

Department of
Horticulture

MICHIGAN
STATE
UNIVERSITY

COMPACT FRUIT TREE

DWARF FRUIT TREE ASSOCIATION

Rootstock Behavior

Spur Types

Induced Dwarfing

Cultural Practices

Vol. 8, No. 3, February 1975 - Prepared by R.F. Carlson

PROGRAM

EIGHTEENTH ANNUAL CONFERENCE - DWARF FRUIT TREE ASSOCIATION
March 12-14, 1975 Pantlind Hotel, Grand Rapids, Michigan

Wednesday afternoon - March 12

2:00 - Registration in Pantlind lobby. Informal visits and fruit products tasting.
GLEN ANTLE and FRANK KLACKLE in charge.

6:00 - Dinner on your own. Get a party together and enjoy a meal and a visit in
one of Pantlinds' fine restaurants.

Wednesday evening

8:00 - Two discussion sessions followed by a summary program.

Session 1 - Kent State Room. Topics: Stone fruits, varieties, and rootstocks.
RICHARD HAYDEN, discussion leader.

DR. RICHARD LAYNE, Research Station Harrow, Ontario - "New developments in
peach varieties and rootstocks".

DR. JEROME HULL, MI - "Peach tree longevity study at MSU".

Session 2 - Continental Room. Topics: Picking problems and bin removals
associated with harvesting high density orchards. A panel discussion. JORDAN
TATTER, MI - discussion leader.

MR. HERB WOOD, Ontario - "Problems in handling high density orchards, how
do we solve them?"

MR. ARNOLD LYND, OH - "How we manage our pickers in the orchards and fruit
from the orchard".

9:30 - Summaries from the two sessions - Ball Room

Session 1 - ROBERT ANDERSEN, MI

Session 2 - WILLIAM MCLEAN, MI

Time for questions.

Thursday morning - March 13

- 9:00 - Chairman - RICHARD MATTERN, PA., President DFTA. Welcome and announcements.
- 9:05 - A panel; Rootstocks, varieties and tree training world wide. RICHARD MATTERN - discussion leader.
- FRANK KLACKLE, MI - "Timely observations of fruit growing in western Europe".
- NORMAN CHILDERS, NJ - "Fruit growing in Mid- and Far East".
- LOREN TUKEY, PA - "Poland today -- tree fruit research".
- KENATH SPONSEL, MN - "Brief visits to some of Japan's research stations and fruit farms".
- 10:00 - Time for questions.
- 10:15 - Short break.
- 10:30 - TOM CHUDLEIGH, Ontario - chairman.
- MR. JAMES GOODE, East Malling Research Station - "Importance of irrigation timing, and time and rate of nitrogen applications for economic apple production".
- 11:30 - DAVID KOLLAS, Extension Specialist, CT - "Successes and failures with compact trees in Connecticut".
- 11:50 - Time for questions.
- 12:00 - Noon. Lunch on your own.

Thursday afternoon

- 1:00 - DONALD MAY, MA - chairman.
- DR. RICHARD FUNT, MD - "Economic analysis of apple production under different tree systems".
- 1:30 - A panel. JOHN BELL, IL - discussion leader. "Getting started right with compact trees is only half of it .. tree management later is what counts".
- Panel members:
- JIM ECKERT, IL - "How we grow trees and solve some of the problems along the way".
- DON BONTER, Ontario - "How we manage orchards and market our fruit".
- DENNIS PHILLIPS, MI - "Centennial road side market .. success depends on growing and marketing quality products".
- 2:30 - Time for questions.

3:00 - Short break.

3:15 - A panel. HENRY BENNETT, NY - chairman. RICHARD NORTON, NY - discussion leader. "Fifteen or more years experience with compact trees -- profits and problems".

Panel members:

WALLACE HEUSER, MI
RAYMOND KLACKLE, MI
PETER MORRISON, MI

JACK PEARSON, NY
RICHARD TROSTEL, PA
JOSEPH WILLMES, NY

Each panel member will be introduced and given 4 minutes to describe his orchards and management systems. This will be followed by question and answer session lead by DICK NORTON. Questions from the audience are in order.

5:00 - Adjourn

Thursday evening

7:00 - Banquet - Pantlind Ball Room. Master ceremonies - DR. JOHN CAREW, MI.
Invocation - KENNETH MCDONALD, WV.

8:15 - Introductions, recognitions, and states and counties represented.

8:30 - A panel. ROBERT CARLSON - discussion leader. "Fruit growing in Australia and New Zealand". Several persons who participated in the 1975 fruit tree study tour to these countries will (with slides) relate their observations.

Panel members (10 minute presentation of each member):

STEVE BLIZZARD, WV
STEU CARPENTER, MI
JAMES FRIDAY, MI
ROBERT HODGE, PA

PAUL ROOD, MI
CLAY SHAW, PA
GEORGE WHALEY, Ontario

10:00 - Adjourn

Friday morning - March 14

9:00 - JERRY SIETSEMA, MI - chairman. Business meeting, DICK MATTERN presiding.

