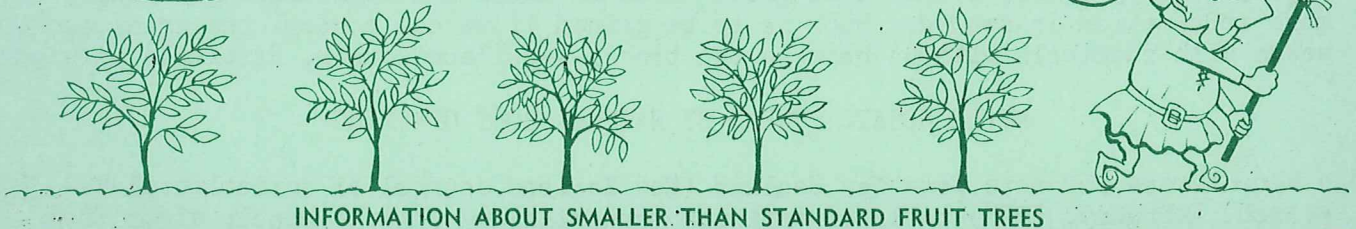


DWARF FRUIT TREE ASSOCIATION NEWS LETTER



INFORMATION ABOUT SMALLER THAN STANDARD FRUIT TREES

No. 5

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Edited by R. F. Carlson

SOME OBSERVATIONS FROM THE NORTHWEST

In February, 1959 I visited the northwest fruit area of Washington and Oregon. One of the highlights of my trip was attending the first meeting of the Northwest Dwarf Tree Association held at Yakima, Washington. About 150 keenly interested growers, researchers, and nurserymen from the northwest met and formed an association, similar to ours, devoted to the dwarfing rootstocks, their problems and advantages, and the dissemination of information about them. Bill Luce, Yakima County Agent, spark-plugged this meeting and the formation of the Association.

In talking with many people many ideas were exchanged, some of them worthy of trial in this part of the country. A few growers in the west are interested in true dwarf hedgerows using East Malling-IX or possibly an intergraft tree.

I saw "Bill" Hess of Quincy, Washington and his planting of about 3,000 trees on EM-IX, planted 6 x 12 feet. The orchard looked very good, and the trees had exceptional vigor; they were making more growth than we get in Michigan. He plans to build a harvest machine that pickers ride, picking the fruit onto belts which carry it to the brusher, and automatic traypackers place it into boxes. After meeting "Bill" Hess and seeing his orchard, this does not seem as farfetched as one might think.

Professor Al Roberts of Oregon State College at Corvallis stated at the meeting that we have only scratched the surface and need much more information and experience. Under Oregon conditions the most promising stocks at this time are EM-II, VII, and IX, and possibly some type of built-up tree using an interstock.

Walter Mellenthin, Superintendent of Hood River Experiment Station, has some extensive tests started on pear rootstocks for all sizes of trees. This work will be closely watched by many as much more information is needed on rootstock stock for pear, particularly dwarfing types. Mr. Mellenthin writes in the June News letter of the Northwest Dwarf Tree Association that three-year old true dwarf Bartlett-and-Anjou on Quince C looks good, but he thinks that Quince A is the better possibility.

Grower interest in dwarf apple trees is very high in Canada. For the last year or so, more dwarf and semi-dwarf trees have been sold there than standard trees.

A couple of growers in Washington are planting Montmorency on Mahaleb root. They plan to bud or graft sweet cherry into the scaffold limbs to make an early, heavy-bearing, semi-dwarf tree. I saw a few of these trees that were seven or eight years old, and they looked good.

There is quite a little interest in chemical weed and grass control around young trees. This practice could be of great value in dwarf and semi-dwarf plantings, but more information is needed. Much is to be gained if we can control the grass and weeds with chemicals without harm to the trees.---Wallace Heuser, Hartford, Michigan.

