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AIRWRAP ROOTING OF CAROB CUTTINGS

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Seedling carob rootstocks are variable both in vigor and compatibility with varieties budded upon them. Propagation by rooted cuttings is needed for more uniformity of orchard trees of the best varieties. In the past, rooting of small leafy tip cuttings has proved difficult and subsequent growth was not satisfactory. Successful rooting of cuttings by the "Airwrap" method is herein described. The work was performed in Israel during the years 1954 through 1957.

Full grown carob trees of several budded varieties, in vigorous growing conditions were used. They had received some irrigation. Small branches about one-fourth to three-fourths inch in diameter were selected on all sides of the trees as high as could be reached from a portable scaffold. The limbs were girdled by removing a ring of bark about one inch wide.

Several wrapping materials were tried, the simplest and most satisfactory was transparent polyethylene film of the kind commonly used to preserve foods in domestic cold storage. The most convenient size was six by twelve inches costing about 1½ cents. The bottoms were opened forming sleeves which were rolled up like stockings and slipped over the ends of the limbs. The lower ends were tied tightly around the limb just below the girdle. After the sleeve was unrolled it was ready to receive the well moistened filler material. The filler, placed on all sides of the girdle, was covered by the plastic which, after drawing tight, was tied with cord above the girdle.

Different filler materials were experimented with. The one both successful and convenient was ordinary sawdust mixed with fine wood shavings. Probably vermiculite or peat moss would have worked just as well, but neither were easily available. No root stimulating material of any kind was used. After some practice a workman placed ten to twelve airwraps per hour. The number of airwraps per tree varied with variety and habit of growth, some large trees accommodating as many as one hundred airwraps. Some loss was occasioned by birds pecking holes in the plastic, thus permitting the moist filler to dry out.

About six to eight weeks after girdling, roots began to be seen through the plastic. Rooting continued all summer but diminished in the winter. As soon as a good system of roots is observed the rooted plants were cut below the girdle without disturbing the packet of filler, the top cut back to about ten to fifteen inches, all remaining leaves

removed and the cuts covered with tree salve. It was observed that the filler was still moist and the roots in good condition. When handled with sufficient care to avoid disturbing the roots, such airwrap cuttings withstood packing, shipment and planting. In fact, one such plant was carried in the hand in open air, busses, etc., for three weeks for exhibit. When finally planted it developed well.

Tests made at different dates during the year showed that August was a good month for girdling. In 1955, 835 airwraps made during mid-August resulted in 646 well rooted plants by February 1956. This increased to 703 or 84% by July 1956. Of 256 airwrapped in mid-September only 39% rooted. The percentages varied according to the health and condition of individual trees and the amount of damage by birds. Airwraps on some trees rooted 100%. Rooting took place all season but was much slower in winter. The Tylliria variety was used for most of the work but small scale tests were made with Sandalawi, Algiri, Aaronsohn No. 3 and some seedlings, all of which rooted well.