9:15 - Open Forum - ALBERT TEN EYCK, WI, moderator. Pertinent topics: Position of DFTA in solving practical fruit tree problems; how can DFTA contribute and support development of new and improved fruit tree rootstocks? Members should come prepared to participate in this open discussion.

9:45 - JIM GOODE, Kent, England - "Recent research on water relationship in apple trees".

10:45 - Last time for questions.

11:00 - Adjourn for lunch.

Friday afternoon

12:00 - Busses will leave Pantlind Hotel. Three orchards will be visited in the Grand Rapids vicinity to show young and old dwarfed trees and to discuss pruning and tree management. A descriptive handout will be available at registration desk.

4:00 - Back at Pantlind Hotel.

Ladies Program

Thursday, March 13 at 3:00 p.m. Saddler Room, Pantlind. Tea and film, "The Tetons and the environment".

NEW MSU HORTICULTURE RESEARCH FACILITY

The property was purchased by MSU in 1974. The land (440 acres) is located 46 miles west of the campus adjacent to I-96, southwest of Exit 59 (or Clarksville exit). Anyone coming by enroute to the DFTA conference Wednesday, March 12 can briefly stop and see the land. Someone will be there about 1 to 2:00 p.m. to tell about it. No development as yet of the area.

REUNIONS OF INTERNATIONAL TRAVEL GROUPS

In the past, several travel members of the association have informally met for dinner to renew acquaintance of past study tours.

Wednesday, March 12 evening dinner seems a practical time to continue this practice. Mr. and Mrs. Arthur Dowd, chairmen of 1964, 1968 and 1971 orchard study tours. Mr. and Mrs. Clay Shaw, chairmen of 1975 Australia/New Zealand orchard study tour.

Contact these chair persons and arrange for a dinner get-together Wednesday p.m. in Pantlind dining rooms.

SUMMER 1975 ORCHARD TOUR IN OHIO

Arrangements are being made to meet at Wooster Tuesday evening June 17 and spend most of Wednesday, June 18 visiting the experiment station there. On Thursday, June 19 the DFTA members will meet with Ohio growers summer tour in the vicinity of Columbus. Two or more commercial fruit farms will be visited. A detailed program of the summer tour will appear in the April Newsletter.

ON TOP OF THE WORLD

Australia, Tasmania and New Zealand in January and February is really on top of the world. Leaving winter behind and arriving there in peach harvest season is a pleasure. Strawberry harvest was nearly over when reaching Australia, January 18, but peaches were starting to come on the city markets. In New Zealand, the second week in February, they were harvesting 'Gravenstein' and other early apples.

The international group of 42 from 8 states and Canada were locally greeted and shown at each stop every aspect of fruit growing, handling and marketing. The welcome mat was always there with pleasant people willing to help and tell about country and local customs.

Moving through orchards in 2 or 3 groups, with competent leaders to "show and tell" one could observe tour members busily writing notes and taking pictures. Indeed much information was given by locals and enthusiastically received by visitors. The time was right to observe tree vigor, fruit development and coloration and systems of tree training and general culture.

We were impressed by the rather small, old and productive apple trees in Tasmania. These were extensively on the woolly aphid free 'Northern Spy' seedling rootstocks. The small size of the trees apparently was due to the light shallow clay soil, the vase type of pruning and some dwarfing of 'Northern Spy' rootstock. The statement was made that 'Northern Spy' is as precocious and dwarfing as MM 106, and more tolerant to crown rot. Biennial production of some varieties appeared to be a problem, but improved by better thinning practices. 'Granny Smith' was the leading variety grown mainly because of its demand on foreign markets, its handling and keeping qualities, late maturing, etc.

Another fact impressed on us was that the mainland of Australia is limited in water source, a condition which could affect future agriculture there. Trickle irrigation in orchards was standard practice. Apparently, the topography of the land, and lack of snow peaked mountains make it difficult to conserve water by damming the main rivers, such as the Murrumbidgee and Murray.

True, both Australia and New Zealand have problems similar to ours and other countries. Marketing of fruit and increasing shipping costs seemed like problems confronting the industry in the near future. The labor situation in Australia caused some inconveniences because of a temporary strike of electrical workers. Has anyone tried to carry 2 suitcases to the 19th floor? New Zealand rightfully boasted of zero unemployment.

Come to the DFTA conference March 12-14 and listen to comments and see pictures from "top of the world" ... Robert F. Carlson

DISEASE ALERT

Most apple virus diseases do not cause obvious symptoms in commonly grown cultivars. The primary method by which these diseases are spread is through nursery propagation practices. As a result, these diseases are found throughout most of the fruit-growing areas of the world. These "latent" viruses cause losses in the form of poor nursery stands and reductions in tree vigor, fruit quality, and production.

There are diseases, however, which cause striking symptoms and result in severe losses. There is evidence of natural spread of these diseases in the orchard, and some are restricted to certain countries or fruit-growing regions. APPLE PROLIFERATION is such a disease.

This disease has not been found in North America. Research reports from Europe suggest that the disease is not caused by a virus but by a mycoplasma-like organism which is transmitted through the orchard by a winged vector, probably a leafhopper.

