Registration of ‘TN D94’ Dark Fire-Cured Tobacco

‘TN D94’, a dark fire-cured tobacco (Nicotiana tabacum L.) cultivar (Reg. no. CV-111, PI 587094), was developed by the Tennessee Agricultural Experiment Station and released in 1994 for its multiple disease resistance, high yield, and improved agronomic characteristics. TN D94 has medium resistance to Race 0 and Race 1 black shank [Phytophthora parasitica Dastur var. nicotianae (Bl a de Haan) Tucker]. It has high resistance to black root rot [Th. lawiiopis basicola (Berk. & Broome) Ferraris], wildfire [Ps. udomonas syringae pv. tabaci (Wolf & Foster) Young et al.], and tobacco mosaic virus (TMV).

TN D94 was developed by pedigree selection from the three-way cross ‘DF 485’/‘Certified Madole’/‘DF 300’ (1,2). Individual plants having growth characteristics similar to Certified Madole were selected through the F5 generation. All selections for type and black shank were made in a black shank nursery. Seedlings from selfed progeny of the selected plants were screened in a greenhouse for resistance to black root rot, wildfire, and TMV. Resistant progeny were selected for the next generation of field selection and susceptible progeny were eliminated. Six plants from one of the resistant selections were composited in the F6 generation. Breeder seed was in the F5 generation at the time of release. DF 485 and DF 300 provided the black shank resistance, which was derived from ‘Florida 301’. Resistance to black root rot, wildfire, and TMV was provided by DF 485 and originated from N. debneyi, N. longiflora, and N. glutinosa, respectively.

TN D94 was tested as F91-101 in 13 on-farm tests during 1992 and 1993. Plant size and leaf number of TN D94 are similar to existing dark fire-cured tobacco cultivars. The largest leaf of TN D94 averages 84.1 cm in length and 4.45 cm in width; this is approximately the same as DF 485, but 4 cm longer and 4 cm wider than Certified Madole or DF 300. The average flowering date of TN D94 is 3 to 5 d later than most other dark fire-cured cultivars. The growth habit of TN D94 resembles older, Madole-type dark cultivars more than newer, disease-resistant cultivars. It has a more erect growth habit than DF 485, but not as erect as ‘KY 171’, ‘KY 190’, or ‘DF 911’. Leaves have a smooth surface similar to Madole types, rather than the puckered surface present in DF 485, DF 911, KY 171, and KY 190. Leaf color is similar to Certified Madole, but lighter than DF 485 and darker than DF 300. TN D94 was tested for yield and quality in 15 separate, replicated dark fire-cured field trials in middle Tennessee. Average yields (kg ha−1) were 3329 for TN D94, 3218 for Certified Madole, 3336 for DF 485, and 3093 for DF 300. Average grade indexes (3) were 64.2 for TN D94, 67.5 for Certified Madole, 61.6 for DF 485, and 64.5 for DF 300. Cured leaf chemical composition of TN D94 is similar to existing commercially grown cultivars, and is within limits established for dark fire-cured tobacco. TN D94 is well adapted for Type 22 and Type 23 fire-cured tobacco production in middle Tennessee and west Kentucky. Leaf quality of TN D94 under air-cured conditions has not been evaluated.