U.C. Top Mark Fusarium Wilt-resistant (Fom-1) Muskmelon Breeding Line

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U.C. Top Mark fusarium wilt-resistance (Fom-1) is an andromonecous, salmon orange-fleshed, western shipping-type muskmelon (Cucumis melo L.) breeding line. It has value as a germplasm source for selection as well as the development of commercial hybrids.

Origin
‘Top Mark’ was crossed to a fusarium wilt-resistant French cultivar, Doublon (donor parent), in order to introduce via backcrossing the dominant gene (Fom-1) (1), which confers resistance to Fusarium oxysporum f. sp. melonis Snyd. and Hans. races 0 (1, 2) and 2 (4) into western shipping-types adapted to California’s melon production areas. The recurrent parent ‘Top Mark’ carries resistance to verticillium wilt (Verticillium dahliae Kleb.), crown blight, and sulfur. The fusarium wilt-resistant segregates from each cross were identified by a seedling test (3) and backcrossed to ‘Top Mark’.

Seeds from the sixth backcross to the recurrent parent (1:1 ratio of resistant to susceptible plants for fusarium wilt) were planted into a fruit-to-row isolation plot at the San Joaquin Valley West Side Field Station. Selections were made (open-pollinated fruit) for horticultural characteristics, verticillium wilt, crown blight, and sulfur resistance, vegetable breeding.

A seed sample from each selected fruit (BC6, F3) was assayed from fusarium wilt resistance (seedling test). Resistant progenies in the range of 53% to 100% were recovered from all seed lots. U.C. Top Mark fusarium wilt-resistant (Fom-1) breeding line is a mass increase of the third generation from the sixth backcross to ‘Top Mark’ (Fig. 1).

Availability
A limited quantity of seed is available for distribution to seed producers and breeders upon written request to F.W.Z.

Literature Cited