

Some Thoughts on the Origin of Certain Spur-Type Mutations of Apple in the State of Washington

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The severe freeze of 1955 killed a large number of apple trees in Washington. The freeze damage was particularly severe on young trees, trees in a high state of vigor. In this condition, nursery trees died as well as trees in the orchard.

There were three factors probably involved in the discovery of spur-type trees: (1) shortage of trees because of the number of nursery trees killed; (2) high demand for Red and Golden Delicious trees of any kind or grade to replant orchards; (3) a system of stump grafting developed as an emergency measure.

The high demand for trees tended to result in the sale and planting of many trees which might otherwise have been destroyed. Similarly, many weak or abnormally growing trees were nursed along and maintained in the orchards. Under more normal conditions, many such trees would probably have been replaced.

That many of these weaker trees should later have been recognized as a new type, a spur-type, is no longer surprising. Spur-type trees tend to be smaller and less vegetative at first than the standard variety. Often, newly planted spur-type trees do not grow well and resemble sick trees. Only with experience have we learned to prune such trees hard and fertilize them heavily in order to force them into good vegetative growth.

The stump grafting of trees was another practice which probably tended to create new strains. Even with extreme care, some of these grafted trees turned out to be seedlings, the result of sprouts from the seedling

root. Many of these seedlings have Delicious parentage. It would not be a surprise if a few of the "new strains" were actually seedlings.

However, and more likely, the new strains were indirectly the result of a shortage of scion wood. Most of the stump grafting was done by the growers themselves. The scion wood often came from other trees in the orchard rather than from regular stock trees in nurseries. This resulted in many variations.

While it is true that more strains could have developed from the use of weak and broken trees, and stump grafts, it is also interesting that most of the new strains found in Washington are of Delicious rather than Winesap, Jonathan or Golden Delicious. Undoubtedly this is the result of a so-called "inherent variability" among individual trees, limbs, shoots, and even fruit on different spurs. Delicious appears much more variable than other varieties.

The freeze which struck Washington in 1955 has resulted indirectly in the development of many new color strains and different growth habits of apple. Certain of the same factors which produced them are also in effect today. One is the great demand for trees due to the rapid increase in planting and the marked increase in number of trees per acre. Where growers may in the past have planted 5 or 10 acres, with 150 to 300 trees, today they are planting 100 to 600 acre blocks with from 20,000 to hundreds of thousands of trees at one time.

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Let us hope that this development will result in more improved plant material, and not trees infected with viruses, bark disorders or other maladies. This danger suggests that caution be exercised in determining what trees to plant and where scion wood

is obtained. If growers persist in propagating their own trees and using questionable sources of scion wood, rather than waiting for healthy, certified trees from reliable nurserymen, they could create problems in the future.

Three New Stone Fruit Cultivars Introduced by the U. S. Department of Agriculture

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The U. S. Department of Agriculture recently announced the naming and release of Fairtime peach, Flamekist nectarine, and Friar plum, each developed at the U. S. Horticultural Field Station, Fresno, California. They have been grown and tested primarily in California.

Fairtime peach originated as an open-pollinated seedling of selection C69-42 (Rodeo x Kirkman Gem) in 1958, and was formerly tested as selection F102-13. The seedling fruited first in 1961. Fairtime ripens at Fresno in the second week of September, or about 6 weeks after Elberta. The fruit is large, round, freestone and has very light pubescence. The flesh is yellow, firm but melting, smooth-textured and good flavored. The exterior color is an attractive yellow with a bright red blush. Tree vigor should be controlled for most attractive color and finish.

Trees of Fairtime are vigorous and productive. Heavy cropping is desirable to prevent excessive fruit size in California. The blossoms are self-fertile and large petaled. Leaf glands are reniform. The chilling requirement of Fairtime is moderately low, as indicated by time of bloom.

Fairtime fruit have received favorable market acceptance in Los Ange-

les. It has also rated high in commercial freezing tests.

Flamekist nectarine resulted from a self-pollinated seed of the Gold King variety in 1959. The seedling first fruited in 1962 and was tested as F113-87. Flamekist ripens about 3 weeks after Elberta, or in the third week of August at Fresno. The fruit is large, ovate, and clingstone. The flesh is yellow, firm, smooth-textured, and of excellent quality. A bright red blush partially covers an attractive yellow ground color. On excessively vigorous trees color may be inadequate.

Trees of Flamekist are moderately vigorous and productive. The blossoms are self fertile and large-petaled. Leaf glands are reniform. A moderately low chilling requirement is indicated by early bloom. The clingstone character may be a drawback in future years, but consumers now accept clingstone nectarines. The trade has reacted against late freestone nectarines because of lack of firmness.

Friar plum resulted from a cross of Gaviota x Nubiana made in 1957. The seedling was tested as selection F34-29. Friar ripens at the end of July at Fresno, several days later than its parent, Nubiana. The fruit is large

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