number of such trees during the fall and winter of 1960, and used for hardwood cuttings. A number of Old Home trees developed from these cuttings are now in the University nursery. These trees will be used to establish measles-free Old Home wood for propagation. When available, this wood will be distributed through the University of California Foundation Plant Materials Service. The Bartlett portion of several mature trees consisting of measles-free Bartlett on Old Home intermediate stocks was removed during the winter of 1960–61. The new growth produced by the remaining Old Home trunks and scaffolds of these trees will also provide sources of measles-free Old Home wood.

A number of nursery trees of Old Home that were produced by cuttings have been heat-treated. If measles is caused by a virus, and if the heat treatment destroys it, these trees will give another source of measles-free Old Home.

In the spring of 1961, scion wood was obtained from the Old Home tree at Medford, Oregon, which was developed over 50 years ago from wood of the original Old Home tree in Illinois. The Medford tree has never been top-worked. Since it is the source of practically all of the existing Old Home wood, and since Old Home is not universally affected, the Medford tree undoubtedly is free of measles. The wood received from this tree has been top-worked on several domestic French seedlings to develop another source of Old Home propagating wood.

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WANTED . . . Citrus Bud Variants

New citrus varieties are needed to fill a marketing gap; a variant in your grove might be the answer

R. G. PLATT

Attention has recently been focused on bud variations in standard citrus varieties. This has been brought about largely by the occurrence and recognition of variants which have had one or more undesirable characteristic from the standpoint of what is recognized as typical and desirable fruit of each variety.

For some years, the grower, the industry and the consumer have come to look for certain characteristics which identify California citrus fruits. Variations which detract from or lessen these desirable characteristics must be avoided, if California is to continue to hold its enviable position in the production of high quality citrus.

Even though the standard selections of navel orange, valencia orange, grapefruit, lemon and mandarin are of generally acceptable quality, they could be better. An effort should be made to further improve quality and find varieties that fit an ever-changing picture.

What are the improvements, the varieties, for which to look?

AREAS OF PRODUCTION

One of the most pressing needs has arisen from the changes taking place in California's areas of citrus production.

Weekly Fresh Domestic Shipments of California-Arizona Valencia Oranges

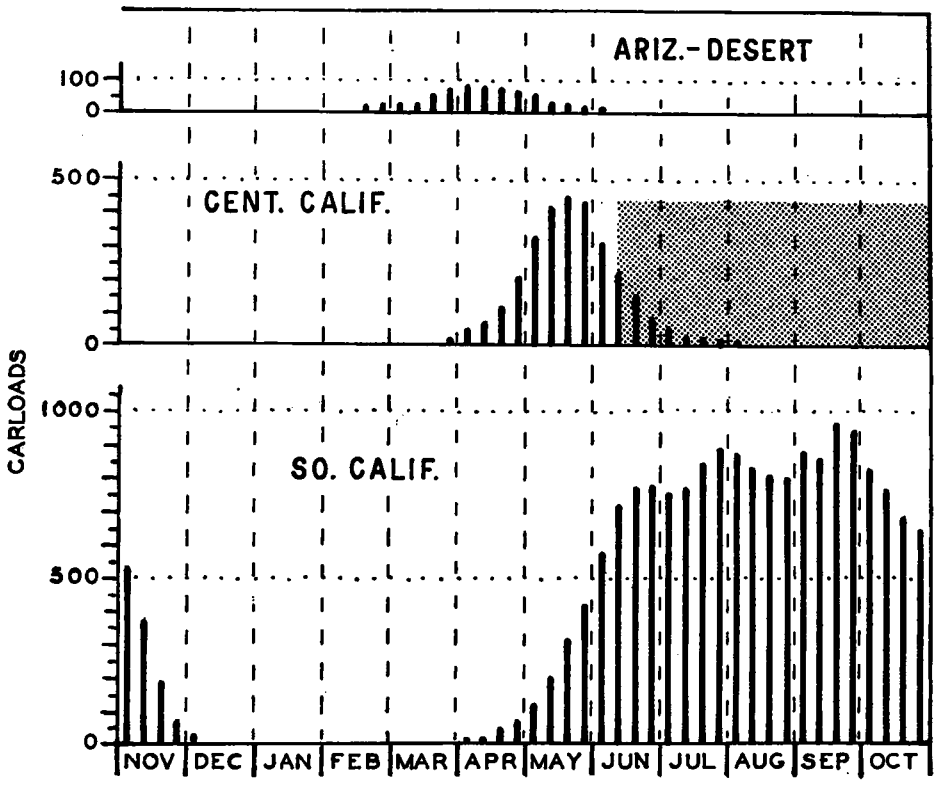

Chart shows 6-year average; 1953–54 through 1958–59. The gray area indicates a time during which larger shipments from central California would be desirable. (Source: Valencia Orange Administrative Committee. Less than 10 cars per week not shown.)

