

# Gulf Coast Fruit Study Newsletter

Volume 16, Issue 2

Edited By: Ethan Natelson

April 8, 2003 Meeting

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## New Cultivar Development

Creating a new version of a standard plant is not something that always requires a University setting in order to achieve success. It does require patience, and planning, however, and the realization that each new cultivar will have a less than a 5% chance of exhibiting an improvement on either of its parents. Occasionally the new plant is spectacular, like the Honeycrisp Apple, which is now rapidly displacing many established orchard plantings in Minnesota and Michigan. Breeding new cultivars by cross-pollination of flowers has been the standard approach for many years. One of our former associates, Herb Durand, was a master at this process and developed a number of new berry and prunus varieties by applying his unique talents.

Let us suppose you wish to develop a new pear that will fruit well in our warm climate (low-chill). You also would like it to bear at an early age (precocity), maintain a spreading shape, have attractive and

large fruit, with good texture and flavor and resist the common bacterial diseases, such as fireblight, which can rapidly destroy trees in our area. You may find two selections that each exhibits most, but not all of these qualities, but between them, they do. Perhaps, a cross of these two might produce the ideal tree.

Pollen from one parent is generally collected and cross pollination also is best accomplished, when the flowers are at the "balloon" stage prior to opening. For pollen collection, a

number of flowers are pulled off, their petals removed, and the remaining material including the anthers, rubbed through a fine screen onto filter paper. The pollen is now dried under a light bulb at room temperature and may be stored in a small vial, when dry, for weeks in a refrigerator and for more than a year in the freezer, in a dessicator.

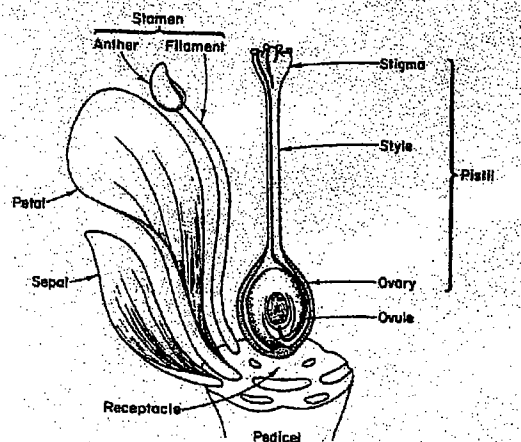
(article continued on page 2)

## Current Meeting:

Our program will begin at 7:00 p.m. on April 8, 2003 at the Extension offices at the Bear Creek Facility. We will have an expert panel discussing their favorite varieties of fruit for the Houston area.

## Contact Us!

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2 Abercrombie Road  
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The sepals form the calyx and the petals the corolla in a typical angiosperm flower

## New Cultivar Development (continued)

During pollination, the recipient flower is emasculated by removing its petals and anthers, and the desired pollen is then applied to its stamen. An emasculated flower is unattractive to bees, and no unwanted additional pollination will occur. Moreover, at the balloon stage, its own pollen is moist and not yet fertile, and therefore unable to provide auto-pollination (most pears are self-sterile, in any event). This altered flower (usually groups of several flowers) may dry out more rapidly than usual and is often "bagged" after pollination to

safeguard against this. Seeds from the fruit of this cross are then planted and the seedlings studied for useful traits. Typically, the first seeds to germinate after stratification in the cold produce the lowest chill cultivars.

If the tree for a pollen source is late flowering, and you wish to time its flowering to coincide with the other parent, some of its branches may be removed and "forced" indoors, at the appropriate time. Here, a 45 degree cut is made at the base (freshened every

four days) of each 12 inch flower bud bearing cutting, which is then placed in water at room temperature. Usually, flowering occurs within 10-14 days, and the pollen may now be collected.

To hasten bearing and for evaluation of multiple cultivars in a limited area, multiple seedlings may be grafted onto alternate limbs of a healthy mature tree. This technique is often used to evaluate citrus seedlings, which may take seven years to bear on their own roots. Good luck.

## A Cold Chill Bears Fruit

Despite very little bitter cold weather this year, we managed to accumulate around 800 chill hours (temperatures between 32 F and 45 F) as opposed to our usual average of 450 hours in the Houston area. This should greatly improve the yield of our fruit crops this season, unless we get a very late freeze.

