

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

NOTICE OF RELEASE OF THE NC EBR-2 EARLY BLIGHT RESISTANT TOMATO

The North Carolina Agricultural Research Service announces the release of a new fresh market tomato breeding line, NC EBR-2.

NC EBR-2 is an inbred line in the F_6 generation (Fig. 1). C1943, a line released by the Campbell Agricultural Research Institute, was used as the source of early blight (Alternaria solani) resistance in developing NC EBR-2. C1943 has a high level of resistance to the stem lesion (collar rot) phase of early blight and moderate resistance to the foliar phase of early blight. Lines developed in the pedigree breeding system were selected for early blight resistance in replicated field plots.

In field trials at Fletcher, NC in 1983, 1984, and 1985, NC EBR-2 had early blight resistance similar to C1943 and had much less defoliation than the susceptible check, 'Flora-Dade'. Inoculation tests in the greenhouse have shown NC EBR-2 to have a high level of stem lesion resistance, similar to C1943. In addition to early blight resistance, NC EBR-2 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 race 1 of Verticillium dahliae (verticillium wilt). C1943 has neither the I-2 nor Ve gene.

Vine type of NC EBR-2 is strong determinate, taller growing than 'Flora-Dade' when staked and pruned. Foliage cover is heavy, providing good fruit protection. Maturity is slightly later than 'Flora-Dade'.

Fruit of NC EBR-2 vary in shape from deep oblate to globe and have uniform green shoulder color (u gene). Fruit pedicels are jointless (j-2 gene). Fruit size has been equal to or larger than 'Flora-Dade'. Fruit are very firm and have shown good external and internal color and resistance to fruit cracking and rain check. Total fruit yields of NC EBR-2 were similar to 'Mountain Pride' and 'Flora-Dade' when sprayed on a 5-day schedule so that early blight was not a factor in reducing yield. When sprayed on a 7- or 10-day schedule, NC EBR-2 showed no reduction in total or marketable grade fruit yields compared to a 5-day schedule. 'Mountain Pride' yields were significantly reduced by both the 7- and 10-day spray intervals. Marketable and U.S. Combination Grade (U.S. No. 1 + U.S. No. 2) yields of NC EBR-2 have generally been lower than those of 'Flora-Dade' and 'Mountain Pride'. The primary cull factor of NC EBR-2 has been rough blossom scar, which has been severe, particularly in early season, in some trials.

NC EBR-2 is being released as a breeding line with early blight resistance comparable to C1943, but having much better horticultural characteristics and additional disease resistances. The primary reason for releasing NC EBR-2 as a breeding line rather than a named variety is the tendency for rough blossom scar, which would limit its use as a variety.

Breeder seed will be maintained by the North Carolina Agricultural Research Service. Small samples can be obtained from Dr. R.G. Gardner, Mountain Horticultural Crops Research Station and Extension Center, 2016 Fanning Bridge Road, Fletcher, NC 28732-9628. Proposed release date is June 30, 1986.

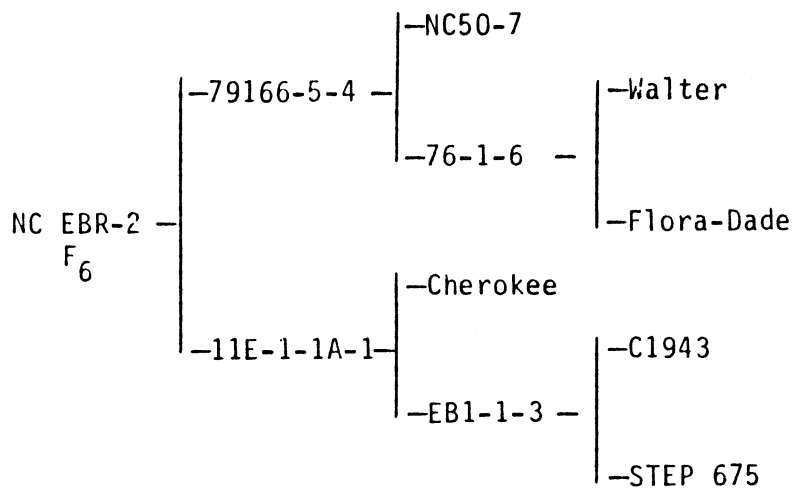


Fig. 1. Pedigree of NC EBR-2 early blight resistant tomato breeding line.

Director, North Carolina Agricultural
Research Service, Raleigh, N.C.

Date