Vol. 2 No. 1 February 1965 Edited by: R. F. Carlson

THE COMPACT FRUIT TREE

This Newsletter is the beginning of Volume 2 and with it comes the introduction of a new letter head. As the new format indicates, this letter, published about six times annually, will continue to disseminate practical and basic principles of fruit tree rootstocks. Smaller, compact trees of apple, pear, cherries, plums, peaches and apricots will be needed in the future. Trees which are small, productive, durable and more economical to spray, prune and harvest are what the fruit grower of the future will need to stay in business.

Compact and easier manageable trees in the future may not be dependent on rootstocks alone, but also on dwarf-inducing chemicals, mutations or combinations of dwarfing rootstocks, dwarf-inducing chemicals, and dwarf-scion mutations.

The aim of this Newsletter, as in Volume 1, is to pass along to the fruit grower up-to-date information of compact fruit trees.

MALLING MERTONS RESPOND TO ROOT TEMPERATURE

Research just completed by R. F. Carlson, Department of Horticulture, Michigan State University, showed that MM 104, 106, 109 and 111 respond differently to various soil temperatures. Non-grafted plants of these four clones and of Red Delicious seedlings were grown in soil with temperatures of 45°, 55°, 65° and 75°F for 82 days in the greenhouse.

MM 106 and 111 produced the most shoot growth at 65°F root temperature, considerable less shoot growth at 75°F and still less at 45°F. MM 104 and 109 grew about the same at 55°, 65° and 75°F root temperature with the least growth at 45°F. The Red Delicious seedlings produced more shoot growth than any of the MM clones at all temperatures.

Based on root growth, MM 106 was superior in that it produced a shoot/root ratio of one at 65° and 75°F and slightly less than one at 45° and 55°F. This means that shoot and root growth was nearly equal at all temperatures. MM 104, 109 and 111 did not vary greatly since they had a shoot/root ratio ranging from 0.90 to 1.20 at the lower three temperatures. However, at 75°F, these three MM clones had a shoot/root ratio of 1.40 to 1.60 indicating considerable less root growth at the high temperature. This means that in a fluctuating soil temperature, the root growth may temporarily slow down at 75°F or higher. The Red Delicious seedlings had a shoot root ratio of about 0.60 at the four temperatures indicating less root growth in proportion to top growth.

It should be pointed out that these were greenhouse studies under controlled conditions, and therefore, cannot be related directly to orchard conditions. However, they give a trend.

A complete report of this work plus nutrient uptake is being published in the Proceedings American Society for Horticulture Science.

WHAT ROOTSTOCK FOR APRICOTS?

Apricots may some day be grown more extensively in peach areas than they are at the present time. In Michigan, Professor Johnston at the M.S.U. Horticultural Station, South Haven, and Dr. J. E. Moulton, Horticulture Department, M.S.U., have several promising apricot selections under observation. Three of these have been in grower test orchards for several years. These are SH-6, Curtis and SH-7. Due to undesirable qualities, SH-7 has been discontinued. More promising selections than SH-6 and Curtis are now being tried in several test orchards.

Peach seedlings were used extensively as rootstocks for the apricot selections when the program began in Michigan. However, it was soon found that apricot on peach did not always make a strong and durable graft combination. Many trees broke at the graft union. Although Halehaven seedlings were more compatible than Elberta seedlings, the problem existed. Myrobalan plum seedlings have been tried as rootstocks for apricots, but the scion overgrows the stock, indicating inferior graft unions. Suckering is also associated with Myrobalan.

Apricot seedlings (Prunus armeniaca) were also tried as rootstocks by some propagators and found more suitable. A hardy apricot seedling of Manchurian origin called "Manchu" which is used for windbreak in the Western Plains appears to make a stronger, more durable tree than peach seedlings. In an apricot rootstock trial started in 1962, using six different rootstock, the Manchu seedling has given the smallest tree loss to date.

