricultural Research Service. Small samples for trial and breeding purposes are available from R. G. Gardner, Mountain Horticultural Crops Research and Extension Center, Fletcher, NC 28732-9216. Application is being made for a Plant Variety Protection Certificate. Use of NC 109 as a parental line in production of F_1 hybrid seed for sale will require approval by and negotiated royalty payments to NCARS.

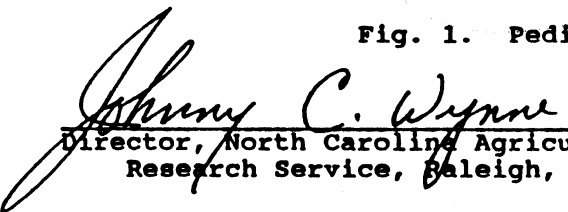
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= NC 109

- NC 50-7

- T5

Fig. 1. Pedigree of NC 109 tomato breeding line.


Director, North Carolina Agricultural
Research Service, Raleigh, NC

Nov 12, 1992
Date