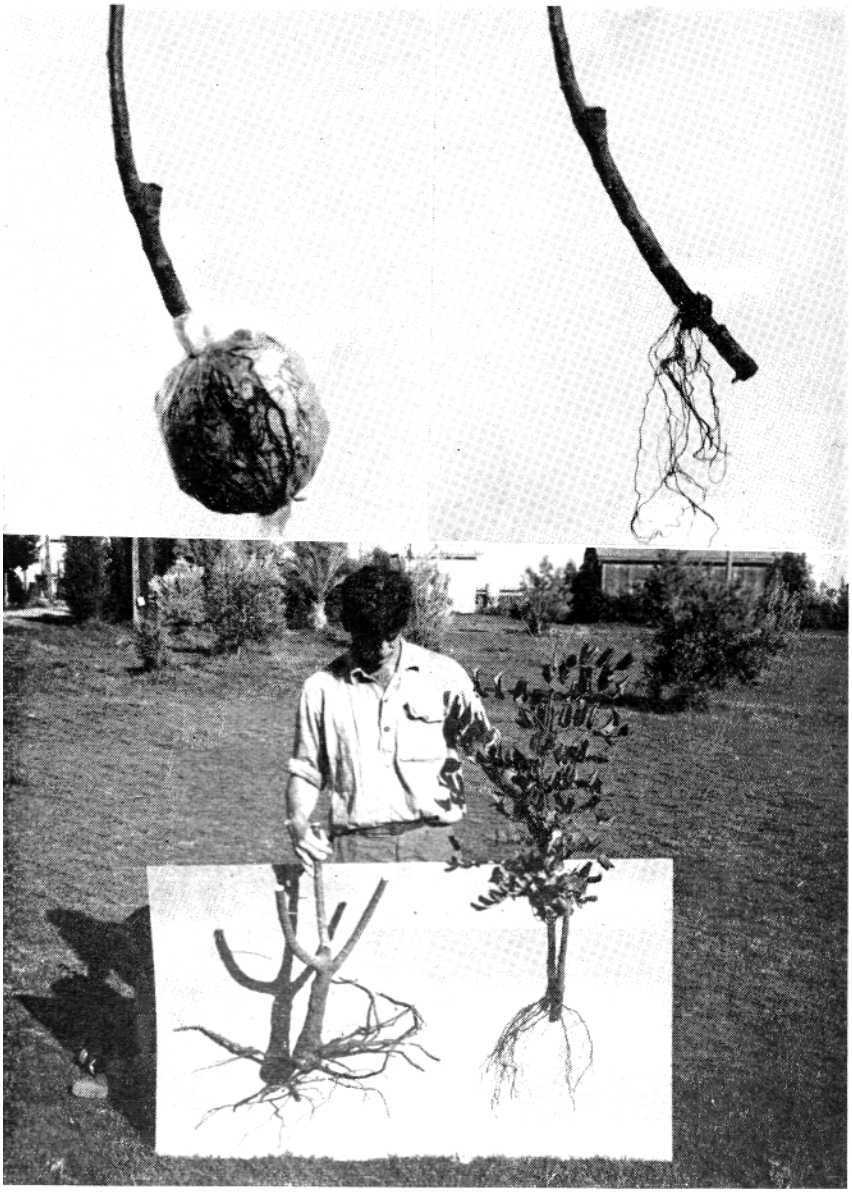
In order to compare airwraps with budded bare root and budded nursery trees dug with balls of earth, a comparative planting was made in the late winter of 1954-55. The following August a count showed survivals as follows: Airwrap 66%, bare root budded 37.5% and budded and balled with earth 75%. It should be mentioned that, on account of unfavorable weather, survival of all young plantings was poor that year.

Another comparative planting was made in late winter of 1956. Observations the following July showed the following results: East plot, airwrap 52 plants, survival 80%. Budded bare root 25 plants, survival 50%. West plot, airwrap 35 plants, 33 growing and 2 doubtful.

In 1956 many airwraps were sold for commercial planting. The K.K.L. planted 100 on stony ground in Charuvit with irrigation. Survival 70%. A farmer planted 150 at Hadera. With poor care survival was 59%. The Gan-Hadar nursery planted ten airwraps and all grew.

In my test plantings the ball of filler was not removed but the plastic cover was well slashed with a knife to provide openings through which the roots grew into the well moistened earth which was pressed firmly against the bag of material. When planted in spring and irrigated, airwraps quickly put out six to ten leaves. Growth then ceased and after 3 rest period resumed and increased in the fall. During one year and four months, some plants reached a height of five to six feet.

Airwraps grow well when planted in containers. In May 1957, 133 airwraps were planted in containers and kept in the open. The following January 128 were thriving, the average height being 16 inches.



Development of Airwrap Rooting of Carob Cuttings.

SUMMARY

A successful method of rooting carob cuttings by airwrap has been developed and tested. Unless future observations indicate that own-rooted carob nursery trees are inferior in some respect to trees budded or grafted on seedling rootstocks by conventional nursery methods, then the above described experiments provide an economical method of growing carob nursery trees of desired varieties which can be used in commercial plantings with a survival rate of at least 90%.

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