Growers planting apricot varieties should have them on the "Manchu" apricot seedling rootstock. At present, large plantings of apricots are not suggested and only the most favorable sites should be selected for limited plantings. Furthermore, varieties superior to the present ones may become available in the not too distant future. It would be a mistake to plant too many trees of those now available. Studies are now in progress on methods of preventing young apricot trees from winter injury and subsequent tree loss.....R. F. C.

THE EIGHT ANNUAL CONFERENCE

This conference is open to fruit growers and horticulturists. In fact, anyone interested in the culture and care of small or compact fruit trees is invited to attend. Each year, the Dwarf Fruit Tree Association brings in one or more outstanding speakers for the program. This expense comes out of your annual dues ($3.00). This is your program and only your loyal and financial support can make for an interesting and successful conference.

All are invited to the annual banquet, Monday evening, but reservations must be made in advance to accomodate everyone. Reservations for the banquet and/or lodging should be made by calling 616-925-3234 or writing Holiday Inn, M 139, Benton Harbor, Michigan.

Cost of banquet - $4.00 per person (including tax and tip)
Menue choice of - Top Sirloin Steak or Roast Chicken
Cost of lodging - Single room: $9.00. One room, 2 persons, one bed: $12.00. One room, 2 persons, two beds: $14.00. Reservations for the banquet and/or lodging must be made by MARCH 1. Holiday Inn, M 139, Benton Harbor, Michigan. Location is I-94 Interchange No. 28, and S. W. corner of the exit.

1965 Annual Dues: The annual dues ($3.00) are payable at the conference registration table or can be mailed to the Treasurer, P.O. Box 143, Hartford, Michigan. There will be a registration fee of $1.00 at the conference.

GUEST SPEAKER EIGHT ANNUAL CONFERENCE

Dr. Donald Vince Fisher is head of the Pomology section, Canada Department Agricultural Research Station at Summerland, British Columbia, a position he has held since 1955. Currently, he is involved in a large-scale program of varietal appraisal with special emphasis on the Red Apple sports. He is also carrying on some detailed studies of chemical thinning of apples and peaches. Before 1955, he was research officer in Fruit Harvesting and Storage in British Columbia. Dr. Fisher is married and has three children. He served in the Canadian army and he is a member of Canadian and American Horticultural Societies. He has traveled extensively in fruit areas of America and Europe and is continually being called upon for presentation of his research.

Dr. Fisher has been the leader in developing the smaller compact fruit trees of British Columbia. He knows their cultural requirements. Together with his co-workers, he has developed dwarf clones by mutations from radiation treatments. The natural as well as induced spur type sorts have received much attention and appraisal at the Summerland Research Station. Dr. Fisher's two talks to be given at the Eight Annual Conference of the Dwarf Fruit Tree Association, March 8 and 9, are entitled: 1. Natural and Induced Mutations of Spur-Type Varieties and 2. Experience with Dwarf Rootstocks for Apples in British Columbia.

FOR THE RECORD

Apparently, there is some misunderstanding of how the two European tours were handled in 1964. The Board of Directors of the Dwarf Fruit Tree Association would like to go on record to the effect that the Dwarf Fruit Tree Association served only as the sponsor of the two European Educational Tours and that no money whatsoever came from the Dwarf Fruit Tree Association Treasury. Each tour member paid his own expenses, and the tour leaders were sponsored by the travel agency..... The Board of Directors Dwarf Fruit Tree Association.

Someone has aptly said:
"What you do for yourself perishes with you; what you do for others lives forever."

PROGRAM - EIGHT ANNUAL CONFERENCE
DWARF FRUIT TREE ASSOCIATION

Monday, March 8 - Chairman, W. S. Carpenter, District Horticultural Agent.

1:30 p.m. - Orchard Tour. Meet at Hill Top Orchard (3 mi. S.E. of Hartford).

