A 10-Year Summary Using Old Home/Farmingdale Clonal Pear Rootstocks

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Of US pear production, 95% is grown on the West Coast in California, Oregon and Washington. The balance is predominantly in Utah, Michigan, New York and Pennsylvania.

U.S. PRODUCTION

Western US production, approximately 1 million tons, is about half Bartlett and the balance Anjou, Bosc and Comice. The last big winter pear crop, in 1997, had 12,550,000 boxes of Anjous, 3 million Bosc, 450,000 Red Anjous and 450,000 scattered among 10 other varieties. Bartletts predominate in California with about 50% of US production. Winter pear production is about equal in Oregon and Washington, while the Northwest's 47% of US production of Bartletts is two-thirds Washington, one-third Oregon.

Only Red Clapp and Red Anjou have full red color and red pear retail favor. Red Anjou production has increased to 600,000 44-lb boxes. Outside of China, US pear production is second in the world to Italy. Bartlett is historically canned, but fresh market use has increased. With winter pears 35% are exported.

PEAR PROBLEMS

Pears must be taken home and ripened and therefore are out of sync in our instant gratification society. There are storage problems, including cork spot, scald and decay in Anjous and decay in others. Pear psylla is the principal insect. Some others are leafrollers, codling moth and stink bugs. Other problems are imports, export quarantines, packing and packaging.

Horticulturally pears cannot compete with precocious and size-controlling apple rootstocks. While active programs in Italy, France and the United Kingdom have provided pear rootstock material for testing, the process is slow. The Old Home/Farmingdale (OH/F) rootstocks, developed some years ago by the Brooks family of Carlton Nursery Co., have been sold extensively, accompanied by rumors of size controlling and precocity. We first planted a controlled test in 1976 and gathered data through 1989.

ROOTSTOCK TEST PLANTING

In 1989 we planted 8 rootstocks, with 3 scion varieties. Tree spacing is 8 x 12 ft (2.4 x 3.6 m). Trees are maintained in a central leader form with the intent to harvest 60 to 70% from the ground. Height is limited to about 12 ft (3.6 m). At least 100 trees were planted of most combinations.

After planting there was very little pruning. Some lower limbs were removed after a few years. Subsequent pruning was to maintain layers, confine the trees to the space, remove shading limbs and, recently, cut into the periphery for larger fruit.

Production is summarized in Tables 1, 2 and 3. Some comments:

1. This is gross production based on 25 44-lb boxes per bin.
2. There are, therefore, no data for fruit size or packout.
3. There are no data for fruit value.

Starkrimson

Starkrimson is an early season red sport of Clapps Favorite, harvested in early August in Hood River. It stores for 3 to 4 months. The fruit is red at petal fall and markings from any cause will not mask over and are unattractive. Red Clapp is very vigorous and produces best where the grower keeps it only semi-vigorous.

OH/F #87 has more precocity… OH/F #333 is less desirable.

Red Clapp

Red Clapp is sold domestically and exported as a gourmet pear, usually in half cartons. It is replacing Red Bartlett in the market. Only the larger sizes and best quality are salable.

Red Anjou

Red Anjou (Columbia strain) is a sport of Anjou gradually replacing Gebhard Red Anjou, which has more cork spot and a "muddy" coloration. Red Anjou is also packed only in larger sizes. It has better shelf life than green Anjou, itself a very durable product. Red Anjou has some immunity to mites and masks over damage similar to Bosc. It is slow to come into production. In our experience, it is biennial. It has a malady without a solution. After it reaches production stage and particularly following a heavy crop, some trees lose vigor. Once the tree stops growing, it declines and ultimately dies. About 6% of our trees are affected at age 11. Those on OH/F rootstock #87 seem to be more affected.

Golden Russet Bosc

Golden Russet Bosc is the most planted Bosc among several with full russet. Russeted Bosc pears are smaller, thus need more pruning and fertilizer. Fruit on trees on OH/F #333 rootstock is smaller and very prone to drop prematurely. Often 10% of the crop is on the ground at harvest. Other rootstocks do not exhibit this malady.

SUMMARY

1. It is evident that OH/F #87 has more precocity.
2. There is little difference between the top two or three rootstocks in each instance.
3. It appears OH/F #333 is less desirable.
4. Rootstock performance varies among varieties.
5. There is no evidence of size control with any of the OH/F rootstocks. Some rootstocks appear to impart earlier and more sustained production.
6. Statistics suggest peak cropping occurred in 1997. Intemperate weather during bloom in 1998 and 1999 more likely explains a slight statistical decline.
7. All varieties have been suitable at 8 x 12 ft spacing. Red Clapp has been more difficult to contain.
8. As trees age, there is more likelihood of some loss of red fruit color inside the tree. Vigorous pruning is important.
9. There has been no loss of vigor or production in the lower part of the tree.
10. Overall production has been very high compared with conventional plantings.
11. Workers are attracted to the trees as they are low and easily harvested.
12. Pest control is easier because of low trees and tight rows.
13. Fruit quality is not affected by spacing.
14. Tractors, sprayers and choppers are, by necessity, smaller, thus cheaper and safer.
15. Red Anjou has a malady which may show up more on #87.
16. Bosc on #333 are smaller and prone to premature drop.

TABLE 1

Starkrimson pear production (boxes per acre) with 4 Old Home/Farmingdale rootstocks for 9 seasons in Hood River, Oregon.

Rootstock	1991	1992	1993	1994	1995	1996	1997	1998	1999	Accum. yield
#87	—	150	691	1032	1194	1183	1453	1323	1382	8408
#333	—	110	577	763	1086	1054	1483	1169	1321	7563
#217	—	120	572	677	1135	1059	1306	1142	1331	7342
#97	—	100	445	782	1089	1077	1370	1186	1240	7289
Mean	21	120	578	814	1126	1093	1404	1205	1319	7680

TABLE 2

Red Anjou pear production (boxes per acre) with 7 Old Home/Farmingdale rootstocks for 9 seasons in Hood River, Oregon.

Rootstock	1991	1992	1993	1994	1995	1996	1997	1998	1999	Accum. yield
#87	—	—	—	1076	1000	1287	1019	1197	849	6428
#282	—	—	—	1059	637	1391	947	1225	734	5993
#69	—	—	—	798	760	1274	926	1223	849	5830
#217	—	—	—	1104	755	1257	808	1167	681	5772
#97	—	—	—	919	760	1248	790	1228	638	5583
#333	—	—	—	621	694	1061	864	1128	884	5252
#18	—	—	—	491	728	1122	867	1063	910	5181
Mean	—	42	63	866	762	1234	889	1176	792	5824

TABLE 3

Bosc pear production (boxes per acre) with 7 Old Home/Farmingdale rootstocks for 9 seasons in Hood River, Oregon.

Rootstock	1991	1992	1993	1994	1995	1996	1997	1998	1999	Accum. yield
#87	—	410	1090	1470	1113	1104	1676	1416	1417	9696
#97	—	370	1031	1106	1101	1137	1552	1789	1521	9607
#69	—	295	994	1175	961	1116	1634	1693	1438	9306
#40	—	220	999	1287	994	1153	1454	1661	1389	9157
#282	—	230	1067	1043	888	1165	1438	1564	1381	8776
#217	—	180	872	931	1001	1173	1488	1491	1312	8448
#333	—	120	640	719	629	913	1088	1737	1135	6981
Mean	28	260	959	1104	955	1109	1476	1621	1370	8852