The disease also is spread by propagating from infected trees which show very mild or no symptoms. Infected trees produce witches' brooms and other distorted growth, and the fruit from infected trees is distorted and reduced in size to the point of worthlessness.

United States and Canada plant quarantine officers are taking every precaution to keep this disease out of North America. Every plant breeder, horticulturist, and grower should be aware of this potentially destructive apple disease and avoid accidental introduction of infected material..... Richard Stouffer, Plant Pathologist, Biglerville, PA.

TRELLIS-HEDGEROW PLANTING OF PEACHES, N.S.W. AUSTRALIA

A trellis was constructed during the winter of 1973 and pruning/training of the trees followed, subsequently to demonstrate techniques involved in establishing a hedgerow planting system for canning peaches and to assess the potential of the system for N.S.W. conditions. The trees were trained to the "oblique palmett" form. The ultimate aim is to fill the 5.5 m (18 ft) between trees within the row so as to have a complete wall of fruit bearing surface no wider than 1.5 m down the row. This system is intended to be developed so that inexperienced labour may be used efficiently for harvesting from hedgerows with picking platforms.

Partial mechanical pruning during the summer using a citrus hedging machine has proven to be quite successful in encouraging fruiting buds to be borne on wood close to the main structure of the tree. It was concluded that the side-hedger should be angled into the butt from the vertical by about 5 degrees, thus removing undesirable water-shoot growth.

Generally, summer pruning by hand appeared to be more desirable in order to be selective with respect to the wood being removed. This is especially important in terms of training to the desired tree form in the initial years of establishment.

The trees have half filled the space along the trellis between trees and it is hoped that following next season's growth they will have merged to form a complete hedgerow on which the Glenfield picking platform may be used and assessed for harvesting..... Courtesy of Yanco Agricultural Research Center, Leeton Australia.

18th ANNUAL CONFERENCE DFTA REGISTRATION

Registration starts at 2:00 p.m. Wednesday, March 12 and continues until 10:00 a.m. Friday, March 14 at Pantlind Hotel lobby. For hotel room reservations call 616-459-7201 and ask for conference rate for DFTA. Conference registration costs are as follows:

DFTA Conference registration	\$1.00
DFTA Annual dues	5.00
DFTA Banquet ticket Thursday, 7:00 p.m..	5.75
Orchard tour bus ticket Friday p.m..	2.50
Back volumes "Compact Fruit Tree" each	2.00

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1975 ORCHARD STUDY TOUR

The dates of the annual tour are June 15, 16, and 17. The state is Ohio. A few of the host personnel are: David Ferree, Eldon Stang, and Jack Rollins, all associated with Ohio State University at Wooster and Columbus. The details of the program are on the last pages of this Newsletter. Keep this as a reminder of the dates and directions for getting to the different stops.

The program consists of an informal get-together Sunday evening, 3 orchard stops on Monday, and on Tuesday, a chance to observe research programs and test orchards at the experiment station, Wooster, Ohio.

INTERNATIONAL

At the March 1975 conference the Board of Directors proposed, and the DFTA members approved, a change of name from Dwarf Fruit Tree Association to the International Dwarf Fruit Tree Association. There were several reasons for this. The Association now has members from most fruit growing countries of the world. The objectives of the Association are international in scope; namely, cooperation in supporting rootstock research and dissemination of practical information. The Association in the past has encouraged all members (growers, nurserymen, processors, research and extension, and other personnel) to become active and involved in developing programs which will be of practical value to anyone interested in growing better fruit efficiently. This the IDFTA will continue to do in the future.

BOARD ACTIONS

During the past 2 to 3 Board (IDFTA) meetings some discussions have centered on what the Association can do to further the development of efficient fruit production via compact trees. From this discussion a Rootstock Research Committee (RRC) has evolved.

Committee - The RR committee is tentatively made up of 8 fruit growers and 7 research pomologists. Its first meeting is scheduled to be held in the Horticulture building, MSU, May 30, 1975. Members for this first RRC have been chosen from Canada and 8 states in U.S.A.

Objectives - Main objectives of this committee are: 1) to implement methods of which members of the IDFTA and interested parties can effectively support rootstock research on an international level; and 2) to "ferret out" where rootstock research is currently in progress and where such programs can be stimulated by additional funds.

Results - Long range results will be development and introduction of new fruit tree rootstocks suitable to specific growing conditions and varieties. These projects are seriously needed and will require support in order that we may continue having a healthy, productive fruit industry.

Liaison - After the committee has met, a detailed report will be published in the Newsletter telling how you can be a part of these very important rootstock research projects. This is an active international association of which you can be proud to be a member. We are eager to hear from you giving us suggestions, ideas, and implementation on how we as a group can develop effective programs in the future.

Other Board Action - Where to hold the future March IDFTA conference was discussed. The facilities at Pantlind the past 3 meetings have been excellent. The only reason for moving to another location such as Kalamazoo or Benton Harbor areas is to have a change in orchard visited during the tour. A committee of 3 is investigating this change and will make a decision as to where to meet 1976.