APPLE MOSAIC SPREAD BY NATURAL ROOT GRAFTING

A recent research note from New Zealand (New Zealand Journal of Agricultural Research, February, 1958) tells of definite transmission of apple mosaic virus from infected trees to healthy trees by natural root grafting. This may occur either in the nursery or in the orchard when roots of adjacent trees interlace and come in direct contact and intergraft. In orchards root spread is usually greater than branch spread, so that when branches of adjacent trees come together, chances are that the roots intermingle. This may or may not be the case with clonal rootstocks depending on the vigor of the stock. However, in the nursery direct root contact is greater. Although apple mosaic, as far as we know, is relatively uncommon in this country, it bears watching since the trees in many orchards on clonal rootstocks now are planted closer together.

CHEMICAL FRUIT THINNING FOR APPLE TREES ON DWARFING STOCKS

The question has been raised, "does chemical thinning of apples work as well for trees on dwarfing stock as for trees on seedling roots?"

From present knowledge, less vigorous trees are thinned more easily with naphthaleneacetic acid (NAA) and naphthaleneacetamide (Amid-Thin) than vigorous trees. Thus, one would conjecture that trees on dwarfing stocks would thin more easily than standard trees. As a starting point for thinning trees on dwarfing stocks, the same procedure should be used as suggested for standard trees, but only a small number of trees should be treated in an experimental way. Good records of temperature at time of application and of weather conditions for the periods just before, during, and after bloom are necessary. With this background information of one year plus the knowledge already available for standard trees, a starting point for thinning apple trees on dwarfing stocks would be a reality. No published procedures for chemical thinning of apple trees on dwarfing stocks have been found to date.--A. E. Mitchell, Michigan State University.

STATUS OF DWARFING ROOTSTOCK RESEARCH AND PLANTING IN WEST VIRGINIA

Research on dwarfing rootstocks in West Virginia began in 1932. At that time several plantings were established at the University Experiment Farm of the West Virginia University Agricultural Experiment Station. This is located in the extreme eastern part of the State. Most of these experiments were conducted in cooperation with the U. S. Department of Agriculture. The objective of these experiments was to evaluate stocks for their effect in producing a fully dwarfed or only slightly dwarfed tree.

More recent tests have been initiated to evaluate semi-dwarf and other dwarfing methods than those tested earlier. Both EM-VII as a rootstock and EM-IX as a stem-piece are being used for this purpose. Eleven kinds of the newer Malling-Merton stocks are also growing now in propagation beds at the Station.

REPORT ON SECOND ANNUAL MEETING

The Heusers of Hill Top Orchards, Hartford, Michigan again hosted the annual meeting of the Dwarf Fruit Tree Association, March 4th. Again, they opened their packing house and apple storage for interested fruit growers and nurserymen to come and listen to growers reveal their experiences with small fruit trees. Well over 300 enthusiastic people came from 10 states and Canada to learn more about rootstocks, pruning, planting distances, and yields. The weatherman cooperated with a sunny brisk day so that everyone could view the different methods of pruning demonstrated in the orchard during the afternoon.

The morning session held indoors proved to be an informative one with a discussion about 14-year performance of different varieties on different rootstocks and early bearing by R. F. Carlson. Among other things, he pointed out that certain varieties will do better on certain rootstocks. For example, Jonathan is more productive and makes a better tree on East Malling (EM) II than on EM VII. Professor Brase from the Geneva Experiment Station related his many years of experience with rootstock and orchard performance of various semi-dwarf fruit trees under New York conditions. He also explained the difficulties encountered with Virginia Crab as an understock, especially as related to suckering and apparent virus troubles. Professor Brase also was on hand during the day to answer many individual questions.

The grower panel discussion, moderated by Ray Klackle, certainly was constructive as it brought out varied problems and experiences encountered in the orchard and stimulated an interesting discussion that lasted well into the noon hour. The members on the panel, in conjunction with their talks, also illustrated their experiences with fine color slides.

After a good lunch, sponsored by a local women's organization, the meeting again convened in the apple storage for a summary discussion by Dr. H. B. Tukey. In reviewing the "high-points" of the morning session, he successfully evaluated the steady progress made to date with semi-dwarf fruit trees in this country. He, further, emphasized the importance of working together in the future and pooling and sharing our experiences, good or bad, with everyone interested in smaller than standard fruit trees. --- Ed.