6:30 p.m. - Annual Banquet - Assembly Hall at the Holiday Inn Motel. Seating capacity over 300 persons. Holiday Inn is located at the Scottdale Interchange No. 28 of I-94 south of Benton Harbor. Reservations for the banquet should be made by calling 616-925-3234, Benton Harbor or by writing Holiday Inn, M 139, Benton Harbor, Michigan.

8:00 p.m. - Evening Informal Program - "Do We or Don't We Have Problems?" Chairman, Ray Klackle, horticulturist, processor and fruit grower. Bring your problems along and let the expert growers and horticulturists help you solve them. This will be a session no up-to-date fruit grower can afford to miss.

9:00 p.m. - Fruit Growing in Europe. By Dr. Jerome Hull, Jr. This will be an interesting color picture story with personal comments of some of the detailed methods, techniques, and cultural orchard practices in four European countries.

Tuesday, March 9 - Lawrence Audio-Visual High School Auditorium. Lawrence is east of Hartford on the Red Arrow Highway.

9:45 a.m. - Chairman, George McManus, Jr., District Horticultural Agent, Traverse City.

Apricot Rootstocks - A progress report on research with different seedling rootstocks. Dr. R. F. Carlson.

10:00 a.m. - "As I Saw It" - Personal opinions illustrated with color slides of fruit and people in England, Italy, France and Holland. Eugene Heuser, fruit grower and nurseryman, Hartford, Michigan.

10:30 a.m. - Varieties and Rootstocks Used in Europe - A panel of growers discussing the orchard practices used in four different countries.

		Country
Lorne Doud, grower and nurseryman	- Indiana	England
Paul Rood, grower	- Michigan	Holland
Albert Ten Eyck, grower	- Wisconsin	France
Emil Andersen, researcher	- Minnesota	Italy

11:00 a.m. - Natural and Induced Mutations of Spur-Type Varieties. Dr. D. V. (Don) Fisher, Research Station, Summerland, British Columbia, Canada.

11:30 a.m. - Facts and Figures of Foreign Fruit Production - A detailed summary and conclusions by two Virginians who toured major fruit areas of Europe for six weeks during the fall of 1964.

Howard (Jack) Rollins, Jr., Extension, V.P.I., Virginia.
George Williams, Fruit Research Laboratory, Virginia.

12:00 noon - Lunch available at nominal cost.

1:15 p.m. - Afternoon Session - Chairman, Bob Earl, County-Director, Paw Paw.
Experience with Dwarfing Rootstocks for Apples in British Columbia.
Dr. D. V. Fisher.

2:30 p.m. - Question Session.

3:00 p.m. - Visit Pruning Trials and Pruning Demonstrations. Wallace Heuser and Dr. Fisher.

A considerable resurgence of interest in semi-dwarf trees has occurred among growers. One of the larger growers planted 3,900 trees of six varieties on EM-VII in the fall of 1958, and present plans include another 5,000 during the current year. At least a half dozen other growers have, or will shortly have, test plantings of at least 500 trees. More semi-dwarf trees than standard stocks will probably be planted in West Virginia in 1959.

It may be assumed that the rather universally satisfactory results with EM-VII at many experiment stations will not make its planting in the Shenandoah Valley a particularly great risk. The mountain orchards, however, should be considered in a different light. Standard trees in such orchards are generally smaller at a particular age than those in the Valley. Of the contributing factors which spring to mind probably the shallow, thin soils, which are more susceptible to drought, are the most important. It is generally considered that this is the area of greatest need for research and testing of these stocks in West Virginia.---Donald Zeiger, University Experiment Farm, Kearneysville, West Virginia.

NOTES ON SPUR-TYPE STRAINS AND CLARK DWARFS

The tree form of the new Starkrimson Delicious is definitely different from Starking in that it tends to produce a heavily fruit spurred type tree that gets into younger and heavier production than other strains of the Delicious type. Earlier studies of fruit spur type strains definitely indicate that this type of tree at maturity will be about two-thirds the size of a standard apple tree. We recommend planting 20 feet on the square with Clark Dwarf Stark Jon-A-Red and/or Stark Golden Delicious used as pollinators. Under most conditions Clark Hardy dwarf trees of these varieties will fit into this spacing, but standards can be used with a more detailed pruning program as they mature. If tree removal is necessary on exceptionally strong soils, take the diagonal square center tree out and this gives a permanent spacing of 28 feet.

