

anywhere should be made on a small scale, however, until the varieties have proved themselves adapted to that area.

The Experiment Station has no trees of these new varieties available for those who may be interested in budding

trees. Requests for budwood should be sent to the Department of Horticulture of the Virginia Agricultural Experiment Station. Trees of *Cavalier* and *Redchief* are expected to be available from several nurseries by the spring of 1954.

Anis and Antonovka Seedlings as Rootstocks for the Apple

W. H. UPSHALL, Vineland Station, Ontario

A very definite need has developed in Canada for a hardy rootstock to replace the reputedly tender French Crab seedlings for apple trees. In this connection, a study was initiated in 1938, at the Horticultural Station at Vineland to test the desirability of the seedlings of two hardy Russian varieties of apple, Anis and Antonovka, as rootstocks for western and southern Ontario.

The scion varieties used in this work included McIntosh, Delicious, Balwin and Northern Spy. The soil in which the budded trees were planted was a sandy loam. Trunk measurements were taken annually and their averages were used to calculate area of cross-section. Accumulated yield records were taken for each tree and, as the amount warranted it, the whole crop, or a bushel per tree, was taken for grade records. The percentage of No. 1 fruit was used as an index of quality, and the percentage of 2½ inches and up, as an index of size.

At the end of ten years, tree size differences in the orchard between trees within each variety on the French Crab, Anis and Antonovka seedling rootstocks were small and mostly lacking in significance. The only significant difference was found between Delicious on French Crab (106 sq. cm.) and on Anis seedling (77 sq. cm.).

The same statement applied equally well on yields, although two comparisons

showed significant differences, namely, Delicious on French Crab (230 lbs.) and on Anis seedlings (150 lbs.), and Northern Spy on French Crab (109 lbs.) and on Antonovka (42 lbs.).

In size and quality of fruit, the differences between rootstocks were small and of no significance.

On the whole, French seedlings had a slight advantage in size of tree and yield over the other two rootstocks.

Since the French seedlings came from a number of different sources and the Anis and Antonovka came from a single parent in each case, one would expect the latter two to give the more uniform results. As a matter of fact, however, the trees on French seedlings were less variable than those on Anis or Antonovka in this experiment. In size of tree, Antonovka seedlings induced more variability than Anis, but there was deviation from this relationship in yield.

In conclusion, one might say that under the conditions of this experiment, Anis and Antonovka seedlings had no advantage over French Crab seedlings as rootstocks. However, in areas where winter killing of roots is more of a factor, results might be quite different.

EDITOR'S NOTE: Various apples have been received from Russia, bearing the "Antonovka" name. One, "Antonovka Monasir," seems immune to scab, including the "Dolgo" race.