FOURTEEN-YEAR RESULTS OF SEMI-DWARF ORCHARD IN MICHIGAN

Information about dwarf and semi-dwarf orchards is much in need by commercial fruit growers in Michigan and elsewhere. The 14-year-old semi-dwarf orchard of 18 variety/rootstock combinations at our Horticulture Farm is giving us valuable information on behavior and performance under Michigan orchard conditions. Most of the trees of the different variety/rootstock combinations in this orchard have grown well and produced good yields since they were planted in 1945.

The annual yields for the past 10-year period have been much higher than what can be expected from the same varieties on seedling rootstock. For example, McIntosh on EM II, VII, and XIII has averaged 414, 448, and 473 bushels per acre respectively the past 10 years. The Cortland variety on these same stocks produced 470, 314, and 309 bushels annually. Wealthy on EM XII and EM XVI averaged 570 and 471 bushels over the same period. Northern Spy, a variety ordinarily coming into fruiting the 10th and 12th season after planting, produced 283 bushels on EM VII each year since 1948.

The trees vary in size according to the rootstocks that they were budded on. In 1958 the trees varied from 12 feet high x 15 feet wide on EM VII to 16 feet x 20 feet on EM XIII. --- R. F. Carlson and H. B. Tukey, Michigan State University.

TREES ON EAST MALLING VII MAINTAIN HIGH YIELDS

Production records in 1958 from a block of 15-year McIntosh on EM II and VII indicate that these trees are capable of producing high acre yields of fruit. The average yield for EM II was 11 boxes per tree, while the average yield for EM VII was 12 boxes per tree. The spread of those trees is somewhat over 20 feet, so that a planting distance of 20 feet by 30 feet is required. With this planting distance there are 72 trees per acre which at the above rates would produce 864 boxes per acre for EM VII and 792 boxes for EM II.

A closer planting plan might be adopted where the slope of the orchard site permits sprayer travel in two directions. Under this condition it would be possible to set the trees 15 feet by 20 feet so that when the trees commence to crowd, every other tree in the 15-foot row would be removed leaving a 20 by 30 planting distance. With this planting plan the number of trees per acre would be doubled, and the yield could theoretically be increased to 1600 to 1700 boxes per acre as long as the trees were not crowded. Whether or not a grower adopts this close planting plan will depend on the orchard site available and his willingness to double the cost of trees for planting. --- W. D. Weeks, University of Massachusetts, Amherst, Massachusetts.

ANOTHER DWARF FRUIT TREE ASSOCIATION

The first steps to form a dwarf fruit tree organization west of the Mississippi River were taken by fruit representatives from Oregon, Washington, and Idaho at a meeting in Nob Hill Grange Hall at Yakima, Washington, February 20, 1959. The meeting of 150 growers, nurserymen, and research men voted unanimously to form the Northwest Dwarf Fruit Tree Association and elected temporary officers.

According to reports from Bill Luce, County Extension Agent, Yakima the meeting was a success, and the enthusiasm is high among fruit growers and nurserymen alike for smaller fruit trees in commercial orchards.

LETTERS FROM FRUIT GROWERS

Informative letters from growers and research men are helpful to all in the Association, so please tell us of your experiences with anything related to dwarf fruit trees. Here are a few of the letters sent in to us:

If frost kills or damages all blossoms below 6 or 8 feet on a particular night, then obviously dwarf fruit trees would suffer more in proportion than tall trees on vigorous rootstocks. We try to locate all fruit plantations on sites that are not abnormally subject to spring frost, and this would be rather more important for dwarf trees.

Apples on EM IX ripen a few days earlier than on most rootstocks; therefore, they need to be picked up to a week earlier. This is not markedly so with rootstocks such as EM VII. Color is better than average on these two rootstocks; this makes

them readily marketable, especially as on EM IX fruits tend to be large. Fruits from mature dwarf trees picked at the right stage of maturity store well. It must be remembered, however, that fruit from young trees is always rather coarse and does not store as well as from mature trees. By inducing early bearing, dwarf stocks naturally produce more of this type of fruit, and should no more be judged on the first year or two than a vigorous tree on the first few balloon sized fruits of its first crop. EM IX does need good soil and good treatment, and if it becomes stunted by neglect, it is difficult to get it to grow away again.

