Oroblanco:
A new grapefruit hybrid

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Early-maturing grapefruit hybrid, 'Oroblanco', developed by geneticist Robert K. Soost, has been released for use in California's interior citrus areas.

Fruit and sections, left to right, are 'Marsh', 'Oroblanco', and 'Seedy Marsh'.

In 1958 an essentially acidless pummelo, CRC 2240 (*Citrus grandis* Osbeck), which we had found to impart low acidity to its progenies, was crossed as seed parent with a seedy, white, tetraploid (having twice the normal number of chromosomes) grapefruit (*C. paradisi* Macf.). The cross was made in April 1958 and the trees field planted in 1962. The small population from this cross consisted of one tetraploid and six triploids (having 1½ times the normal number of chromosomes). Two of the triploids had particularly favorable characteristics and were propagated for further testing. One of these, 6C26,20 is being released as the cultivar Oroblanco.

Observations have been made and data collected at Riverside since 1967. Additional test trees were planted at the University of California Lindcove Field Station at Exeter (like Riverside, an intermediate, interior climate area), South Coast Field Station at Santa Ana (cold, humid area), and near Thermal in the Coachella Valley (hot desert climate). Some fruit has been available for testing at these locations since 1972.

TABLE 1. Soluble Solids and Acid Percentages and Solids-to-acid Ratios of 'Oroblanco' and 'Marsh' at Riverside, California, in Several Years

	Soluble solids		Acid		Solids:acid ratio	
Year	Oroblanco	Marsh	Oroblanco	Marsh	Oroblanco	Marsh
	%	%	%	%		
1967	13.3	11.1*	1.22	1.95*	10.9	5.7*
1969	12.9	11.6	1.20	2.07	10.8	5.6
1970	12.1	11.8*	1.19	1.96*	10.2	6.0*
1971	13.7	10.4	1.61	2.02	8.5	5.1
1972	13.5	9.3	1.06	1.62	12.7	5.7
1973	14.0	10.6	1.40	2.25	10.0	4.7
1974	10.8*	8.8	0.94*	1.60	11.5*	5.5
1975	12.3	9.9	1.24	2.22	9.9	4.5

NOTE: All samplings made in mid-to-late December except those marked with an asterisk (*), which were from the following January.

TABLE 2. Soluble Solids and Acid Percentages and Solids-to-acid Ratios of 'Oroblanco' and 'Marsh' During the 1969-70 Season at Riverside, California

	Soluble solids		Acid		Solids:acid ratio	
Date*	Oroblanco	Marsh	Oroblanco	Marsh	Oroblanco	Marsh
	%	%	%	%		
12/22/69	12.9	11.6	1.20	2.07	10.8	5.6
1/19/70	13.1	10.5	1.19	1.85	11.0	5.7
2/10/70	12.3	—	1.22	—	10.1	—
2/27/70	12.1	10.3	1.17	1.73	10.3	6.0
3/19/70	11.9	10.4	1.08	1.90	11.0	5.5
4/22/68†	12.3	10.7	0.98	2.16	12.5	5.0

*Samples of 10 fruit at each date, from the same tree.
†This sample taken in a previous season.

Description

In general characteristics the fruit resembles present seedless, white-fleshed grapefruit cultivars. Fruit size and shape have been similar to 'Marsh' grapefruit at all test locations. Peel color is paler than 'Marsh' at comparable dates. Exterior color is not well developed in fruit harvested in November at Lindcove. Peel thickness is greater than 'Marsh' at all test locations. Other interior characteristics are very similar to 'Marsh', but 'Oroblanco' has slightly paler flesh and a larger hollow core. The flesh is tender and juicy, separating well from segment membranes. It is slightly lower in percent juice than 'Marsh', probably because of its thicker rind.

'Oroblanco' lacks the bitterness of grapefruit, particularly grapefruit from cooler areas. An astringent aftertaste, which has been detected by some persons, is more noticeable early in the season and in cooler environments.

The Riverside data for 'Oroblanco' in table 1 are from the original orchard tree except for the last two years. Levels of solids and acid are slightly higher than those obtained from younger trees in more recent plantings, probably because of the crowded condition of the original plantings and resulting slow growth. However, the ratios have been very similar.

Solids have always been higher than in 'Marsh'. This is also true at Lindcove, although the absolute levels have been slightly lower. Acidity in 'Oroblanco' has been much lower than in 'Marsh' in all years. The low acidity with moderate solids levels produces a much higher ratio than in 'Marsh'. These differences in acidity and ratio are maintained throughout the harvest period.

More recent comparisons show a pattern similar to that in table 2, but the 1969-70 data are presented, because more samplings were made. Coachella Valley fruit from trees planted in 1970 on vigorous rootstocks has had lower acids and solids levels, resulting in questionable fruit quality. The trees are excessively vigorous and yields are low; fruit quality may improve as the trees age and yields increase. At South Coast Field Station acidity has been high in relation to solids, except very late (May) in the season. Although ratios are still higher than with 'Marsh', the fruit has not had acceptable quality. Astringency and off-flavor have been particularly noticeable.

On the basis of present data and observations, 'Oroblanco' is best adapted to the inland citrus areas. It probably will not provide an early-maturing grapefruit-type fruit for the desert areas, although additional testing is needed. In inland areas it will provide a grapefruit-type fruit several months earlier than present grapefruit cultivars. The season of use at Riverside is from early December until April. At Lindcove, fruit is mature in early November with the season extending through February. Taste tests indicate consistent preference for 'Oroblanco' over 'Marsh' grown at Riverside and Lindcove. The thicker rind of 'Oroblanco' is no doubt its most unfavorable character.

Long-term yielding behavior is uncertain. Test trees at Riverside and Lindcove have had moderate to heavy yields. Heavy yields may alternate with moderate to low yields. With heavy yields, fruit size is reduced but compares favorably with 'Marsh' with similar yields.

'Oroblanco' has been grown on 'Troyer' citrange, *Poncirus trifoliata* (L.) Raf., rough lemon, 'Brazilian' sour orange, 'Red' rough lemon, citremon 1449, grapefruit, and sweet orange as rootstocks. Tree growth is vigorous on all stocks with no bud union abnormalities. Rough lemon and 'Red' rough lemon have had adverse effects on interior physical characteristics and juice quality. Data are still insufficient for critical comparisons among the rootstocks.

Patent rights to 'Oroblanco' were assigned to the Regents of the University of California. Trees will be available only through commercial channels.

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