INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
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FLORIDA COOPERATIVE EXTENSION SERVICE

PACKINGHOUSE NEWSLETTER

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AMBERSWEET ORANGE HYBRID

The Agricultural Research Service, U.S. Department of Agriculture, hereby releases for propagation the AMBERSWEET orange hybrid, formerly tested as selection 1-100-29. AMBERSWEET resulted from a 1963 cross of 1-3-54 (Clementine tangerine X Orlando tangelo) X 15-3 seedling midseason sweet orange made by C. J. Hearn and P. C. Reece at Ft. Pierce, Florida. Seeds were planted at the A. H. Whitmore Foundation Farm near Leesburg in 1964, and AMBERSWEET was selected in 1972 by C. J. Hearn. Grafted trees were planted near Lake Wales and Leesburg in 1974 and have been tested since that time. It is well adapted to both areas and has not been tested elsewhere.

Fruit of AMBERSWEET are 3 to 3-1/2 inches in diameter. The convex-shaped fruit are often tapered at the stem end and an occasional fruit may have a small navel. The calyx usually remains on the fruit when the fruit is picked. The rind is 1/8 to 3/16 inches thick and can be removed with little difficulty. The rind is relatively smooth with prominent oil glands and is yellow ocher in color. The 10 to 12 segments are readily separable; the axis may be solid to somewhat hollow when fully ripe. The flesh color is yellow-ocher, and the fruit is juicy. The juice has excellent flavor and dark orange color, and the fruit is suitable for fresh and process markets. The fruit are nearly seedless when trees are grown in solid blocks, but may contain up to 15 monoembryonic seeds in mixed variety plantings. AMBERSWEET trees are somewhat upright in shape with dense foliage, moderately vigorous, and young vigorous shoots may have short thorns. The trees are moderately cold hardy. The fruit usually attain favorable taste and quality standards by mid-October and can be marketed through December. The average fruit production is essentially equal when grafted to Carrizo, Cleopatra, sour orange, and rough lemon rootstocks. Fruit quality is poorest for trees on rough lemon rootstock. There is little annual fruit crop fluctuation. Test results indicate that cross-pollination is not required for fruit set of AMBERSWEET.

Information on yield and fruit quality is included in three tables. Information on postharvest handling and processing attributes is available upon request.

A limited supply of AMBERSWEET budwood is available from trees that were indexed and found free of psorosis, xyloporosis and exocortis virus. Requests for budwood should be addressed to Dr. C. J. Hearn, Agricultural Research Service, U. S. Horticultural Research Laboratory, 2120 Camden Road, Orlando, Florida 32803.

Average yields of Ambersweet fruit per tree (1 3/5 bu boxes) when grown at the A. H. Whitmore Foundation Farm near Leesburg. Trees planted 15 x 20 feet in 1974. Trees had heat protection during major freezes.

Rootstock	1978	1979	1981*	1982*	1983	1984*	1985	1986	1987	1988
Cleopatra	.1	.9	2.0	2.2	3.0	2.2	4.3	4.7	8.6	6.5
Sour Orange	.1	1.1	2.2	2.6	3.1	2.4	4.4	4.1	9.3	6.8
Carrizo	.1	1.0	2.6	2.9	3.4	.8	4.7	5.5	9.1	6.8
Rough Lemon	.2	1.7	4.0	1.1	2.9	2.0	5.6	5.3	11.4	7.8

*Freeze during winter prior to bloom

Average yields of Ambersweet fruit per tree (1 3/5 bu boxes) when grown near Lake Wales. Trees planted 18 x 25 feet in 1974. Trees had no protection during freezes.

Rootstock	1979	1981*	1983	1984*	1985	1986	1987**	1988
Cleopatra	.1	1.1	1.7	4.0	4.9	6.5	4.5	6.1
Sour Orange	.1	.8	1.4	3.5	4.8	6.7	4.1	4.7
Carrizo	.2	.8	1.1	3.6	5.3	7.0	5.4	6.5
Rough Lemon	.2	1.8	2.8	4.2	4.8	7.0	4.2	6.6

*Freeze during winter prior to bloom
**Frost during bloom 1987

Seasonal changes in average total soluble solids and acids of Ambersweet fruit during 1988 when grown on four rootstocks at the A. H. Whitmore Foundation Farm. (Trees planted in 1974).

	Total soluble solids %					Total acids %				
	Date					Date				
Rootstock	10/18	11/02	11/16	11/29	12/12	10/18	11/02	11/16	11/29	12/12
Cleo	10.7	11.3	11.4	12.3	12.1	1.04	.99	.95	.86	.83
Sour Orange	10.7	11.5	11.8	12.2	12.8	.98	.90	.91	.84	.81
Carrizo	10.5	11.0	11.6	12.4	12.3	1.10	1.02	1.01	.95	.94
Rough Lemon	9.9	10.8	10.3	11.0	11.5	.94	.92	.89	.80	.80

Jack Hearn
USDA, ARS, Orlando

CARTON VENTILATION MISALIGNMENT MAY CAUSE PROBLEMS

Recent observations indicate some packinghouses may combine 4/5 bushel carton covers and bodies that do not have compatible vent hole alignments. Packinghouse managers should give special notice to this situation especially since several different vent hole arrangements are now in use. In some cover/body combinations differing vent hole cuts may be compatible, however, in others serious restrictions in air flow or ventilation may occur. The degree of restriction in ventilation encountered may depend on the design of the refrigeration delivery system of the transport vehicle or the stacking arrangement of boxes within the vehicle. In shipments to Japan insufficient alignment of ventilation holes could also restrict fumigation of fruit on arrival in Japan.

Bill Miller
USDA/ARS
Orlando

CITRUS PACKINGHOUSE DAY

The twenty-eighth Citrus Packinghouse Day is scheduled Thursday, September 7, 1989 at the Citrus Research and Education Center, Lake Alfred. Registration will begin at 8:30 AM where lunch tickets may be purchased. Equipment displays will be in the afternoon. More details will be published in a later Packinghouse Newsletter.

AVAILABLE PUBLICATIONS

Available from Dr. W. Wardowski, CREC, 700 Experiment Station Road, Lake Alfred, FL 33850

Automated Density Separation for Freeze-Damaged Citrus, by William M. Miller, Kalman Peleg, Patrick Briggs. Applied Engineering in Agriculture 4(4):334-348. 1988.

1989 Citrus Packinghouse Day Equipment Display registration form.

Available from Dr. B. L. Wild, Gosford Horticultural Postharvest Laboratory, P. O. Box 355, Gosford, N.S.W. 2250, Australia.

Hot Dip Treatments Reduce Chilling Injury in Long-term Storage of 'Valencia' Oranges, by B. L. Wild and C. W. Hood. HortScience 24(1):109-110. 1989.

Available from J. Whigham, Division of Fruit & Vegetable Inspection P. O. Box 1072, Winter Haven, FL 33882-1072

"1987-88 Season Annual Report" (Citrus)

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