Rabbit Damage to Clonal Apple Rootstocks

Roy C. Rom*

In the spring of 1964 a planting of 7 clonal ungrafted apple rootstocks was set in the field at Fayetteville, Arkansas, for the purpose of studying differences in herbicide phytotoxicity to these rootstocks.

The seventeen plots in each of 3 replicates contained pairs of the 7 clonal rootstocks planted in rows. The distance between rootstocks was 2.5 ft. and between rows 10 ft. The planting was completely randomized.

During the winter of 1965-66 rabbit damage was observed in the plantings. Data relative to the extent of damage and rabbit preference to certain rootstocks was collected in March of 1966.

Five of the 17 herbicide plots had failed to give satisfactory weed control. During the winter these plots were covered with the residue of dead weeds 6-8 inches high. Rabbit damage in these plots was negligible (table 1). In the remaining 12 plots where weed populations were sparce and frequently the ground was bare, rabbit feeding was noted on 36% of the trees. The 6 ft. wide sod area between plots mowed in Fall contained some green winter weeds.

TABLE 1. Percentage of rootstocks damaged by rabbits.

Rootstock	Replications I	II	III	Average
5 Weedy plots	0.0	16.7	2.0	6.2
12 Clean plots	26.0	48.1	33.8	36.0

TABLE 2. Percentage of clones on clean plots damaged by rabbits.

Rootstock	Replications I	II	III	Average
EM IX	45.5	90.9	54.5	63.6
M-26	90.9	72.7	63.6	75.7
EM VII	18.2	27.3	27.3	24.7
EM II	0.0	10.0	0.0	3.3
MM 106	27.3	54.5	36.3	36.4
MM 104	0.0	45.5	18.2	21.2
MM 111	0.0	36.4	36.3	24.3

TABLE 3. Severity of Damage to Clonal Rootstocks*

Rootstock	Replications I	II	III	Average
EM IX	1.0	1.4	1.7	1.4
M-26	1.3	2.1	1.0	1.4
EM VII	1.0	1.0	1.0	1.0
EM II	0.0	1.0	0.0	0.3
MM 106	1.0	1.1	1.0	1.0
MM 104	0.0	1.2	1.0	0.7
MM 111	0.0	1.0	1.0	0.7

*0 = none, 1 = light, 2 = mod., 3 = heavy, almost girdled.

*Assoc. Professor, Dept. of Horticulture and Forestry, Univ. of Arkansas, Fayetteville, Ark., 72701.

Field observations indicated that rabbits fed upon certain clonal rootstocks preferentially (table 2). EM II rootstock sustained the least feeding damage while EM IX and M-26 were frequented much more often. While EM IX and M-26 have a low growth characteristic, almost recurving in nature, there were ample lateral branches on all clonal stocks extending down the trunk to within 4" of the soil. Most feeding damage was observed on the trunks. Table 3 indicates the severity of damage to the rootstocks. It is interesting to note that rootstocks fed on most frequently were also the ones on which feeding was the most severe.

Pear Breeding in Ohio

A pear breeding program was initiated in 1966 by the Department of Horticulture of the Ohio Agricultural Research and Development Center at Wooster in cooperation with the U.S.D.A. The work is being directed by W. A. Oitto, of the U.S.D.A. The basic objectives are to obtain pear varieties of high quality, resistant to fireblight, and adapted to Ohio conditions.

High quality European pear cultivars are being crossed with selections from earlier programs which show exceptional quality and apparent good resistance to blight. The latter selections are the result of crossing European pear cultivars with blight resistant species such as *Pyrus serotina* (sand pear), *P. ussuriensis* (Ussurian pear) and *P. calleryana* (Callery pear).

Some 1200 seedlings were planted at Wooster in 1966. New seedlings will be added each year (1000-2000) until a total of 12,000 have been planted. A planting of cultivars will also be maintained for evaluation, and as a source of breeding material.

When facilities for mass inoculation of seedlings become available at Beltsville, all progenies will be screened for fireblight, and only resistant seedlings will be planted in the orchard at Wooster.

Notes from Research Report of Summerland Research Station, 1961-64

Apple rootstock studies at Summerland, B. C. indicate that the best possibilities for high density plantings in commercial orchards are provided by the semi-dwarfing rootstocks, EM VII, EM 26, MM 106, and possibly EM IV. However collar rot is a severe problem with MM 106, and to some extent with EM VII.

Compact apple mutants have been obtained by exposing dormant scions to X-rays, gamma rays, or thermal neutrons. Trees obtained from these mutants have exhibited shorter internodes, more fruit spurs, fewer vegetative shoots, slightly smaller leaves, but larger leaf area per unit of shoot length than the parent varieties. The fruit of most, but not all, of the mutants have been undesirable in shape —oblate, assymetrical, grooved, or small.

Fruit variety evaluation studies have shown the best varieties to be as follows:

Apple: Highest colored Delicious sports—Harrold Red, Starkrimson, Hi-Early Red, Hapke and Imperial. Best McIntosh sports—Summerland, Rogers, Imperial, Reid, Geneva. Most promising varieties maturing before McIntosh—Quinte, Tydeman's Early.

Nectarine: Early varieties (Redhaven peach season)—N.Y. 884, N.J. N23; main season—N.Y. 1017 and Nectared.

Peach: For fresh market—Early Redhaven. For canning—Golden Jubilee, Fairhaven; clingstone—Fortuna.

Grape: New varieties for wine—Bath, Seibel 9549 and 9110, Foch, New York Muscat and Buffalo.