The story of orchard removal for subdivision in southern California is a familiar one; the same is true concerning acreage losses due to the virus tristeza (quick decline). Acreage losses are, however, being replaced to a large extent by new citrus planting in the desert valleys of southern California and in the southern San Joaquin Valley counties. There is one major difference; while acreage is being replaced, the season of production with present varieties is being only partially replaced. This is particularly true in the case of the valencia orange.

The chart shows weekly shipments of California-Arizona valencia oranges and the gray area represents the time during which more fruit from central California would be desirable.

California, with two orange varieties—the navel and the valencia—grown in different climatic areas, has been able to supply fresh fruit in volume to the market every month of the year. In contrast, Florida and Texas with a greater total volume, virtually do not have fruit for the market during summer and early fall months.

NAVELS START NOVEMBER

Starting in November, central and northern California and Arizona-Desert valleys navel oranges are shipped to market. As central California navels decrease in volume during March and April, southern California navels, which start in December, increase and carry through the month of May.

Valencia oranges from the desert areas reach peak shipments in March and April followed by central California valencias from April to June. As central California valencias taper off in supply, southern California valencias increase and are the only fresh citrus fruit on the domestic market in volume from June to mid-October.

What is the picture of the future?

As valencia orange acreage in southern California decreases, the volume of citrus fruit available for market during the summer and early fall months will decline. While limited extension of the marketing season of present varieties is possible, there are at present no known orange varieties that will mature or hold during this period for satisfactory marketing from central California, the most likely area.

Needed, then, is a variety which will grow and mature at the proper time in central California to fill this marketing gap.

OTHER NEEDS

Late maturing, high quality grapefruit for the desert and Central Valley would be desirable in order to extend the marketing season of this fruit. Mandarin varieties of good size, color, and quality with the ability to withstand internal drying or granulation are needed. In addition, improvements in the standard navel and valencia orange from the standpoint of color, size, texture, etc., are highly desirable.

It is toward this end—the improvement, the upgrading, the discovery and testing of new varieties, as well as selection for disease freedom and trueness-to-type—that the Citrus Variety Improvement program of the University of California is dedicated (see "Variety Improvement Terms Defined," Citrograph, November 1960). Candidate trees for this program are from three main sources: foreign introductions, hybrids from the work of plant breeders, and naturally occurring hybrids and variants.

Foreign introductions of citrus varieties may well turn up a very desirable selection to fill some of the needs in California. The hybrids produced by plant breeders also may provide the industry with a very desirable new variety.

Work in plant breeding of citrus is slow. Dr. Walter Reuther, chairman, Department of Horticulture, Citrus Experiment Station, has pointed out that only one or two new hybrids per thousand will be of sufficient interest to merit carrying much beyond initial screening—odds are perhaps one in 10,000 for finding one of commercial value.

These are two important sources for possible new varieties and a vigorous program on both is underway.

DESIRABLE BUD VARIANTS

The other possibility is the discovery and recognition of desirable bud variants in the millions of citrus trees already growing in California orchards. Although attention has been focused on the undesirable aspects of bud variation, there also is the other side—that of desirable or superior characteristics which a bud variation may possess.

Actually, some of the citrus varieties we now know and recognize as commercial varieties originated as bud variants. The Washington navel orange most likely arose as a bud variant of the Brazilian variety known as the Selecta orange. The Pink Marsh grapefruit is a bud variant of the White Marsh. The Ruby or Red Blush grapefruit of Texas is a bud variant of the Thompson grapefruit. The Shamouti orange, widely grown in Palestine, originated as a variant of the Jaffa orange. In Japan, several desirable bud variants of the Satsuma Mandarin are recognized and propagated.

It is altogether possible, if not probable, that there already exist in our California orchards, trees or limbs that are variants which have some and perhaps all of the characteristics needed.

SEVERAL BEING TESTED

A few of these variants are brought to the attention of University of California personnel each year and several are at present under test.

Fruit on one limb of a valencia orange tree in the Fillmore area was observed to be of higher color, smoother external texture, less tendency toward a hollow core, and later in maturity than fruit on the rest of the tree or other trees in the orchard.

Another example is a grapefruit seedling discovered in a yard in Taft. The fruit of this seedling was of excellent quality and shape and practically seedless.

These are being tested to see if their characteristics will hold in other areas. Some variants have real promise while others may be superior in one respect but inferior in another. All require screening and trial.

IN YOUR ORCHARD?

The nongranulating mandarin, the superior navel and valencia orange, the everbearing desert lemon, the late high quality summer orange for central California, may be a limb or tree in your orchard.

Growers, and others connected with the citrus industry, should be horticulturally aware of trees and fruit. Watch for bud variants. Cull out the undesirable ones, but look for those which show the characteristics for which the industry is searching.

The project to test and evaluate promising bud variants and mutations is being carried on by the Department of Horticulture at the Citrus Experiment Station in Riverside. Bud variants considered worthy of investigation, should be brought to the attention of Dr. W. P. Bitters so they may be evaluated.

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