Flordaguard Peach Rootstock

W.B. Sherman, P.M. Lyrene, and R.H. Sharpe

Fruit Crops Department, University of Florida, Gainesville, FL 32611

The three commonly used root-knot resistant peach rootstock Nemaguard, Nemared, and Okinawa are deficient in one or more desirable characters for areas with mild winters and sandy soils, such as are found in Florida. These rootstock are susceptible to *Meloidogyne incognita* (Kofoid and White) Chitwood race 3 root-knot nematode. Nemaguard and Nemared require more winter chill for proper fruiting than occurs in Florida. Okinawa has a low-chill requirement but produces an undesirable high percentage of double-seeded pits. Nemared has red leaves, an aid in debudding of green-leaved cultivars. Flordaguard has improved root-knot nematode resistance and single-seeded pits, and is low-chilling and red-leaved. It is released by the Univ. of Florida Agricultural Experiment Station for grower trial and is expected to become a standard peach rootstock for low-chill peach production in root-knot nematode infested nonalkaline soils.

Description of tree and fruit

Flordaguard trees have a winter chilling requirement of ≈ 300 chill units (cu), based on bloom time with standard cultivars, and should be adapted for seed production in areas that can successfully produce 'Flordagold' peach (325 cu) or 'Sunred' nectarine (250 cu). Full bloom usually occurs 10 to 15 Feb. at Gainesville. Flordaguard trees have fruited well where the coldest month averages 13 to 16C and in colder locations in the absence of spring frost. Trees produce many flower buds and have long, whippy growth that must be pruned to support the heavy crop load. Flordaguard has red leaves with reniform pe-

tiolar glands and transmits red leaf pigment to all seedlings. Flowers are deep pink and showy. Pollen is bright yellow and trees are self-fertile and precocious, fruiting the 2nd year in the field. Fruit are yellow fleshed and heavily pubescent with dull red overcolor similar to that in the leaves. Fruit ripen in late June at Gainesville or ≈ 130 days from bloom compared to 110 days for Okinawa; consequently, seeds are better developed in Flordaguard. Pits are completely freestone and relatively small, ≈ 2 g for each dry pit, with a deep red surface.

Seed and rootstock characteristics

Nearly 100% of Flordaguard seed germinate, with uniformly vigorous seedlings. Pits are nearly 100% single-seeded and thus do not have to be cracked for seed separation before planting. Seedlings have been uniformly resistant to *Meloidogyne javanica* (Treub) Chitwood and *M. incognita* (Kofoid and White) Chitwood, races 1 and 3 in test tanks and have exhibited resistance for 10 years under field conditions where race 3

vigorously attacks Nemaguard, Nemared, and Okinawa (Sharpe et al., 1969; Sherman and Lyrene, 1983; Sherman et al., 1981). More than 100 scion clones have been grafted on Flordaguard, including low-chill cultivars and selections from the breeding program. These have been tested under field conditions for 3 to 7 years without showing signs of incompatibility at the graft union. Flordaguard shows susceptibility to Fe deficiency chlorosis under alkaline conditions (Egilla and Byrne, 1989). Seed dried and stored at 7C for 2½ years have shown no significant reduction in germination percentage. Seed stored dry in the pit, imbibed with water for 3 to 5 days, and held in a moist medium at 7 to 10C germinate in 4 to 5 weeks.

Origin

Flordaguard is a sixth generation descendant from the cross Chico 11 $\times$ *P. davidiana* (Carr.) Franch, C-26712. Chico 11 was a seedling of Shau Thai, PI 65821 (Sharpe et al., 1969). H-91 was homozygous recessive for double petals and red flowers, but its progeny, Fla. 12-9, was single-petaled and pink-flowered, and thus was an outcross rather than a self. The red leaf gene was introduced in the fourth generation open-pollination. The red leaf pollen parent was from either (N.J.5106137 $\times$ Okinawa) op or (Okinawa $\times$ Rancho 23/32) op (Fig. 1). Flordaguard was tested as Fla. 14-11.

op = open pollination
x = unnumbered selection

N.J. 5106137 = J. H. Hale $\times$ (Elberta $\times$ Rutgers Redleaf)

Fig. 1. Lineage of Flordaguard peach rootstock.

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Availability

Budwood for establishing seed trees and limited supplies of seed are available from the Fruit Crops Dept., Fifield Hall, Univ. of Florida, Gainesville, FL 32611.

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