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'Old Home' and 'Farmingdale,' the Romeo and Juliet of Pear Rootstocks: An Historical Perspective

KIM E. HUMMER[1]

Abstract

The search for a high quality pear rootstock was begun by Professor F. C. Reimer in the early part of the 20th century. He obtained two fire blight-resistant clones of *Pyrus communis* L., 'Old Home' and 'Farmingdale from Illinois.' These two clones became a "Romeo and Juliet" of pear rootstocks producing the 'Old Home x Farmingdale' series. In the United States the names and numbers of this series have been trademarked and several clones were patented. Three generations later, 'Old Home' continues to be used as a parental source of pear fire blight and decline-resistant genes in rootstock and cultivar breeding programs in the United States, Canada, France, England, and Germany.

Introduction

Fire blight, the plague of pear production in the United States, caused Professor F. C. Reimer of Oregon State University to "search the world over" to find resistant trees. He made plant collecting expeditions to China, Korea, Manchuria, and Japan (9). One of the most worthwhile trips, however, was within the United States to visit Mr. Benjamin Buckman of Farmingdale, Illinois in 1915. During this trip Professor Reimer found two blight-free trees (9).

'Old Home'

Mr. Buckman obtained some scionwood of a seedling European pear (*Pyrus communis* L.) from Mr. B. O. Curtis of Paris, Illinois. Mr. Curtis found the tree in a hedge row of a property that his family referred to as the "Old Home." Buckman planted a grafted tree at the Buckman family homestead and named the clone 'Old Home.' Professor Reimer visited Illinois and collected scionwood from Buckman's tree. Subsequent testing showed that not only was 'Old Home' blight-resistant, but the frame developed strong wide-angled branches (11). This clone was an excellent compatibility bridge for quince, and was also resistant to pear decline (6, 11). Unfortunately the yield efficiency of 'Old Home' was very low. Also this pear, like most *Pyrus* clones, was self-unfruitful (1). The disease-resistant characteristics lead Reimer to consider 'Old Home' as a parent in rootstock breeding trials (10).

'Farmingdale'

While walking around Buckman's farm Reimer noticed a second blight-free pear tree. This tree grew near an old *P. communis* cv. Anjou and had a similar fruit-shape (10). Because of this, Buckman and Reimer considered the seedling to be an open pollinated cross of 'Anjou.' Buckman had named the clone 'Farmingdale' and tried to introduce this blight-resistant large-fruited pear into the nursery trade. He didn't immediately let Reimer have scionwood. Unfortunately, 'Farmingdale' proved to be extremely difficult to propagate and it failed in the nursery trade. Buckman sent scions to Reimer in 1921.

Mr. Buckman died in 1925. His family orchard, the original 'Old Home' and 'Farmingdale' trees were destroyed. By that time Reimer had established trees of both 'Old Home' and 'Farmingdale' in research collections in southern Oregon. Although 'Old Home' was disease resistant, it did not have high yield efficiency as a rootstock and 'Farmingdale' was difficult

[1]Research Leader/Curator, USDA-ARS National Clonal Germplasm Repository, 33447 Peoria Road, Corvallis, OR 97333-2521.

to propagate. These became corner stones in Reimer's rootstock breeding program.

Beyond Romeo x Juliet

Many researchers became interested in the blight resistant 'Old Home' x 'Farmingdale' rootstocks. The Agriculture Canada Research Station, Summerland, B. C. managed an orchard where 'Old Home' was grown interspersed with 'Farmingdale' as a pollenizer. They collected and sent seed from the 'Old Home' trees to a private nurseryman, Lyle A. Brooks of Daybreak Nursery, Forest Grove, Oregon. Beginning in 1961, Mr. Brooks evaluated more than 2500 seedlings for ease of propagation by cuttings. He gave selection numbers to the most desirable clones (1). These clones were replicated and underwent additional evaluation by Drs. Melvin Westwood, Porter Lombard and Ronald Cameron, from Oregon State University. Most of the clones were disease resistant, while some had high yield efficiency, and could be clonally propagated by cuttings. These clones cannot be propagated by stooling with sawdust, as is done with clonal apple rootstocks (1). Instead propagation by dormant cuttings taken in late winter is successful. In the late 1980's Mr. Brooks trademarked the name 'OHxF' Series (Brooks Clonal Selections). In the United States, plant patents for five of the rootstock clones were assigned in 1985 and 1988, and one additional rootstock is propagated under an exclusive contractual agreement (Table 1). Six of the original 'OH x F' clones are being marketed in Europe under other names (Table 1).

Growers and researchers continue to discuss the sizing effects (5) and yield efficiency of 'Old Home' crosses (3, 4, 7, 12). Over a 12-year period, Westwood examined the performance of 'Bartlett' pear on standard and OH x F clonal rootstocks in Medford and Corvallis, Ore. 'OH x F 217' had the highest yield efficiency; 'OH x F 40' ranked fourth; 'OH x F 87' ranked sixth; 'OH x F 333' ranked twelfth (12). Initially, the semi-dwarfing 'OH x F 333' was recommended because of ease of clonal propagation (12). Unfortunately its low yield efficiency, tendency to induce small fruit (4,7) and inconsistent fruit size (Webster, personal communication) has since reduced its popularity. The trend of the 1990's is to plant high density orchards on dwarfing rootstocks and the lack of adequate size control is another strike against 'OH x F 333.' From 1992 through 1996, the dwarfing *Pyruss communis* rootstock 'OH x F 87,' has produced a consistently higher yield of *P. communis* cvs. Bose, Red Anjou, and Red Clapp in Hood River, Ore. than did the 'OH x F 333' (3).

