

Gulf Coast Fruit Study Newsletter

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Pear Cultivation in Houston 2011 What Have We Learned?

Our knowledge of pear cultivation in Houston has advanced considerably since the founding of the Gulf Coast Fruit Study Group. To review this subject, we must begin with rootstock selection, because soil-root system-cultivar interaction is the basis for success. Most pears are grafted on rootstock selections because seedling rootstocks (frequently of **Bartlett** or **Winter Nelis**) often lack precocity (*early bearing*) and may produce a very large tree with poor tolerance of varied soil pathogens and a tendency to variable chlorosis (*poor iron and mineral absorption*). Traditionally, in the South we have used clones of *Pyrus calleryana* because of its wide availability, good root anchor, a general compatibility with most desirable cultivars including both Asian and European selections and hybrids, excellent tolerance of our local soil diseases and a tendency to induce slight precocity. However, depending upon the vigor of the cultivar, the size of a mature tree may be massive and not suitable to either home or commercial grower production. The New Zealanders have used seedlings of our hard and disease resistant **Kieffer** pear, particularly to support Asian pears, but these are often on trellised systems where size is not an issue.

The late Dr. Leon Atlas introduced use of the **Old Home X Farmingdale** crosses made from two fireblight resistant seedling cultivars found in southern Illinois, and which have been studied widely for many years. Many of the pear trees in the experimental orchard at Bear Creek are planted on **OH X F 40** that he obtained for us. This rootstock produces a tree with perhaps 20-25 % dwarfing over *P. calleryana* and, while satisfactory here, is still too large unless you are employing a trellised orchard and need good root vigor. By contrast, Dr. Atlas also obtained a few **OH X F 51** for trial, and it proved to be ideal for us. However, by the time we realized it, and could have obtained other plants, this cultivar had disappeared from the trade because it did not sucker and was difficult to propagate. I may have the last grafted one in Houston and it produces a perfectly dwarfed tree about 10 feet tall and 10 feet wide with a heavy crop of hard, large, and faintly sweet **Turnbull** pears the birds decimate every season.



Southern King



Tennosui

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Pear Cultivation in Houston 2011 -What Have We Learned? (continued)

Others of the **OH X F** crosses are dwarfing, but **OH X F 333** has a short life span in the South and produces a smaller fruit. **OH X F 513** produces a tree so dwarfing it is not useful here but both of these rootstocks remain in the trade. Use of **OH X F 513** as a 12 inch interstem between *P. calleryana* and a desirable cultivar, gives about a 70 % of full size tree and is still not ideal. Other crosses such as **OH X F 97** have failed here and **OH X F 87**, which is somewhat dwarfed, does not produce a heavily bearing tree. A newer cross of **OH** with a German pear has produced a very dwarfing rootstock called **Pyrodwarf**. It is like **OH X F 513** here with so little vigor it cannot be used as a rootstock. As an interstem, it is similar in performance to **OH X F 513**, inducing slight dwarfing. A newer entry in the trade is **Pyrodwarf 233**, another German cross of **OH** and this one may have promise for our area. Our **Acres Home** pear grows well on it. A few of these rootstocks were distributed at a prior meeting.

Traditionally, commercial growers have turned to **quince** rootstocks, when practical (*many of these lack cold tolerance, not a problem for us*). The clear advantages to quince are marked precocity, heavy bearing and, in some cases, larger fruit. All of the Harry and David Royal Rivera **Comice** pears are grown on quince, for example. The major disadvantages with quince are poor root anchor for some cultivars, chlorosis with some cultivars and frequent incompatibility with desirable pear cultivars which may heavily overgrow the graft site or simply grow poorly. Quince has not been widely tried in the South because of reluctance to use anything other than *P. calleryana*. To combat the incompatibility problem, short interstems of **Old Home**, **Comice** and **Conference** pears have been used. A favorite quince in Oregon is **BA-29 C**, which makes a good graft union with **Comice** and does not sucker. The mature trees are kept 10-12 feet tall and do not require staking support, after a few years. In Houston, with our heat and soil conditions, this rootstock is less vigorous than in the Northwest, and not directly compatible with many of our local favorite cultivars such as **Tennosui**. Hence, an interstem appears necessary. It is directly compatible with the **Lemate** pear, and I have a nice plant with this combination that had multiple full-sized pears the second year in the ground. Another quince that was given to me by Dr. Atlas years ago may be a better selection for our area. It is not as precocious but has a strong root anchor and is more vigorous than **BA 29 C** and is directly compatible with **Tennosui**, making a nice graft union. It also is directly compatible with **OH X F 51** (*free cuttings are available from the Corvallis, Oregon pear repository*) and produces a perfect sized **Tennosui** with this interstem, about 8 feet tall, with a spreading shape and a more vigorous tree than with the direct graft, and which had many full-sized pears on it this year. Fortunately, unlike **BA 29 C**, it does sucker a bit and so I have derived some additional rootstocks from the parent plant and will have it identified so we can order additional rootstocks.

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Pear Cultivation in Houston 2011 -What Have We Learned? (continued)

Endless trial and error has identified some excellent pears for the Houston area. Among these are:

1. **Tennosui:** Self-fertile and very blight resistant when grown by itself. Identified here by George McAfee from a seedling planted by Tom Leroy and Bill Adams. A round, brown-skinned pear which looks Asian but tastes European. It can be eaten off the tree and keeps well.
2. **Acres Home:** A very large firm pear that does soften and is a heavy-bearer every year. Makes a large tree with a spreading shape on *P. calleryana*. Found in Houston by George McAfee. Very precocious.
3. **Southern Bartlett:** This Bartlett look-alike came from Louisiana as a chance seedling identified and propagated by Travis Callahan. An excellent heavy bearer and it is hand-to-hand combat to keep ripe pears from local varmints. A large tree with a spreading shape on *P. calleryana*.
4. **20th Century:** This is a blight resistant sport of the original **20th Century**, a low-chill Asian pear which has been difficult to keep alive in Houston along with **Ya Li**, because of blight. It was found by the late Hartwell Cook in Jackson, MS. A heavy bearer of small fruit with nice flavor and juicy, it is a naturally dwarfed tree on *P. calleryana* and perfect for a small yard.
5. **Southern Queen:** Has been grown in MS for 60 years. A very large firm pear. Extremely blight resistant and the tree is a natural semi-dwarf with an upright shape on *P. calleryana* and also ideal for limited space.
6. **Southern King:** A sibling of **Tennosui** but pyriform, small without thinning, a heavy bearer. Also can be eaten off the tree. Good blight resistance.
7. **Carrick:** Known in the trade as a cooking pear but has an excellent sweet flavor. A large pear with a pot belly. Takes some years to bear heavily on *P. calleryana*.
8. **Leona:** Needs more chill than we usually have but this is a large pear with an apple like convexity at the base. Not as large a mature tree on *P. calleryana* as with other pears. Well-liked by squirrels and birds – especially crows.

We will have these pears, as well as others at our taste testing –if you have a favorite, bring a sample.

I think in the future we will see release of the genetically engineered pear trees that have total fireblight resistance. These plants have been growing under quarantine by the USDA at Beltsville, MD, for several years now. The next step would be to engineer pear trees to lower the chill requirements. This is a more complex issue and not on the immediate horizon.