History of the Old Home X Farmingdale Pear Rootstocks

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In the early 1920's Professor Frank C. Reimer, Oregon State College, Southern Oregon Branch Experiment Station, Medford, Oregon, began a long and lasting research program working toward improvement of pear rootstocks. Reimer's primary search was for development of stocks resistant to fire blight *(Erwinia amylovora)* along with other desirable qualities. In his first years he worked mainly with a number of Oriental pear species. Although most of these stocks turned out to be of no value, he selected four trees of *Pyrus betulaefolia* that were resistant to fire blight. A few seedlings of *P. calleryana* showed some degree of blight resistance. Generally speaking, neither of these species can be considered practical to propagate by any method other than by seed, and of course, seed trees must be grown in a very isolated area. Both spp. are susceptible to winter root injury, and both produce trees of considerable vigor, especially *P.betulaefolia.*

During his search for blight-resistant stocks, Reimer obtained from Illinois scions of a *P. communis* clone called "Old Home," (so named for having come from the "Old Home" place). This tree had been growing in an area where fire blight was widespread but had never shown blight infection. Reimer used this clone as frame stock for top-working and received many requests of scions from Pacific coast nurseries. He found Old Home to be self-unfruitful; in order to produce from seed, he obtained another blight-resistant variety from Farmingdale, IL (promptly named "Farmingdale" after the source). From cross-pollination of these two varieties fertile seed was obtained and thence the OHxF blight-resistant stocks.

Apparently no thought was given to cloning seedlings from this family until I started propagating from individual trees by hardwood cuttings in 1955. Since I had been a nurseryman starting in 1918 with Carlton Nursery Company, third generation, I was sensitive to complaints from commercial fruit growers of poor trees scattered through their orchards, and of course the blame was passed on to source of planting stock. Having heard of Reimer's work with pear rootstocks, I went to the Medford Experiment Station (Dr. R. J. Higdon in charge) with the thought of obtaining hybrid Old Home x Farmingdale seed. I was advised they had discontinued this work, but that Reimer had supplied material for a seed block at the Canada Department of Agriculture Research Station in British Columbia. At that time I was making an annual business trip to British Columbia so I called at Summerland Station (Dr. Ken Lapins, officer-in-charge) and made arrangements to obtain seed from their plot. This was planted in an isolated area and consisted of Old Home trees with Farmingdale pollinators. From the one pound of seed I obtained and planted in the spring of 1952. the Old Home x Farmingdale Brooks line was developed.

From the original several thousand seedlings grown from the OHxF seed, I selected 516 plants and set out a block in 1954. At this time I decided to start with propagation hardwood cuttings and to maintain the identity of each clone. My first attempt turned out quite successful and I was on my way to a venture that has continued over 25 years. Propagators are now setting over 500,000 cuttings per year of OHxF clones.

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The original 516 trees were grown under dry cultivation for four years and tested for resistance to pear root aphids; over 90% survived. I then began taking cuttings from each clone; several clones were dropped due to unsatisfactory rooting. Of course, this reduction in numbers was necessary to reduce the population to a manageable number.

In 1960, Dr. Melvin N. Westwood, Professor of Horticulture at OSU, learned that I was propagating OHxF clones by hardwood cuttings; he offered to place these stocks in test plots throughout Oregon. In the spring of 1961, I supplied 20 plants of each of 37 clones. These were set in four locations with distinctly different climatic and soil conditions, where pear were grown commercially. The rootstocks were planted in place and budded to Bartlett that summer. The control stocks that were planted included Old Home, Bartlett seedlings, *P. calleryana* seedlings, and E. M. Quince A.

A later planting of one-year-old Bartlett whips were made in 1968 at Southern Oregon Branch Station, Medford. Three trees each on 49 clonal OHxF stocks were planted at spacing of 4′ x 12′. This planting consisted of clones not planted in the four 1961 plots. Although many trees in this plot are producing excellent results, we have not started producing trees on any of these 49 clonal rootstocks. A planting on the more promising selections from this second series has been made in Yakima Valley, Washington, where it will be under supervision of Everette Brandt, a fruit grower, and Murritt Aichele, Washington State Department of Agriculture.

Fire blight testing was done by Dr. Ronald Cameron, Dept. of Botany & Plant Pathology, OSU, in 1964. Five plants of each 84 clones were field planted and allowed to grow two years, pruned back after one year to force adequate limb growth, then 5 limbs of each plant were inoculated by hypodermic needle injection into soft terminal growth. Readings were taken by Westwood, Cameron and Lombard in late summer, allowing sufficient time for blight infection to develop fully. Of the 84 clones tested, 25 had no infection on any of the 25 shoots inoculated. Seven had 1/25, twelve 2/25, ten 3/25, six 4/25, five 5/25, fourteen 6/25 to 10/25, and five 12/25 to 25/25. Fortunately, the most desirable selections proved to be in the apparently immune to low susceptible class. Clones 51 and 69 were rated 0/25; 40 and 333 were 3/25. We are not now propagating any stocks with above 4/25 rating.

The original 1961 plantings were supervised by Dr. Westwood with assistance from Dr. Porter B. Lombard, then Superintendent of Southern Oregon Branch Station. They invested untold numbers of hours, and days, tabulating necessary recordings of progress with these wide spread plantings, for which I and the pear industry in general are greatly indebted. Without their many dedicated years of follow up work, the OHxF rootstock series would likely have never developed.

We believe all of our OHxF sockmother trees to be free from known or harmful virus. All virus tests as reported to me, from three or more sources, have been negative.

Since I had grown up as an active member of Carlton Nursery Company and retired from the Company in 1954 to allow full time to rootstock propagation, it was only natural that I would allow them full control of marketing pear trees grown on OHxF stocks. They had given me co-operative support in my first few years of development, as well as promoted market sales for the variety of root-

stocks I was growing. Carlton is now sole possessor and distributor of pear trees grown on OHxF BROOKS clonal rootstocks. This trademark is registered by Carlton and several clones are now in the process of being plant patented.

The OHxF clones cannot be propagated by stooling with sawdust, as is done with the clonal apple stocks. Root development of cutting-grown plants all takes place on basal end of cutting, which makes for superior anchorage.

The cost of propagating clonal OHx F pear stocks by hardwood cuttings is several times greater than that of growing Bartlett seedlings. During the years of developing the OHF stocks, we worked on a very minimal profit margin. In my opinion, the present price differential added to pear trees grown on clonal OHxF stocks is not sufficient.