Starkrimson Delicious comes into production at an earlier age and is a consistent and heavy producer of large sized quality fruit. The variety is more resistant to frost, and the trees are decidedly more resistant to winter injury than other strains of Delicious. The Starkrimson Delicious has other very favorable characteristics which make this one of the biggest steps forward in Delicious apple improvement since the discovery and development of Starking back in 1923.

So far as semi-dwarf trees on most varieties are concerned, we prefer to go the Clark STEMPIECE "route" in combination with spur trees to get trees of medium size and maximum producing capacity. We originally followed Tom Maney using a Clark dwarf stem builder on a seedling root. However, the Virginia crab part of this combination caused some difficulty and has now been replaced by other hardy stempieces, such as Northwestern Greening, Beacon, Melba, and others. We are also lengthening the Clark stempiece.

Quote from New Zealand Fruit Grower: "Profits slip between the ladder rungs for each step we go up".---Paul Stark, Jr., Louisiana, Missouri

LETTERS FROM FRUIT GROWERS

Biennial bearing -- This has been a problem as far back as I can remember. Transparent, York, and Golden Delicious have been the worst offenders, but Grimes, Red Delicious, Winesap, and Jonathan will all have low years following a year of overproduction. Chemical thinning and pneumatic pruning are helping some to alleviate this trouble on standard rootstocks.

Our dwarfs are Clark dwarfs and EM-I, II, VII, and XIII and are all under ten years old; so, they have been neither chemically thinned nor power pruned. It seems to me they also have the problem of biennial bearing. The Golden Delicious set such a heavy crop the third year that they did not even bloom the fourth. Again last year (1958) the Golden Delicious dwarfs and standards just set too many apples and, consequently, this spring they are nearly blanks. Next year I guess we will just have to chemically thin them also.

We have tried to bring our standard trees into annual bearing by girdling, and it looks as though this will bring them into production; but, it appears that girdling is not a tool to bring them into annual bearing.---Mark Byers, Dixie Orchards, Vincennes, Indiana.

My business is growing fruit trees on EM-VII principally, but also on EM-II for a few varieties. This year I will bud 7,000. I start budding this month, April, for this year using 1958 growth buds, and will bud through the early part of June, then again in the latter part of September or early October for buds to be forced out the next spring. The largest part of budding is done in May or early June when present year buds are sufficiently matured.

So far as I know I am the farthest south of anyone growing fruit trees; yet, our small orchards here are proving we can grow as many, as early, as large, and as well colored apples as anywhere.---Paul F. Barringer, Loachapoka, Alabama.

Mr. John H. Walker (News letter No. 4) states that dwarf fruit trees may suffer more from frost in proportion than tall trees on vigorous rootstocks. We do not quite agree with this. Mr. Dubois has an orchard planted in Carlisle and for two years now has had heavy frost which killed the blossoms on standard trees, but the dwarf trees still had a good crop and the blossoms suffered only very minor injuries.---Hugo Polak, Tree Angle Nurseries, Ltd., Millgrove, Ontario, Canada.

CALENDAR FOR SUMMER MEETINGS

July 31 - Dwarf fruit tree tour in southwestern Michigan viewing performance of several commercial orchards.

August 4 - Dwarf fruit tree tour in southeastern Michigan with visits to several commercial dwarf orchards in that area.

August 6 - Horticultural field day at the Horticultural Experimental Farm, East Lansing. This will be "open house" where you can see research under way on fruit, vegetable, and flowering crops. Among other things, you will see dwarf fruit tree plantings of different ages and planting distances, as well as chemical weed control around young and old fruit trees.

More details on these meetings in the next news letter.

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