The dates for the 19th IDFTA conference are March 10, 11, and 12, 1976.

New Board Members - We are proud to introduce as of March 13, 1975, two new members: Joe Garrett, Versailles, KY; and Clyde Wilson Jr., Fort Valley, GA. The IDFTAs new President and Vice President are Albert Ten Eyck, Brodhead, WI and Henry Bennett, Geneva, NY respectively. Welcome and congratulations!

1975 Conference - Without going into lengthy description of this meeting, it should be said that due to the tremendous enthusiastic presentations of program participants, it was a huge success. A sincere thanks to all who helped make the meeting so practical and interesting.

The papers presented are now being edited and prepared for publication in Compact Composite.

1975 IDFTA AWARD WINNERS

Frank Klackle - District Hort. Agent, Grand Rapids, Michigan, for his development work in planting compact trees in central Michigan, and his help with annual orchard tour and "taste social" during annual conference.

Richard Mattern - Fruit grower, Hollidaysburg, Pennsylvania, for interest in dwarf fruit trees and his leadership as President for 2 years of the Dwarf Fruit Tree Association.

Richard Norton - Fruit Extension Agent, Rochester, New York, for his enthusiastic support of smaller fruit trees, and for taking part in several of the annual programs of the Dwarf Fruit Tree Assoc.

1975 IDFTA AWARD WINNERS (Cont)

Pat Vogt - Writer for the fruit section of the Packer for her diligent reporting of matters concerning smaller fruit trees and related horticultural developments.

INTERNATIONAL DWARF FRUIT TREE ASSOCIATION SUMMER TOUR
June 15 - 17, 1975

Program and Itinerary

Sunday, June 15 - 7:30 P.M.

Informal evening session with Ohio growers, horticulture dept. research and extension faculty at Holiday Inn, Toledo-Perrysburg - (intersection of I-75 and U.S. 20) - overnight stay.

Monday morning, June 16 - 9:00

Johnston's Fruit Farm & Market, Swanton, Ohio - Mature high density plantings on MM 111, M.7, MM 106, MM 104, M.2, thriving roadside market, new storage, and outstanding pick-your-own small fruit plantings.

11:30

Starlite Orchards, Clyde, Ohio - Approximately 325 acres, diversified fruit operation including apples, peaches, nectarines, sweet cherries, tart cherries & small fruits. Peaches on Siberian C rootstock, high density apples on M.7, MM 106, M.26, and older blocks on standard rootstocks.

LUNCH at Starlite Orchards, courtesy of Stark Bros. Nursery.

NOTE: So that we will not run out of lunch, please send a card to Don R. Martin, Stark Bros. Nursery, Louisiana, MO stating that you will be at Starlite Orchard, Clyde, Ohio for lunch on Monday, June 16. We don't want you to miss this and go hungry.

Monday afternoon - 2:30

Burnham's Orchards & Market, Berlin Hts., Ohio - Established 3 and 4 year old high density apples on M.7, MM 106, M.26, M.9. Wholesale and retail sales. Mature blocks on various rootstocks at varied spacings.