### *Peach Jam*

4 cups chopped peaches  
2 T. lemon juice  
5 cups sugar  
1 package Fruit Jell Pectin

Wash, peel and pit peaches. Finely chop. Put peaches into a 6 or 8 quart saucepot. Add lemon juice. Gradually stir Fruit Jell Pectin into mixture. Bring mixture to a full boil over high heat, stirring constantly. Add sugar, stirring to dissolve. Return mixture to a full, rolling boil and boil hard for 1 minute, stirring constantly. Remove from heat, then skim foam if necessary.

Put jam into previously-sterilized jars, leaving 1/4 inch headspace. Wipe the rim and threads of each jar with a clean, damp cloth. Center sterilized lid on jar. Screw band down evenly and firmly until a point of resistance is met—fingertip tight.

## Chinese Che

An unusual plant that may be easily grown in the Houston area is the Chinese Che (*Cudrania tricuspidata*, Chinese Mulberry, Mandarin Melon Berry). This plant is in the *Moraceae* family, is native to eastern Asia and is widely grown in Japan. Historically, it had been used to supply nutrition to silkworms, when the preferred mulberry leaves were unavailable. It produces a mulberry-like red fruit, about 1-2 inches in diameter, and, like the mulberry, requires minimal care and does well in poor soil. However, like the jujube, it is stoloniferous and produces spiny shoots several feet from the main plant. For this reason, it is not recommended for planting on its own roots. The preferred rootstock is the Osage Orange (*Maclura pomifera*),

also in the mulberry family and a tree that produces a softball-sized, inedible, dense, gummy and seedy fruit (occasionally referred to as a Bodark pear). Its wood and roots are orange in color. A.J. Bullard, who has several Che trees growing in North Carolina under various conditions, recommends a high graft on the rootstock because of a tendency of the Che to form droopy branches on its own roots. Fortunately, the Che also seems to naturally become more upright on the Osage Orange. The Osage Orange rapidly forms a fairly deep root system, as I found out recently while digging up a dormant 6 foot tree from Dr. Leon Atlas' front lawn.

This is a dioecious plant with both male and female flowers. The small male flowers turn yel-

low as the pollen ripens. Primarily male plants will have some female flowers and are also able to bear some fruit. When fully ripe the fruits are a red-maroon color and soft. The sugar content is similar to a fig and when fully ripe they are described as having a watermelon-like delicious flavor. The trees may bear at an early age, and the fruit is generally ripe in November. For optimal bearing, the lateral branches are pruned back 25-30% each year. Mature trees are alleged to produce several hundred pounds of fruit each year. It is generally recommended not to plant these trees too close to sidewalks or patios, because the fruit drop, like mulberries, may produce stains.

## Web Sites of Interest

<http://gardenwatchdog.com/>

Remarkable site that lists hundreds of mail order plant nurseries, their addresses, websites, and comments on their good and bad points. Don't order unless you study this site.

<http://chla.mannlib.cornell.edu/>

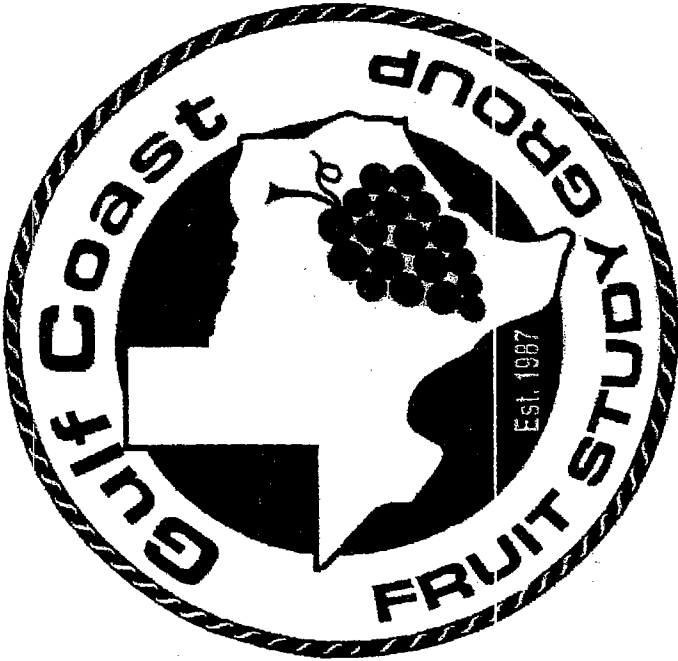
Gets you to a site where there are currently the full texts of 856 old American horticultural books available that may be examined and printed.

<http://www.hort.purdue.edu/newcrop/maia/pollination.html>

Gets you to the midwest apple improvement association site (MAIA) that shows you how to hand pollinate apples in a series of pictures.

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