Scarlet Grape

new variety for fresh juice and jellies

H. P. Olmo

The following extract is from Experiment Station Bulletin 706 which may be obtained without charge by addressing the Publications Office, College of Agriculture, University of California, Berkeley 4, California. Cuttings of this variety are not offered for sale or distribution by the University of California, but may be purchased from nurserymen.

A new juice grape—with a Concord-type flavor—adaptable to the climatic conditions of California, produces a juice that can be canned, or frozen, or used in pure, sparkling soft drinks.

Wine-growers may find the new grape useful in blending, because of its high color, flavor and acidity.

Named "Scarlet" because of its characteristics—the bright red of its extracted juice and the early fall coloring of its leaves—the new variety was developed at Davis.

Scarlet is a hybrid of Golden Muscat × Teinturier, station seedling 294E7, from a cross made in 1935. The seed was planted at Davis in the fall of that year and the vine first fruited in 1939.

The Golden Muscat parent is a hybrid of Muscat Hamburg and Diamond. The Teinturier is of the south of France.

Qualities of Scarlet

Of many new seedlings tested, Scarlet best meets the requirements for producing a juice grape, with a Concord-type flavor, that can be grown successfully in California.

Its color is bright, stable and attractive, and its chemical composition is so balanced that the pure juice can be used without correction.

The vine is well adapted for home gardens as it is vigorous enough to grow on fence, trellis or arbor.

Scarlet fruits regularly and well without great attention to detailed pruning methods, and is somewhat resistant to powdery mildew. The fruit will hang a long time on the vine without spoilage.

Productivity

Scarlet was selected from 60 plants and, as a seedling vine, it was the most productive of all. It averaged 11.5 pounds to the vine during the period 1940 to 1942 in plantings placed two feet apart in the row, when the vines were pruned to only three spurs of two buds each.

In 1945 the original vine was stubbed back to the main trunk, and all the canes were removed. Even with such severe pruning, over ten pounds of fruit were harvested. Many of the dormant buds proved fruitful.

Scattered trial plantings of Scarlet have been too small to furnish reliable data on yield in comparison with such varieties as Concord or Delaware. The more vigorous growth of the vine and the abundance of fruitful buds indicate that it will be more fruitful.

Utility

Because the berry is small, the variety cannot be used as a table grape.

Scarlet is introduced to give the commercial market, and the home grower a specific product—fresh or processed pure juice that can be produced in California with a minimum of effort.

High sugar content and acidity make a well-balanced juice. For example:

Date of test	Sugar content (Balling)	Acidity Gms/100 cc, as tartaric
August 19, 1940	20.0	1.00
August 31, 1941	20.8	1.30
October 4, 1942	28.2	0.80

Scarlet is very productive when spur-pruned, in contrast to Concord, but it also can be cane-pruned and then will carry much greater crops to maturity. The optimum stage of maturity at Davis is from 22 to 23 Balling for making the most palatable fresh juice.

Rapid sweetening of the fruit on the vine necessitates some care in harvesting at the proper period. The acidity can be increased by including the small clusterlets—second crop—which ripen later and have very high acid content.

Scarlet has a thick skin that is very resistant to mechanical injury, is heavily pigmented and separates easily from the pulp.

The pulp is soft, very juicy and most of the berries have three seeds.

The fruit is very resistant to fruit rots and molds.

Ripening in early midseason, the berries hang on the vine and shrivel rapidly when overripe.

The juice is bright scarlet, more intense than Alicante Bouschet, and very stable, not oxidizing easily on exposure or when processed for jellies or beverage use. Sediment settles readily after extraction.

The flavor of Scarlet is similar to Concord and, though less pronounced, is highly palatable.

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Stubborn Disease

one cause of nonbearing in navels, Valencias, and grapefruit

H. S. Fawcett and L. J. Klotz

An increasing number of nonproductive trees sometimes noted in navel orange orchards as the trees advance in age may be due—in part—to the infectious disease known as stubborn disease.

Stubborn disease—also known as acorn disease, and as pink nose, in reference to effects on some of the fruit—has been found in California in all sections where navels are grown.

The stubborn disease appears to affect Valencia trees less severely than navels and it is more difficult to diagnose in Valencias than in navels.

In Valencias, only occasionally are the fruits affected severely enough to produce the acorn shape.

What appears to be the same disease is found on grapefruit trees where it is more pronounced in the Coachella Valley than in other parts of California. It is severe on some grapefruit trees in Arizona.

The infectious nature of the disease was confirmed in experiments begun in 1939.

Young trees propagated by means of buds from diseased trees developed the same types of growth. In 1943, when the trees were four years old, they were top-worked with healthy buds. By 1946 these buds had formed a top which again showed the disease. Buds from the same