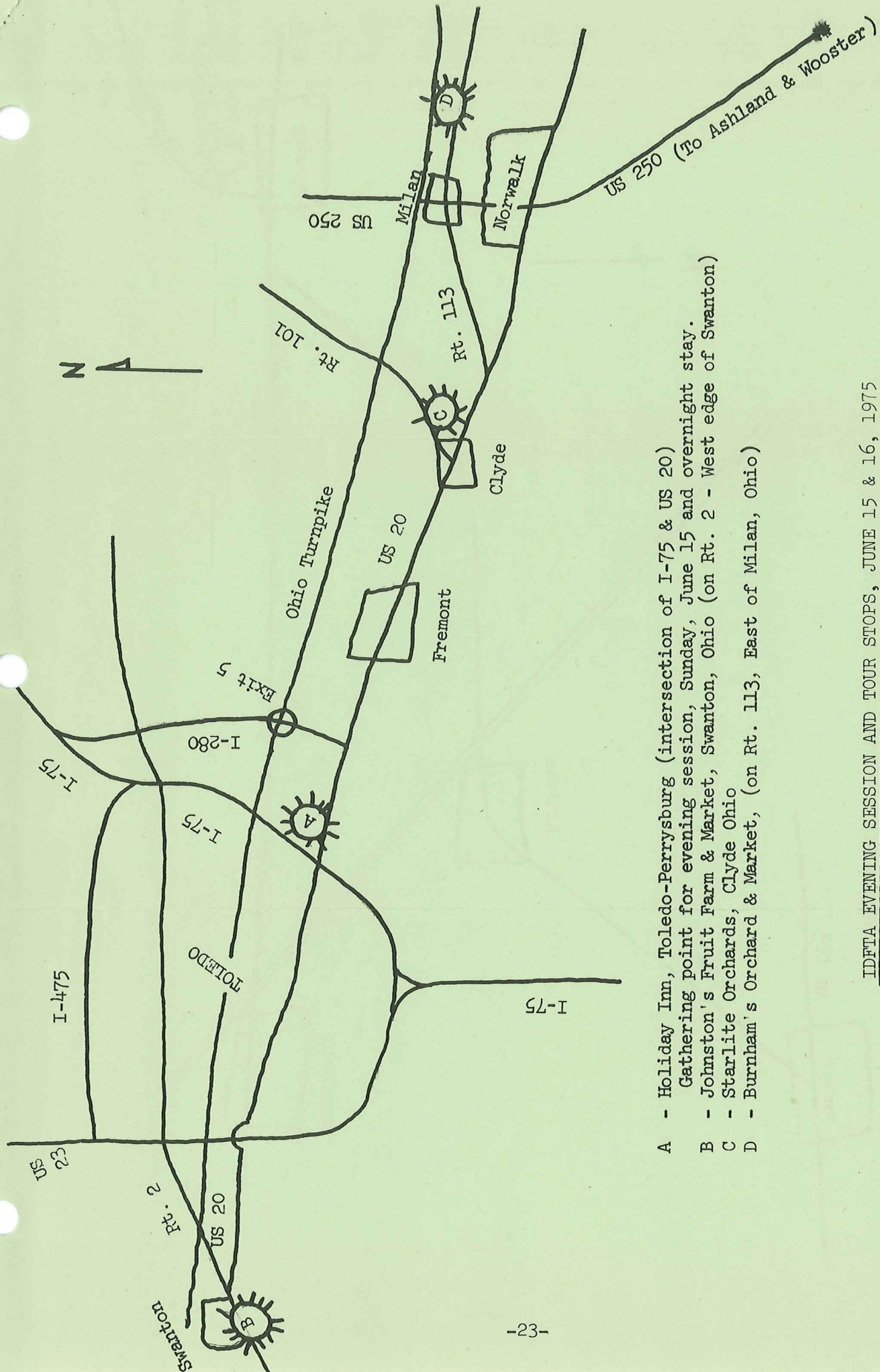
Monday evening

Overnight stay in Norwalk, Ashland, or Wooster (see suggested motel listings and make your reservations now).

Tuesday morning, June 17

Assembly point - 10:00 A.M. - Auditorium Building, Ohio Agricultural Research and Development Center. Tour fruit research plantings at OARDC, Wooster by bus. Mature MM 106 plantings, bloom retardation studies, nutrition study, young high density trellised plantings, young and mature trees on M.9, M.26, M.7 rootstocks, mechanical pruning with slotting saw will be some of the features.

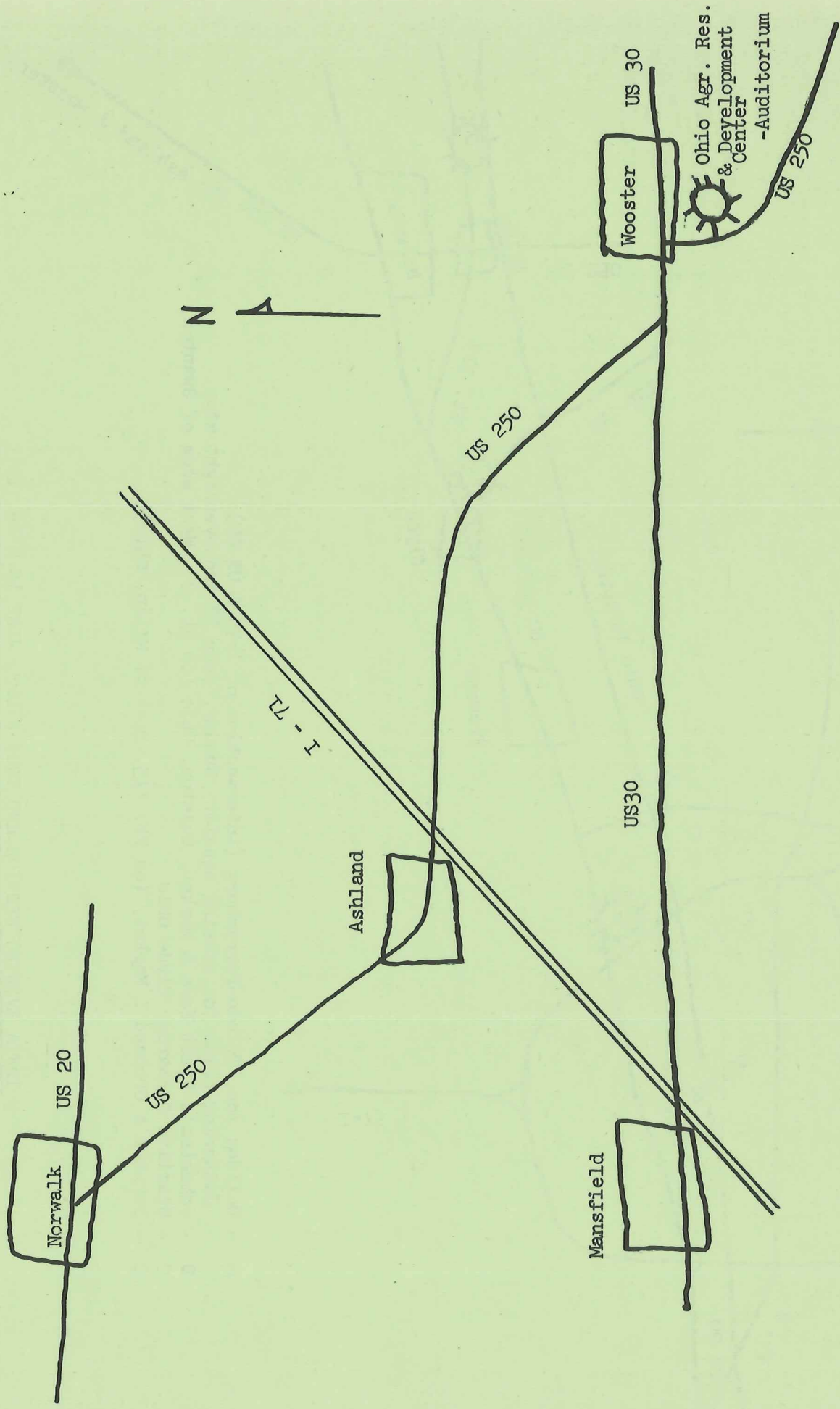
NOTE: Tickets for bus and lunch will be available at the Center. Cost will be about \$4.00.



