



A Garden Compass Re-Publication

...by Dave Wilson Nursery 

The Genetics of Developing New Fruits

by Ed Laivo

- **Emasculate one blossom**, add two parts pollen from a plant with traits in common, tie a bag around it and leave it alone for two months.
- **Remove the bag** and let the developing fruit mature for up to five more months.
- **Carefully plant the fruit's seed**, then in two to three years, evaluate the new plant's fruit.
- **Repeat this procedure thousands of times** to discover each new fruit variety, and you will have mastered the recipe perfected by one of the world's foremost fruit breeders, Zaiger's Genetics Inc., of Modesto, California.

For 40 years, Floyd Zaiger labored to improve and expand the selection of deciduous fruits for the commercial orchard and home garden markets. Using parent stock from apples, pears, almonds, peaches, nectarines, plums, apricots and cherries, Zaiger Genetics has developed some of the most delicious and unusual fruits available in the world today.

Beginning in the early 1960s with the release of his first patented fruit varieties (Royal Gold peach and Crimson Gold nectarine, which were released in both the United States and France), Floyd Zaiger's goal was to lengthen the fresh-fruit season.

He would accomplish this by creating fresh-market peaches and nectarines with an earlier harvest and lower winter chill requirements so they could be grown farther south in California's Central Valley for even earlier harvest. Today, the focus is on improving the selection and quality of fruit available to the grower and consumer by providing improved flavor and exciting new types of fruit at different ripening times.

Floyd Zaiger, honored throughout the world for his contributions to the fruit-growing industry, prepared for his career at the University of California at Davis, graduating with a degree in plant science. In 1954, after teaching for a few years, Zaiger and his wife, Betty, purchased a nursery to grow and breed heat-tolerant azaleas. In 1956, Floyd had the opportunity to work with Fred Anderson, "the father of the nectarine," who, in turn, had been an apprentice of the legendary Luther Burbank. With this experience, Zaiger "caught the disease" and fruit breeding became his life.

To develop an entire fruit-breeding facility from scratch requires a monumental amount of time and money. To fund the breeding program, Floyd and Betty purchased and ran two successful retail nurseries in Modesto. Working long hours, they managed all three businesses until their children were old enough to assume some responsibilities. By 1990, the breeding program had grown to where it could support the family, and the nurseries were closed.

Currently, the tremendous attention to detail required to breed plants is shared by Floyd, Betty and their three children, Leith, Gary and Grant. Although Floyd and Betty still oversee the operation, Leith is responsible for crossing and seed growing, Gary supervises farming and fruit evaluation, and Grant is the laboratory and technical specialist.

The development of new fruit varieties is a long process with many more failures than successes. The average number of varieties grown by the Zaigers in a single year is 70,000, of which 69,300 are rejected. Of the 700 kept for evaluation, only a handful will earn a patent. For most, this is a discouraging scenario. But the Zaigers have conquered the odds. With each passing decade, they are better able to predict traits for the offspring of each cross they make.

The Genetic Future

The consumer's demand for fresh fruit with better flavor has the Zaigers aggressively developing new varieties for commercial growers that have exceptional flavor and satisfy the requirements for commercial production and distribution. There is also an effort to acquaint consumers with the intense flavors of many of the smaller-sized fruits (it seems an obvious point: large-size fruit does not equate to superior flavor). Varieties with better resistance to diseases such as peach-leaf curl will be available to both commercial and home growers. In progress are new interspecific fruit crosses that will challenge our concept of fruit while dazzling our pallets; apricots to be available from May through September in colors from white to dark red; and, amazingly, cherries from May through September.

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Floyd Zaiger

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Among the most famous of the Zaiger fruits are the genetic dwarf (3 to 6 feet high) peaches and nectarines such as Honey Babe peach and Nectar Babe nectarine, and the unprecedented new hybrids of complex plum and apricot ancestry, the Pluot® and Aprium® interspecifics.

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Certainly, my love of fruit has more than met its match at the Zaigers'. Their understanding of the universal appeal of great-tasting fresh fruit has made friends worldwide. Let's hope the Zaiger family endeavor continues for many years!

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- **Arctic Rose** and **Arctic Star** low-chill white nectarines
- **Arctic Supreme** white peach
- Low-chill apricots **Katy** and **Gold Kist**
- **Mid-Pride** (Southern California's No. 1 low-chill yellow peach)
- **Craig's Crimson** cherry (self-fruitful, genetic semi-dwarf)
- **Heavenly White** nectarine

- **Double Delight** nectarine (showy double flowers, yellow-fleshed fruit)
- **All-in-One Almond** self-fruitful, and California's most commonly planted home garden nut tree.

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The most recent offering from Zaiger Genetics and the Dave Wilson Nursery is the Zee Sweet Nugget Pluot® interspecifics—varieties of Pluot® interspecifics too small for commercial growers but packing a wallop of flavor. Dave Wilson Nursery is introducing the first of these on a multibudded tree for the 2003 bare-root season (January). Each tree will have up to four new varieties (no names; varieties are identified only by their experimental numbers).