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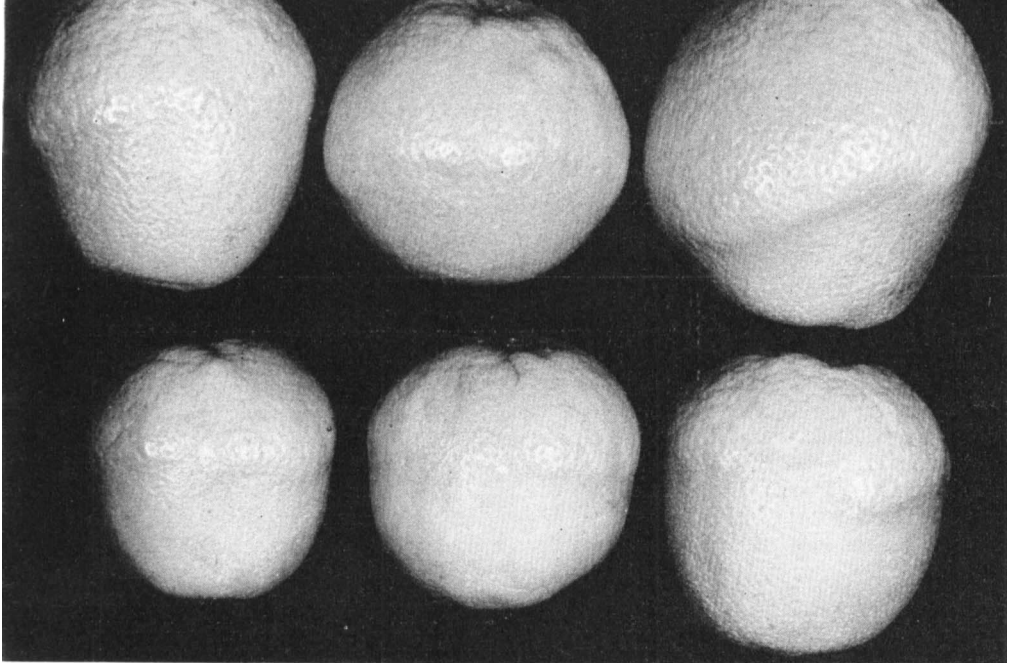

Acorn-shaped citrus fruit, evidence of stubborn disease.

STUBBORN DISEASE

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source used to topwork healthy trees of the same age formed a healthy top.

Characteristics

Stubborn disease is characterized by abnormal branching and formation of multiple buds which produce a brushlike growth of twigs.

The foliage, especially on the south side, usually consists of untimely autumn growth, which becomes somewhat chlorotic during the winter months. There is often a tendency for blossoming during the late fall and winter.

Some of the fruits develop abnormally into forms that resemble an acorn in shape with the rind of the stem half—or some portions of it—growing normally in thickness and the rest of the rind developing less in thickness and with the thinnest portions of the rind near the navel end.

When the fruit is severely affected the pulp opposite the thin portions of the rind has a sour or bitter taste.

The crop decreases until in advanced cases of the disease very few or no fruits are formed.

More Study Needed

It is not known certainly whether it is transmitted by any means other than by propagation of nursery trees but observations would indicate that it is increasing and is suspected of having other ways of spreading. The sudden appearance of the trouble on trees that have been healthy for many years suggests that an insect vector is spreading the disease.

Pending further information regarding the stubborn disease, every effort should be made to select trees entirely free from this disease as a source of propagation for nursery trees. When trees develop pronounced cases of this disease and become nonproductive, they should be replaced. It appears to be useless to topwork these trees with healthy buds, since as has been proved, the subsequent growth will be infected and, in time, the tree will manifest the same trouble.

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SUGARS

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There was a definite change in flavor at 70% inversion and a noticeable one at 90% which was more marked to the more discerning tasters. The flavor of the peaches decreased with increase in storage time, and this decrease was greater in the peaches frozen in 70% and 90% invert sirup. It was particularly noticeable as a combination of oxidized and foreign flavor.

Nectarines

In Kim nectarines there was an appreciable discoloration at 90% inversion which persisted throughout the storage period.

Kim nectarines retained their color better than did the apricots or the peaches. In texture there was little difference between the sucrose and invert sirup samples. Unlike apricots, the nectarine skin was thinner and tender, and remained so during storage. In flavor there was a slight difference at first in invert sirup, noticeable at 70% inversion, but this difference did not persist, owing largely to variability of samples.

In general, nectarines were of higher flavor initially and retained their color and flavor better during freezing storage than did the apricots or peaches.

In Gower nectarines there was no appreciable difference in color, flavor or texture between sucrose and 90% invert sirup samples.

Preparation of Syrups

One method of preparing sirups was to dissolve the necessary amount of granulated sugar in water at 20° C with vigorout stirring. In another case, the water was brought to boiling and the sugar was dissolved with minimum of stirring and then allowed to cool to 20° C in uncovered beakers. There was little difference in oxygen content of the sirups under these conditions at lower densities but the percentage difference progressively increased with increase in density.

Protective Effect

That sugars do exercise a protective effect on nonenzymic oxidation of ascorbic acid has been established but there is a question as to the relative effectiveness of the sugars.

Of the pure sugars tested, the most efficient in retarding oxidation of ascorbic acid in solutions containing about 50 mg. per cent of ascorbic acid allowed to stand quietly exposed to air at room temperature were maltose, levulose and lactose; the least effective was dextrose.

In the case of sirups, the most efficient were puritose and invert sirup.

Under conditions of vigorous oxygenation, the order of decreasing protection was maltose, dextrose, sucrose and lactose. The order of decreasing protection in sirups was puritose, sucrose, invert sirup and low conversion corn sirup.

More work in this field is now under way.

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The above article is a condensation of a report given at the 8th Annual Conference, Institute of Food Technologists, Philadelphia, June 9, 1948.

Work on establishing *Physcus testaceus,* parasite of the Mediterranean fig scale imported from Italy, has been resumed by the Division of Entomology at Riverside, following wartime interruption.