- A - Holiday Inn, Toledo-Perrysburg (intersection of I-75 & US 20)
- B - Gathering point for evening session, Sunday, June 15 and overnight stay.
- C - Johnston's Fruit Farm & Market, Swanton, Ohio (on Rt. 2 - West edge of Swanton)
- D - Starlite Orchards, Clyde Ohio
- E - Burnham's Orchard & Market, (on Rt. 113, East of Milan, Ohio)

IDFTA EVENING SESSION AND TOUR STOPS, JUNE 15 & 16, 1975

IDFTA SUMMER TOUR, JUNE 17, 1975 (Cont'd)



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THE INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

Vol. 9, No. 1, September 1975 - Prepared by R.F. Carlson

NINETEENTH CONFERENCE IDFTA

SLOGAN: FRUIT TREE ROOTSTOCKS WORLD WIDE

The dates of the 19th conference are March 10, 11, and 12, 1976 and the location is the Convention Center, Kalamazoo, Michigan.

Registration will start at 8:00 a.m. Wednesday, March 10 and continue to 6:00 p.m. Thursday, March 11. A fruit product sampling and visitation room will be open Wednesday a.m.

The formal program will commence at 1:30 p.m. in the Convention Center Auditorium and continue to 5:00 p.m. on Wednesday. That evening 2 or 3 concurrent sessions will convene in the smaller conference rooms of the Center.

Thursday, 8:00 a.m., the formal program will start and continue to 5:00 p.m. The banquet will follow at 7:00 p.m.

Friday at 8:00 a.m. buses will leave for an all day orchard tour to the Benton Harbor and Hartford fruit areas of southwestern Michigan. The buses will return to the Conference Center, Kalamazoo, at 4:00 p.m. Those going to airport will be in a separate bus.

TENTATIVE CONFERENCE SPEAKERS

Guest speakers from other countries will be Mr. Peter Smale, New Zealand; Dr. Steve Pieniazek, Poland; and Dr. A.I. Campbell, England. Each speaker will develop subject matter related to rootstock performance, growing systems, and new developments. Each will speak twice during the 3-day conference.

There also will be other outstanding speakers from fruit areas in the United States and Canada. Detailed information on small efficient spray equipment for compact orchards will be covered from research and manufacturers standpoint.

IT'S WORTH TRYING

While cutting out fire blighted branches from his apple trees, Albert Ten Eyck figured that he was wasting his time cutting, carrying, and burning the branches. He decided to try burning the blighted branches right on the trees. He obtained a small propane torch and proceeded to burn the blight out. "With small 7-foot trees, you can reach any and all infected branches from the ground." he said. Results will be discussed later. It's worth a try, but we suggest you wait until some research has been done on this.

THE INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

Department of Horticulture, Michigan State University, East Lansing, Michigan 48824

September 4, 1975

Dear IDFTA member:

Spend a few minutes reading this letter and enclosed material because it may add future profit to your endeavor as a grower or fruit industry related person. The information is vitally important to the fruit industry of the world. Progress is most important to a healthy prosperous fruit industry.

Where would we be today if the East Malling rootstocks would not have been tested in the early part of the century? Apples might have been phased out because of unmanageable large trees. Pest control would have been impossible.

The East Malling and Malling Merton rootstocks have served an excellent "stop-gap" in developing smaller trees, but they are far from perfect.

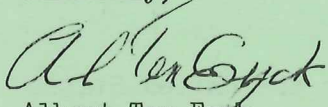
We owe the English research men a vote of thanks for giving us this start. But, it is only a start. We need much better rootstocks for all the fruit trees; apples, peaches, plums, pears, etc.

Research men will develop these improved rootstocks if provided with adequate funds to carry out sound viable rootstock research. Therefore, if you would like to see the fruit industry become more efficient, prosperous and interesting, give your full support to rootstock research.

Read on and let us hear from you.

