Gulf Coast Fruit Study Newsletter

Volume 20, Issue 2 Edited By: Ethan Natelson April 11, 2006 Meeting

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Next Gulf Coast Fruit Study Meetings

Our upcoming program will be held on **April 11th**, and will be devoted to stone fruits, primarily peaches and plums. Our featured speaker will be Dr. David Byrne of Texas A&M.

Our program on **July 5th**, will be devoted to figs, and will feature a tasting of some of the many varieties grown here.

Contact Us!

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Alternate Bearing

Certain fruiting plants seem to alternate bear, with an "on" year of heavy cropping, followed by an "off" year with a poor yield. This is often true for apples and pears, which actually have a natural two-year or biennial bearing cycle. This cycle begins with new flower bud initiation occurring about 3-6 weeks after spring flowering. It is thought that, in part, gibberellins produced by the seeds of the fruit set interfere with flowering for the next season. In general, an alternate year bearing pattern is most striking on self-pollinating rather than self-sterile cultivars.

In order to even out fruit set over the two-year cycle, one should avoid the "snowball" flowering effect, which looks spectacular, but is actually quite inefficient. It has been estimated that fruit set from less than 5% of the blossoms on a "snowball" tree would be enough to allow a full crop. Techniques to reduce alternate bearing include attempts to quickly thin the heavy blossoms and/or the small fruit, the former being more effective. Other methods include winter pruning after an "off" year to reduce the number of buds which can participate in the anticipated heavy bloom. Fertilization should be done in the autumn of an "on" year and avoided in the "off" year. Selective defoliation after an "off" year will also reduce the heavy flowering expected in the next season. Winter chill is a wild card in this effort with a heavy chill winter causing earlier and more complete flowering.

Cornell/Geneva Apple Rootstocks

Since 1968, Cornell University has supported an apple rootstock breeding program at their experimental orchards in Geneva, New York, with the intent to provide a series of size-controlling rootstocks with resistance to many diseases that traditionally have prevented establishment of a successful Texas apple industry. These include the bacterial infection, fireblight (*Erwinia amylovora*), fungal diseases, such as *Phytophthora cactorum* (Crown Rot), and Cotton Root Rot, and other pathogens such as the wooly apple aphid. Dr. Jim Cummins was the original project director. Although Jim has retired, and the program is now administrated as a joint effort with the U.S. Department of Agriculture, he continues to run Cummins Nursery, through which many of these selections may be purchased by commercial growers and hobbyists. *(continued on next page)*

Cornell/Geneva Apple Rootstocks (continued)

It has been hoped that these new rootstocks will eventually replace the original, and widely used dwarfing Malling rootstocks, such as the commercial gold standard, **M-9**, which cannot survive long in Texas, because of our unique soil pathogens. These new rootstocks are the survivors of various crosses intentionally infected with the various pathogens under study, and often represent, "the last man standing" theory. They are the best selections of some 300,000 seedlings tested over a 30 year period. Some of the most promising of these currently sold commercially include:

1. **Geneva 65**: Total immunity to fireblight and crown rot with high yield. A very small tree suited best for a hobbyist with limited space rather than a commercial orchard. Fruit size may be small. Might be useful for container growing.

2. **Geneva 16**: Also good disease immunity and is the size equivalent to **M-9** with the high yield efficiency commercial growers look for but is sensitive to plant viruses and requires virus-free grafting wood. Probably to be avoided by the hobbyist who often obtains scions from the virus-infected tree of a fellow fruit enthusiast colleague (viral infections in apple and pear may produce no visible disease to the plant or fruit, but will kill this rootstock when grafted).

3. **Geneva 11**: Offers both disease resistance, ideal dwarfing and increased fruit size and is widely used in Europe. Sensitive to the wooly apple aphid, however, and probably not for us.

4. **Geneva 41**(formally, CG 3041): Similar in size to **M-9** with good disease resistance, good root anchor and hardiness, and has been the best overall performer in all U.S. trials. Produces naturally flatter branch angles which help to increase yield. Would appear to be the best bet for trials in Texas.

5. **Geneva 935**: Produces a tree a little smaller than Geneva 41 with good disease resistance and good graft site strength. Requires support because of unusually heavy and early cropping. The best selection in New York trials. Another possibility for Texas.

6. **Geneva 202**: Produces a tree a little larger than **M-9** with resistance to fireblight, wooly aphids and crown rot. Has high yield efficiency. Widely used in New Zealand. Still another possibility for trials in Texas, particularly for less vigorous cultivars.

Tennousi Pear

The February 2006 issue of Good Fruit Grower magazine documents the long efforts of Dr. Richard Bell, of the U.S. Department of Agriculture's Appalachian Fruit Research Station in West Virginia to develop the ideal pear. Richard will be a speaker at our 2006, NAFEX meeting in Lexington, Kentucky in September, and I have had the opportunity to visit with him and tour his interesting facility and orchards. This hypothetical and sought-after pear would be a cross of the European and Asian pears, have a firm texture, exhibit disease resistance, could be eaten directly off the tree, and would not oxidize rapidly so that it could be sold commercially in slices. It would also be juicy and with some sweetness and flavor. He has released several pears from this station including **Potomac, Blake's Pride** and most recently, **Shenandoah**. Unfortunately, all of these selections are too high-chill for us, and none manifest all of the traits he has been seeking.

But could it be that we have already have scooped Richard? A number of years ago Bill Adams and Tom LeRoy planted seeds obtained from an open-pollinated **Tennessee** pear crop along a fence-row at the Bear Creek Extension Center. **Tennessee** is a vigorous European-style pear with its main virtues being low-chill and almost total resistance to fireblight. Gradually, the many resulting seedlings were culled out and only 5 or 6 remain. One, which George McAfee named **Tennousi,** produces uniform large, round, russeted pears with a white interior highly resistant to oxidation. It may be eaten directly off the tree. So far, the tree also seems blight-resistant. Ed Fackler, who is the fruit specialist for Gardens Alive, is testing the pear in Ohio and we have distributed it locally for trial. It seems to be at the upper limits of our chill, and probably would need around 600 hours for ideal production, but it may be a winner.

The Gulf Coast Fruit Study Group is on the Internet

If you have the opportunity, log into the new Internet site Carol Brouwer has designed. The url is *http://harris-tx.tamu.edu/hort/fruit.htm*. Here you can rapidly access old and current newsletters and have links to many other sponsored gardening programs.

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