We do not normally mulch dwarf trees more particularly than others. Mulching here is done according to soil moisture in the particular soil type and climatic area. Nor do we irrigate them differently from other trees. We do not normally hand pollinate, nor do we use mechanical harvesting methods. Thinning is done on all dessert varieties, more particularly those of the highest market value, whenever there is a heavier crop set than is desirable to attain optimum fruit size. Insect and disease control is easier on dwarf trees and cheaper. It is much easier to get really good cover. Pruning and harvesting are also cheaper because ladder work is unnecessary.

We do not normally consider that rootstock preferences of varieties are important, though some of our very vigorous varieties such as Branley's Seedling are not very successful as permanent trees on EM IX; there is such a contrast of vigor.

Much harder methods of pruning are employed for dwarf trees than for more vigorous trees, but this is in line with pruning practices for any type of tree. Planting distances here are about 12 feet for M IX on good soil, 15-17 feet on EM VII, and 24 feet on EM II. In a warmer climate, if growth is more vigorous, these distances would need to be increased.

We should like to make the point that the root system of EM IX is no more shallow than that of vigorous trees. Ten-year-old trees on our deep soil here had roots going down 12 feet deep. --- John H. Walker, East Malling Research Station, Near Maidstone, Kent, England.

Mr. W. S. Carpenter, Extension Specialist, Vineland Station, Ontario, Canada says: "I would sincerely appreciate being placed on your mailing list for material emanating from your Dwarf Fruit Tree Association. As you realize, here in Ontario, we are getting quite involved in commercial plantings. Our Tree Fruit Census taken two years ago indicated at that time there were 72,348 trees on dwarfing rootstocks commercially planted."

We have planted out almost 7,000 dwarf apple trees over the past 6 years as an addition to the standard orchard. The trees are on EM IX (although we have a couple of hundred of EM VII's). We allow the trees to grow more or less naturally and tie them to a two wire fence. We are interested in your organization and would like more details. --- James R. Davidson, Grasmere Farm, R.R. No. 1, Pickering, Ontario, Canada.

I have about 500 apples age 2 to 5 years. They are mostly Delicious, Spy, and McIntosh on EM II, some EM VII, and some MM 109. In addition I have 500 standard trees age 25 years -- same varieties. I am hoping to reduce costs of spraying, and pruning. Our Mr. Hugo Polak is recommending 27 branches per tree with a leader. He is located at Millgrove, Ontario. You would be interested in the pruning theories he has developed during his lifetime. --- Laurence Pogue, Pogue Park, R.R. 3, Wellandport, Ontario, Canada.

INFORMATION ON SEMI-DWARF PLANTING

A planting of McIntosh, Jonathan, Red Delicious, and Northern Spy, on EM rootstocks I, II, V, VII, XIII, and XVI, was made at the Graham Station in 1952. The trees were headed at about 30 inches. The soil is moderately heavy with fair drainage. Delicious/VII combination appears very undesirable under the conditions of this planting. The trees began to show a tendency to lean with the wind during their third growing season, progressively increasing this tendency in the years following. A few trees of McIntosh, and Jonathan likewise, lean slightly, perhaps more on the heavier soil out-croppings. This leads to the belief that EM VII rootstock may not be well adapted on the heavier types of soil. The remaining combinations appear very satisfactory. --- Walter Toenjes, Graham Experiment Station, Grand Rapids, Michigan.

NOTE: The tendency to lean is now reduced by budding the trees 6 to 8 inches high in the nursery and then setting the trees in the orchard about 4 inches deeper than they were in the nursery.

ASSOCIATION AFFAIRS

The officers of the Dwarf Fruit Tree Association for 1959 are as follows:

President - Wallace Heuser, Hartford
Vice-President - Ray Klackle, Belding
Secretary-Treasurer - R. F. Carlson, Michigan State University;
Board of Directors - Jerry Mandigo, Paw Paw
Harold Fox, Sodus
Don Spencer, South Haven
Frank Green, Allen
Lorne Doud, Wabash, Indiana
Gordon Yates, LaCrescent, Minnesota

If you have not sent in your 1959 membership dues, please do this at your earliest convenience. The annual dues are one dollar (\$1.00) and should be sent to R. F. Carlson, Secretary-Treasurer, Dwarf Fruit Tree Association.

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