For the Rootstock Research Foundation, a committee of IDFTA

Sincerely,



Albert Ten Eyck
President, IDFTA



R.F. Carlson
Exec. Secretary, IDFTA

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HOW YOU CAN HELP AND BE PART OF A RESEARCH PROGRAM

AN URGENT APPEAL FOR SUPPORT TO PROMOTE DWARF ROOTSTOCK RESEARCH IS HEREBY MADE TO FRUIT GROWERS, HORTICULTURE SOCIETIES, ASSOCIATIONS, RELATED BUSINESS FIRMS SUPPLYING FRUIT GROWERS, AND PROCESSING INDUSTRIES.

The International Dwarf Fruit Tree Association recently started a Rootstock Research Foundation. This grew from grower interest support at the 18th Annual Conference in Grand Rapids. A committee of seven professional men and eight growers is very enthusiastic and optimistic over the outlook for developing new rootstocks to meet our needs.

If everyone, but growers in particular, will supply adequate funds for research, direct beneficial results can be expected. This can be the most profitable investment ever made in the fruit industry. Widespread cooperation of research people is assured.

Results of research will be made available to everyone interested on an equal basis at the earliest possible date. A report will be made at the actual start of Foundation supported work, and thereafter at the annual meeting. It is intended that new material will be tested under all possible conditions at the earliest possible date.

The cost will be considerable, but actually reasonable in today's economy because existing facilities and personnel can be utilized to a great extent. Cooperation of Canada and the United States will cut costs and speed results.

The committee considers a minimum of \$50,000.00 annually over a period of ten years is necessary. Considerably more could be used to widen the scope of the work and speed results. Checks thus far received average \$100.00. The money will go to active research stations submitting projects dealing with practical rootstock research. Contributors will be honorably recognized. Donations to public institutions for research are considered tax exempt.

Fill out information below stating the amount you will put into the project in 1975-76. Send this with your check, made payable to the Rootstock Research Foundation - IDFTA, and mail to Ms. Virginia Ebers, 3134 Pleasant Grove Terrace, Grand Rapids, Michigan 49505.

ROOTSTOCK RESEARCH FOUNDATION - IDFTA

Enclosed is my check to the Rootstock Research Foundation - IDFTA for 1975-76 in the amount of _____.

Name _____

Address _____

NEW ZEALAND FRUIT CROP

Jim Friday, Coloma, Michigan recently had a letter from a grower at Hastings, New Zealand stating in part, "With the exception of plums and pears our crop was a bumper one. We packed 50,000 cartons of apples for export, 10,000 for the local market, and sold 3500 odd at the gate. Most of our stone fruit we sold at the gate. ---- "Around 300,000 cartons of Granny Smith went from our district to the U.S. market. "They too have sold well, and with the exception of some big sizes, arrived in good condition."

SYSTEMS APPROACH

Currently there is much talk about "systems approach" to solving problems. What does it all mean? Hopefully it means a more organized way of tackling everyday problems and annually changing practices and programs.

In fruit growing, it means more innovations, organization, and systemization which will lead to more efficiency in production. It also means a sound plan for action, not only in growing fruit but also in solving annual and recurring problems. For example, needed is a "systems approach" to develop better fruit tree rootstocks than what currently are available. Such approach is under way and for it to succeed, support is needed from all persons concerned.

COMING OF AGE -- ROOTSTOCKS, THAT IS

The October 1947 issue of the American Fruit Grower was devoted mainly to "Stocks for Fruit Trees". Several subjects were covered such as "Low-Down on Dwarf Apple Trees", "Fight Winter-Kill with Hardy Apple Stocks", "Sweet and Sour Cherry Stocks", and "New Rootstocks for Peaches". One of the first seedling tree transplanters and a mechanical fruit picker were illustrated in the same issue.

POLLINATION BY WIND

Many readers may have wondered where the fruit came from in years of little insect activity at bloom. Results by Dr. S.J. Wertheim at the Wilhelminadorp Research Station show that cross-pollination by air-borne pollen may be partly the answer in the Netherlands. He has obtained "commercial" yields on whole trees of self-unfruitful varieties when enclosed in insect-proof cages. However, Dr. Wertheim concluded that growers should use honeybees and pollinating varieties in the prescribed manner to maximize the possibility of good annual crops and not rely on pollen transfer by wind and/or insects from long distances.....William Lord, Mass.

VARIETIES OF U.S. ORIGIN IN THE NETHERLANDS

In 1974, 'Golden Delicious', 'Jonathan', and 'Benoni' varieties accounted for 32.1, 3.7 and 1.6%, respectively, of the apple trees in the Netherlands. In addition, there are a few commercial plantings of 'Melrose'. 'Jonagold' is one of the 3 most promising varieties currently being tested and 'Empire' which has been fruited for 4 years, is promising enough to warrant further testing. The color of 'Empire', unlike the 'Red Delicious' strains under test, is not too dark for the Dutch. Its appearance is much like a Massachusetts-grown 'Empire' except for being more oblate.....William Lord.

