‘Plum Dandy’, a Hybrid Tomato, and Its Parents, NC EBR-5 and NC EBR-6

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‘Plum Dandy’ is a plum (Roma-type) tomato (Lycopersicon esculentum Mill.) that is resistant to early blight [Alternaria solani (Ellis and Martin) Jones and Grout] and adapted to fresh-market production. It is the F1 hybrid of NC EBR-5 x NC EBR-6.

Origin
NC EBR-5 and NC EBR-6 are inbred tomato lines with early blight resistance derived from the U.S. Dept. of Agriculture (USDA) processing tomato cultivar 71B2 (Barksdale and Stoner, 1977). NC EBR-5 and NC EBR-6 share a common pedigree tracing back to ‘71B2’ (Fig. 1). The processing tomato line 85-PR 218 from Dr. Warren Henderson’s breeding program at North Carolina State Univ. provided the fruit shape desired for a fresh-market, plum-type tomato. In addition, NC EBR-6’s pedigree involves a cross with NC 13G-1, a line with a compact growth habit (Gardner and Davis, 1991; Kemble et al., 1994), which provided the brachytic (br) gene (Mutschler et al., 1987) for compact growth and the og gene for crimson fruit color. ‘Plum Dandy’ was tested as NC 9380.

Description
NC EBR-5. Plant habit is vigorous and determinate (sp), with dense foliage closely resembling that of ’71B2’. Staked plants grow to a maximum height of ≈110 cm. Fruit of NC EBR-5 have two or three locules and are elongate, with a slight taper from the shoulder to blossom end. Under some growing conditions, a few fruit may develop a slight nipple at the blossom end. Fruit resemble those of ‘Peto 882’ in shape and are equivalent in size to those of ‘Peto 882’ (Table 1). Nonripe fruit are uniformly light green in color (u). Fruit pedicels are jointed. Fruit are well filled and ripen to a uniform, bright red exterior and interior color. Fruit have a small core and are generally free of internal white tissue. NC EBR-5 produced total and marketable yields equivalent to or greater than those of ‘Peto 882’ in replicated trials at Fletcher, N.C. (Table 1). Season of maturity is a week or more later than that of ‘Peto 882’. NC EBR-5 has poor fruit-setting ability under low- and high-temperature stress.

Fig. 1. Pedigrees of ‘Plum Dandy’ F1 hybrid tomato and its parents, NC EBR-5 and NC EBR-6.
NC EBR-5 is moderately resistant to the foliage blight phase of early blight (Table 2). It is also resistant (I gene) to race 1 of Fusarium oxysporum f. lycopersici (Sacc.) Snyder and Hans. and (Ve gene) to race 1 of Verticillium dahliae Kleb. Fruit are highly resistant to radial and concentric fruit cracking and to cuticle cracking (weather check).

NC EBR-6. Plants are short and determinate (sp and br), with dense, dark green foliage closely resembling that of '71B2'. When grown using the short-stake, string-weave trellis system, maximum plant height is generally >60 cm as a result of short internodes conditioned by br. Nonstaked plants are upright with a compact, dense growth habit.

Fruit of NC EBR-6 have two to three locules and are elongate, resembling 'Peto 882', with a slight taper from the shoulder to blossom end. Fruit sometimes have a slight nipple at the blossom end. Nonripe fruit are a glossy, uniform light green (u). Fruit are well filled, ripening to a bright red exterior and interior color and have good firmness and flavor (subjective ratings by author). 'Plum Dandy' is adapted to both vine-ripe and mature-green production. When plants are pruned, fruit size of 'Plum Dandy' is comparable with that of the standard cultivar Peto 882 (Table 1). Season of maturity for 'Plum Dandy' has been slightly later than that of 'Peto 882'.

Total and marketable yields of 'Plum Dandy' consistently exceeded those of 'Peto 882' in replicated trials over a 5-year period (Table 1). 'Plum Dandy' has been tested extensively with growers in North Carolina. Production and fruit quality in spring and early summer plantings have been very good in North Carolina and at several other locations in eastern and midwestern areas of the United States. Trials in late summer and fall plantings in piedmont North Carolina and in experimentation station trials in Florida indicate that 'Plum Dandy' is not well suited for high-temperature, wet-weather production seasons because of limited fruit set and susceptibility to bacterial spot.

'Plum Dandy' is resistant to fusarium wilt (I) and to verticillium wilt (Ve). 'Plum Dandy' is moderately resistant to early blight and was less damaged by early blight than 'Peto 882' (Table 2) and other commercial plum tomato cultivars in early blight trial plots. Fruit are highly resistant to all types of cracking, including cuticle cracking, which can be a severe problem on 'Peto 882' fruit when harvested at the vine-ripe stage of maturity.

Use

'Plum Dandy' provides growers with an early blight-resistant plum tomato cultivar with improved fruit quality characteristics. NC EBR-5 and NC EBR-6 are not intended for direct use as cultivars. They should be useful to other breeders because of their combination of early blight resistance with desirable fruit and plant characteristics.

Availability

'Plum Dandy' was released on an exclusive basis for commercial seed production and sales to Harris Moran Seed Company. Small samples of 'Plum Dandy' and its parental lines for trial and breeding purposes are available from R.G. Gardner, Mountain Horticultural Crops Research and Extension Center, Fletcher, NC 28732-9244.

Literature Cited

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