Ohio 11 and 12, Verticillium-wilt-Race-2-resistant Greenhouse Tomato Breeding Lines

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Ohio 11 and 12 greenhouse tomato Lycopersicon esculentum Mill. lines, resistant to Verticillium dahliae Kleb. Race 2 (Ve-Race 2) are pink, uniform-ripening, and large-fruited indeterminate types. Ohio 11 is also resistant to tobacco mosaic virus (TM-2) and Fusarium oxysporum f. sp. radicis-lycopersici (Fus.). Ohio 12 has similar disease resistance, but is heterozygous resistant for TM-2. They have potential as a germplasm source of greenhouse tomato hybrids.

Origin

In 1982, the verticillium-wilt-resistant hybrid, Ohio CR-6 (3), developed severe symptoms of verticillium wilt in an Ohio commercial greenhouse. Isolates from these diseased plants were used in seedling inoculation tests and were found to cause severe disease in the following cultivars known to possess the Ve gene: Florida 216, Ohio 1239A, Ohio CR-6. There are two known races of Verticillium dahliae Kleb. Ve-Race 2 has been studied by Bender and Shoemaker (1) and Okie and Gardner (2).

The red-fruited V. dahliae Race 2-resistant tomato line, 8V (courtesy of R. Gardner, Dept. of Horticultural Science, North Carolina State Univ., Fletcher) had good resistance to our isolate of Verticillium. 8V was a selection from the Canadian line, MEL2669170G. To use this resistance, 8V was crossed with Ohio CR-6 (Fig. 1). Seeds from the F1 were bulked. Thirty-seven F2 plants were selected for pink fruit color, and the F2 were screened for resistance to our isolate of V. dahliae Race 2. In this F2 and F3 screening, the resistance derived from 8V acted as a monogenic dominant character. These 37 lines also were screened for resistance to tobacco mosaic virus and fusarium crown and root rot (FCRR). The two most promising resistant lines from this screening were selections Ohio 11 and 12 of the F3. The Ohio 11 is homozygous for resistance to V. dahliae Race 2, tobacco mosaic virus Tm-2, and FCRR. The Ohio 12 selection was similarly resistant except that it is heterozygous for Tm-2.

Availability

Seed is available to breeders upon request to S.Z.B. at the Ohio Agricultural Research and Development Center, Ohio State Univ., Wooster, OH 44691.

Literature Cited


Fig. 1. Pedigree for Ohio VR11 and 12 Verticillium-wilt-resistant race 2 tomato breeding lines (Ve-Race 2).

‘Sungem’ Nectarine

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‘Sungem’ nectarine [Prunus persica (L.) Batsch] (Fig. 1) was released to provide an early ripening nectarine for commercial markets. All nectarines released by the Univ. of Florida begin with the prefix ‘Sun’. ‘Sungem’ is expected to be successful for homeowners, consumer harvest, local markets, and commercial growers with large acreage.

Origin

‘Sungem’ originated from a 1974 cross of...
Fla. 3–4N x ‘Armking’ (Fig. 2). It was selected and propagated in 1977 and tested as Fla. 7–4N. Budded trees have been tested in Florida at the Fruit Crops Dept. in Gainesville, Agricultural Research and Education Center in Monticello, and at commercial orchards near Madison.

**Description**

Fruit of ‘Sungem’ have been observed on budded trees since 1979. Trees are vigorous and semi-spreading and set a large number of flower buds. They require a large amount of fruit thinning in the absence of thinning by spring frosts. Fruit are medium size for early season fruit, averaging 5 cm in diameter and 80 g when thinned 15 to 20 cm apart. Fruit ripen 70 to 75 days from full bloom or 5 to 12 days before ‘Armking’ nectarine, making this the first nectarine to ripen in the peach-growing area in Madison County. Fruit are round with no tip. Fruit are semi-cling with no separation of the flesh and pit when soft ripe. Flesh is melting, yellow, and firm with good quality. Flesh browning does not occur readily on cut surfaces. Pits have little tendency to split, except when yield is low or when trees are girdled to increase fruit size. External fruit appearance is attractive, with 90% to 100% red blush over a yellow ground color. ‘Sungem’ shows little tendency towards fruit russetting as does ‘Sunred’ nectarine. Harvest periods, which last about 5 days, begin in early to mid-May and usually follow ‘Flordaking’ peach.

Leaves are moderately large with globose petiolar glands. Bacterial spot [*Xanthomonas campestris* pv. *pruni* (Sm.) Young et al.] resistance is high and similar to that of ‘Flordaking’. Flowers are large, showy, and medium pink. Pollen is bright yellow and abundant. Trees are self-fruitful. Major advantages of ‘Sungem’ nectarine are its attractive fruit, high fruitfulness, and early ripening.

**Culture**

Trees of ‘Sungem’ have an estimated winter-chilling requirement of 450 chill units or about the same as ‘Sunlite’ nectarine and ‘Rio Grande’ peach. It has fruited well where the coldest month (January) averages 12° to 14°C. Full bloom occurs most seasons in mid-to-late February in the Gainesville to Monticello area. Best adaptation would be for areas and sites where ‘Sunlite’ and ‘Rio Grande’ have proven reliable in production.

**Availability**

Inquiry regarding availability of budwood may be directed to the Florida Foundation Seed Producers, Inc., P.O. Box 309, Greenwood, FL 32443. Limited quantities of budwood may be obtained from the Fruit Crops Dept., Gainesville, FL 32611 or from the AREC Monticello at Rt. 4, Box 63, Monticello, FL 32344.