EFFECT OF CO₂ ON EARLY SHOOT GROWTH

Paul Hansen, Denmark, has studied apple shoot growth under different levels of carbon dioxide (CO₂). Shoot weight increased at the high level of CO₂ in early May. Number of new shoots per tree ('Spartan' var.) also were higher at end of May from the highest level. M.7 rootstock did not increase at same rate.

CHERRY ROOTSTOCK

One of Tydeman's cherry seedlings (Prunus avium x P. pseudocerasus) has been named 'Colt'. According to the information from East Malling, this rootstock will dwarf sweet cherry varieties; it is more resistant to diseases, and it induces early cropping. 'Colt' is not available in the United States at this time.

NEW FRUIT TREE BULLETINS

"Rootstocks for Fruit Trees", No. 42 - Ext. Bul. E-851 and "Tree Fruit Varieties for Michigan", No. 57 - Ext. Bul. E-881. Write: Bulletin Office, Michigan State University, Box 231, E. Lansing, Michigan 48824.

A reprint, "Apples, Cherries, Pears, Plums and Other Fruit Trees", is available from Room 303, Horticulture Department, Michigan State University, E. Lansing, Michigan 48824.

DWARFING ROOTSTOCKS IN AUSTRALIA AND NEW ZEALAND

The East Malling Research Station initially undertook rootstock investigations to classify clonal stocks from nurseries around the world. The purpose was to bring about more uniformity in continental and United Kingdom orchards, long grown on variable seedling rootstocks. The original Malling clones, 16 in number, were announced about 1920.

Reaction to the original Malling clones was mixed. The world was not yet ready for orchards of dwarfed trees. America was not yet ready even for clonal stocks since seedlings of more uniform vigor had customarily been used by American nurserymen. In Australia the fruit industry was waging a battle with woolly aphids which threatened the very existence of the industry. Northern Spy, virtually immune to woolly aphid attack on roots, had been introduced to combat this near-fatal problem, and was already established in the country. The Aussies had no interest in the original Malling clones simply because they were not resistant to woolly aphids, and they asked for resistance in future introductions. Hence the Malling-Merton series which followed.

Northern Spy stocks not only provided the necessary protection from woolly aphids for Australia, they also proved to be quite dwarfing. This was due largely to the remarkably little depth of soil in major apple districts, especially in the important apple state of Tasmania. Thus a visit to Australia today turns up only mild interest in dwarfing or even semi-dwarfing clones, since they are fruiting orchards of quite small trees at a common spacing of 18 x 18' (134 trees/acre), and these are as old as 70 years. With clones we would regard as vigorous the Aussies are

growing semi-dwarf orchards. Thus their thinking centers around resistance to woolly aphid first, tree size only as an afterthought.

The Hawke's Bay district of New Zealand is endowed with a deep (40' common), fertile soil yielding regular packouts of 2,000 bushels of apples/acre and more. Woolly aphid is a problem here too, but even on this excellent soil interest in dwarf stocks continues to be casual. Evidence from Dr. Don McKenzie's good work shows that semi-standard or at best semi-dwarf trees are economically sounder than dwarfs at Hawke's Bay, and this is what the fruit industry is using. Even in the Nelson District on south island with a thin soil one sees little but Northern Spy and the relatively vigorous Merton 793 (unknown in the United States) in orchards. One leading figure of the area, Alan E. Scott, abandoned M.9 some years ago on his property, replanted entirely on MM 106 stocks. He says economics forced it, "...we don't pay taxes on the second story..." ...Arthur Thompson, Maryland.

CENTRAL LEADER PEACH TREES

The open center peach tree with 3 main scaffolds has been the general method of growing peach trees. Does this system lend to more vigor and periphery fruiting of large trees? The answer is yes. The center of such trees are usually unfruitful and thus much fruiting space is wasted.

Although central leader trees are not easy to develop with most peach varieties it can be done. When central leader trees are made, fewer large pruning cuts are needed and thus less chances for disease infections. This also provides a "frame" for rejuvenating new fruiting branches annually. Six to eight well spaced, wide angled scaffold branches on a modified central leader provides this "frame work".

The more dense peach tree plantings now in testing stage are including central leader trees in order to provide a solid fruiting hedge. Branches of central leader trees need to be much shorter than those on open center trees. Thus less splitting of trees so common in open center trees.

STONE FRUIT ROOTSTOCKS

The peach tree, provided with a good soil, will grow rapidly and fruit within a couple years or three. This occurs also when variety is on more dwarfing seedlings of sand and Nankin cherry rootstocks. Because these cherry stocks are seedlings, tree uniformity is lacking. Research in developing clonal dwarfing rootstocks for peach and cherry is essential in order to improve tree uniformity and long life of these important fruit crops.

THE RED PRINCE

The 'Red Prince Delicious', when budded on semi-dwarfing rootstocks, is slow in coming into fruiting. Since it is not a spur type, the trees are rather sparse and lacking compact fruitfulness. The fruit however, is of good color and quality.

In our test plantings at East Lansing 'Red Prince' on M.9 rootstock looks good, or much better than on any other stock. Such trees are compact and have fruited well in 4th and 5th years.