

New Fruit Varieties

produced by superior seedlings, chance hybridization
or planned by selective breeding programs

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The most important link in the chain of fruit production is the fruit variety.

Even advanced cultural and technical practices can not make a variety better than its inherent characteristics provide—though poor practices may keep the full quality of the variety from developing. Superior varieties soon lead production wherever they can be grown successfully.

A variety may be superior in more than one way. Consumers often think of superiority only in relation to the quality, flavor or size of the fruit. Under the current complex marketing system, maturity at a certain season of the year; higher color, with its better eye appeal; or firmer flesh, enabling the grower to harvest later or ship longer distances, may all be real measures of superiority.

New varieties originate in several ways. The oldest source of new fruit varieties is the chance seedling. Most of the varieties usually designated as old, standard sorts originated in this way. Until the discovery of vegetative propagation, it was necessary to rely on the production of new superior sorts through chance seedlings.

The practice of vegetative propagation made it possible to perpetuate the best varieties. This has resulted in a continual upgrading until, in cases of long domestication and wide dissemination, improvement even by modern breeding methods is a slow task. Relatively new economic species, or those of restricted culture, usually yield rapidly to the plant breeders' methods.

A prolific source of improved fruit varieties was the spread of common fruits over the world, so they came into contact with related species. Fertile hybrid combinations produced new fruit types. An outstanding example is the modern strawberry, which was unknown two hundred years ago. It originated in Europe through a fertile combination between two introduced native American species—one from North America and one from South America.

At one time the peaches of the world were divided into rather distinct geographical races. Present-day varieties developed after these various forms were gathered together followed by natural and controlled hybridization.

These methods have all relied fundamentally on the production of random

hybrid populations, from which a more or less conscious selection was made.

Another source of variation leading to new varieties which has been utilized especially in the past two decades is bud sports—mutations—these are sudden departures of a part of a plant from the characteristics which distinguish it from all others of its kind. Examples of this sort are plentiful in the production of the newer apple varieties—especially the red bud sports.

Mutations selected for commercial varieties are usually characterized by brighter, more attractive colors, by a

Some New Fruit Varieties for West Coast Growers Introduced by the University of California, College of Agriculture, Agricultural Experiment Station.

Variety	Introduced
APPLES	
Beverly Hills	1945
PEACHES	
Low Chilling Requirement	
Rubidoux	1949
Anza	1948
Bonita	1943
Ramona	1943
Golden State	1942
Hermosa	1942
Rosy	1942
Sunglow	1942
Babcock	1933
C. O. Smith	1933
NECTARINES	
Mabel	1949
Philp	1949
GRAPES	
Emerald Riesling	1949
Ruby Cabernet	1949
Delight	1947
Perlette	1946
Scarlet	1946
SMALL FRUITS	
Campbell strawberry	1949
Cupertino strawberry	1949
Donner strawberry	1945
Lassen strawberry	1945
Shasta strawberry	1945
Sierra strawberry	1945
Tahoe strawberry	1945

change in the time of maturity to a more favorable market season or by larger fruit size. The rarity and unpredictability of this change in a variety make it of minor importance as a continuing source of superior fruits, in spite of the rather spectacular varieties so originating.

Mutations always have occurred in plant material so far as geneticists know, but this source of new varieties seems to have been used to the full extent only in more recent years.

Fruit tree breeding is an expensive, time-consuming process. The yield of superior varieties is measured in terms of fractions of a per cent of the total populations grown. The truly superior variety is usually recognized easily, although rigid tests are sometimes necessary to complete the story regarding its quality for processing, or the characteristics of the tree—which may be important to the grower—such as disease resistance or inherent vigor.

Controlled hybridization offers the greatest chances for continued improvement of fruit species, because new, desirable characteristics can be found and incorporated into the genetic constitution of each species. As such breeding methods are followed and the results recorded, the over-all efficiency of controlled breeding inevitably will be raised.

New varieties being tested in California have resulted from all the above sources. In the United States and Canada some 747 new varieties of recent origin have been listed by research workers. Only part of these are adapted to California.

The importance of new varieties produced by controlled breeding is exemplified by the new deciduous fruit varieties originated by the University of California Agricultural Experiment Station, as shown in the table.

Many varieties are especially adapted to a rather limited range, and even good varieties are sometimes slow to achieve commercial recognition. However, the really superior varieties are soon grown to the limits of their cultural requirements, and become the mainstays of the fruit industry for generations.

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