

## Dwarf Apple Rootstocks\*

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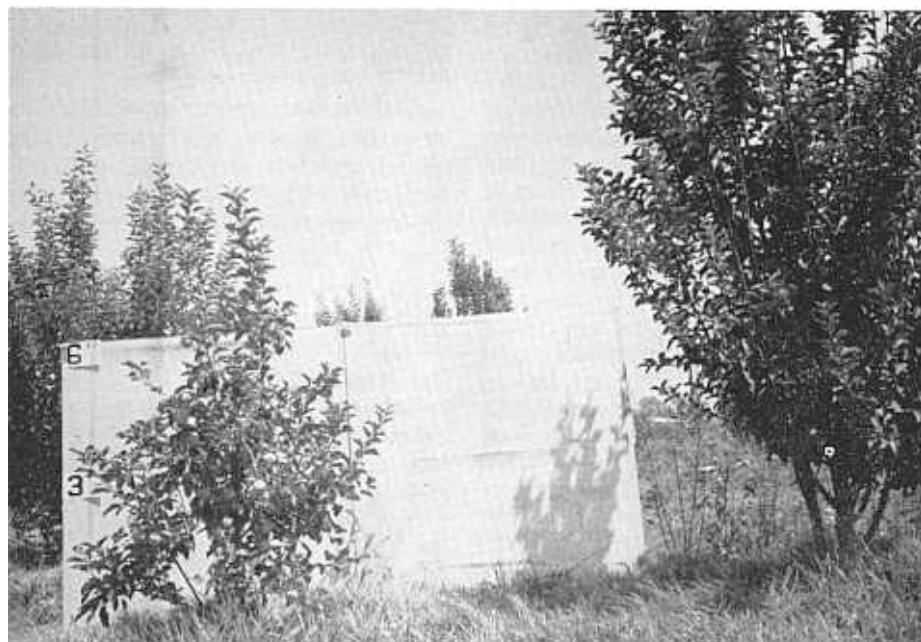
University Park, New Mexico

The use of dwarfing and semi-dwarfing rootstocks for apples has met with apparent success in Europe. The results in the United States have been quite variable from different areas, and many difficulties have arisen from the use of these rootstocks. Peculiarities in root development of many of the Malling series have resulted in trees that lean or break over. The use of dwarfing interstocks has not been entirely successful in overcoming this defect, since incompatibility between certain rootstocks and the intermedi-

ate stem piece has been found.

In 1955 a planting of dwarf apple trees was made at New Mexico State University to study their behavior under conditions in this area. The trees were obtained from commercial nurseries and were grown under a hay mulch.

The Franklin and Melrose varieties on Malling VII have produced trees almost as large as the same varieties on seedling rootstocks, while Richard on this stock has been very vigorous with apparently no dwarfing. Golden



**Figure 1.** Two trees of Stayman Winesap on Malling IX rootstocks showing great variability.  
(The author attributes the obvious differences to possible scion rooting.)

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Delicious and Lodi on Malling VII have been dwarfed somewhat, bearing fair crops the fourth year. The growth of trees of the same variety on Malling VII generally has been very uniform and all are well anchored.

The varieties on Malling IX have not been uniform in growth, and there is evidence that many have scion rooted. Franklin on Malling IX is slightly larger than on Malling VII and is well anchored. Golden Delicious is slightly smaller than on Malling VII, with one tree considerably dwarfed and leaning. Richared on Malling IX leaned badly and broke over after three years. Other varieties, Jonared, Williams Early Red, Stayman Winesap, and Cortland, have made variable growth but are well anchored. The two trees shown in Figure 1, Stayman Winesap on Malling IX, are  $7\frac{1}{2}$  feet and 13 feet high. The smaller tree has borne heavy crops for two years, while the other is very vigorous and unfruitful.

Scion rooting no doubt accounts for some of the variability in growth encountered with varieties on Malling IX as well as for the fact that many of the trees are well anchored. However, even when Red Delicious was budded high on Malling IX rootstocks, some of the trees were fairly vigorous and well anchored.

Varieties on Clark interstock with Virginia Crab rootstocks have lacked vigor, and the trees have been generally smaller than those on Malling IX. The extreme dwarfing has resulted in early, heavy bearing which caused further dwarfing. A few varieties have been budded to Clark with Northwestern Greening rootstocks and indications are that they will make more vigorous trees.

Comments concerning articles in this publication as well as observations on performance of varieties by readers are welcomed by editor.

### Apple Breeding and Testing in England

Most of the apple breeding in England is being done in research stations at East Malling, Long Ashton and John Innes Institution. However, most of the actual testing is done at the Ministry of Agriculture's National Fruit Trials Station at Brogdale Farm, near Faversham, Kent. Here one will find 2200 varieties of apple, the largest collection in the world, as well as new and little known varieties of all kinds of hardy fruits.

Attempts are being made to replace Beauty of Bath, the standard early dessert apple. One of the promising replacements is George Cave. This variety has good flavor and color, bears early and resists frost well.

Another promising early apple is Exeter Cross, a cross of Worcester Permain x Beauty of Bath, which ripens over a long period.

A third outstanding possibility for an early dessert variety is Scarlet Pimpernel, which is very similar to Stark's Earliest. The fruit is larger than Beauty of Bath, but it matures at about the same time.

For mid-season, Merton Charm, a cross of McIntosh Red and Cox is outstanding. Although the fruit is small and lacks color—greenish-yellow with a slight red blush, the flesh is crisp and has good flavor.

A promising late variety is Kidd's Orange Red, a Cox x Delicious cross. It has good eating quality, has the same season as Cox, but stores better and is larger.

For processing, Lodi, a Canadian variety is very promising. It is earlier than Victoria and larger than Grenadier. Another is Howgate, a vigorous variety, picked after Bramley, and stores very well.