In 1993 open pollinated seedlings of 'OH x F 51,' 'OH x F 333,' 'OH x F 339,' and 'OH x F 40,' were selected by Dave Homer, an Oregon Nurseryman. These clonal rootstocks, known as the Homer Series, are under testing and evaluation at the Mid-Columbia Research Station, Oregon State University, in Hood River, Ore.

'Old Home,' has also been valuable parent for scion cultivar breeding. In 1983, Harvey Quamme and G. A. Spearman (8) released the *P. communis* cvs. Harrow Delight, a high-quality, early fresh market, fire blight resistant pear.

'Old Home' is considered a valuable genetic resource for rootstock improvement in several foreign countries. At the Institut National de Ia Recherche Agronomique (INRA) station in Anger, France, several open-pollinated 'Old Home' selections, OH 11, OH 20 and OH 30, have been selected and named as the "Retuziere Series." In England at Horticulture Research International, East Malling, 'Old Home' has been crossed with the South African rootstock 'BP 1' to produce the QR 708 series which are currently undergoing trial evaluation (Webster, personal communication). In Germany, in 1980, Professor Helmut Jacob of Geisenheim, Germany crossed 'Old Home' with 'Bonne Louise d'Avranche.' In 1995 he obtained a German patent for selection Bu 5-18, or Rhenus 1 calling it 'Pyrodwarf.' This rootstock is noted for good winter hardiness, average fire blight tolerance, excel-

Table 1. Intellectual property rights (IPR) associated with rootstock selections derived from the rootstock *Pyrus communis* L. 'Old Home.'

US Plant Name	European Selection Number	European Market Name	Patent Holder	IPR Specifics	Duration of Patent	Reported Characters
OH x F 40	Farold 40	Daygon	Lyle A. Brooks	US Plant Patent 5412	1985-2002	dwarfing, high yield efficiency
OH x F 69	Farold 69	Daynir	Lyle A. Brooks	US Plant Patent 5559	1985-2002	dwarfing, high yield efficiency
OH x F 87	Farold 87	Daytor	Lyle A. Brooks estate	US Plant Patent 6362	1988-2005	dwarfing, high yield efficiency
OH x F 217	——	——	Lyle A. Brooks	US Plant Patent 5468	1985-2002	dwarfing, high yield efficiency
OH x F 282	Farold 282	Dayne	Lyle A. Brooks	US Plant Patent 5573	1985-2002	standard size, medium yield efficiency
OH x F 51	——	Broklyl®	——	——	——	very dwarfing, poor yield efficiency
OH x F 333	——	Brokmal®	Carlton Plants	Propagation rights (contractual agreement)		rooting ease, semi-dwarfing poor yield efficiency
——	Rhenus 1	Pyrodwarf	Helmut Jacob	German Plant Patent	1995-2015	dwarfing, high yield efficiency cold hardy, disease resistant

lent productivity, and size control but has thus far only been tested in Germany (2). Further evaluation is needed on this rootstock to determine its response under broader environmental conditions.

An ideal pear rootstock will have excellent productivity, decline and fire blight resistance, cold hardiness, and dwarfing qualities. With continued breeding and research efforts starting with a disease resistant parent such as 'Old Home,' this goal will no doubt be achieved.

References

1. Brooks, L. A. 1984. History of the OH x F pear rootstocks. Fruit Var. J. 38:126-128.
2. Jacob, H. 1997. 'Pyrodwarf' pear rootstock. Acta Hort. (in press).
3. Ing, George. 1997. Production tables of 'Bose,' 'Red Anjou,' and 'Red Clapp' on Old Home by Farmingdale rootstocks. Proc. of the Winter Pear Commission Meeting. February 17 in Hood River, Oregon.
4. Kappel, F., H. Quamme, M. Meheriuk, and L. Denby. 1993. Pear rootstock research in British Columbia. Acta Hort. 367:342-351.
5. Larsen, F. E., and S. S. Higgins. 1997. Scion/rootstock interactions determine tree size of ten Asian pear scion cultivars on five Old Home x Farmingdale rootstocks. Fruit Var. J. 51(1):48-52.
6. Lombard, P. B. and M. N. Westwood. 1987. Pear rootstocks, Chap. 5 in: Rootstocks for fruit crops, R. C. Rom and R. F. Carlson, eds. John Wiley & Sons. New York.
7. Mielke, E. A., and Timothy J. Facteau. 1993. Rootstocks for pear production. Acta Hort. 367:352-359.
8. Quamme, H. A. and G. A. Spearman. 1983. 'Harvest Queen' and 'Harrow Delight' pear. HortScience 18(5):770-772.
9. Reimer, F. C. 1925. Blight resistance in pears and characteristics of pear species and stocks. Ore. Ag. Exp. Sta. Bul. 214.
10. Reimer, F. C. 1950. Development of blight resistant french pear rootstocks. Ore. Agr. Exp. Sta. Bul 485, 22 pp.
11. Westwood. M. N. 1967. About our cover. HortScience 2(3):93.
12. Westwood, M. N., P. B. Lombard, and H. O. Bjornstad. 1976 Performance of 'Bartlett' pear on Standard and Old Home x Farmingdale Clonal Rootstocks. J. Amer. Soc. Hort. Sci. 101(2): 161-164.