

Department of
Horticulture

MICHIGAN
STATE
UNIVERSITY

COMPACT FRUIT TREE

ROOTSTOCK BEHAVIOR

SPUR TYPES

INDUCED DWARFING

CULTURAL PRACTICES

THE INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

No. 2, April, 1982 - Prepared by Robert F. Carlson

RECORD ATTENDANCE, 25TH ANNIVERSARY

First, we want to thank the program speakers who made the conference a great success. We wish all the 1500 IDFTA members could have been at Grand Rapids, to participate and listen to the varied speakers from England, Holland, Canada, and coast to coast U.S.A. However, over one third (630) were there, which is the largest attendance during the first 25 years of IDFTA history. Members came from 29 states and six countries. Some blustery weather occurred during the meetings, but not enough to hamper getting there and home. The orchard tour on Friday morning, by five buses, was favored with full sunshine on newly fallen, white snow. The two orchards and one market were very interesting.

The papers presented at the meeting will be published in the 25th silver anniversary issue of the Compact Fruit Tree, Volume 15, 1982, and mailed to members who have paid 1982 membership dues.

IDFTA DISTINGUISHED SERVICE AWARDS

March 4, 1982

Grand Rapids, Michigan

Mr. Jerry Sietsema, 3271 Knapp, N. E., Grand Rapids, Michigan

Jerry Sietsema has served this Association well as Board Director, for many years, and President for two years, 1979-1981. As a fruit grower, Jerry is serving the fruit industry well, not only in Michigan, but on an international scale. He is very active as a leader in solving fruit industry problems in culture and marketing. We wish Jerry and his family many years of success in fruit growing and are proud to present him with this IDFTA Award.

Dr. Norman Childers, University of Florida, Gainesville, Florida

Dr. Childers, as a pomologist, teacher, and distinguished professor at Rutgers University, has educated a vast number of students, some of whom are currently leaders in the fruit industry. He is the author of several textbooks and practical publications on fruit nutrition and culture. He also has been active in this Association as speaker, chairperson, and educational travel companion. We are proud to present Norm with this IDFTA Award, and wish him happiness for many years as Emeritus Professor.

Dr. Frank Gilbert, University of Wisconsin, Sturgeon Bay, Wisconsin

Dr. Gilbert has served the industry well as a researcher at Rutgers University and the University of Wisconsin. Frank has developed and named several strawberry varieties and at least one apple cultivar. In recent years, he has researched and tested many cultivar/rootstock combinations for their suitability in a colder climate and shallow soils. He also served five years as secretary of the IDFTA Rootstock Committee. The Association is proud to present Frank Gilbert with this Award.

IDFTA ROOTSTOCK RESEARCH PROJECTS APPROVED

The IDFTA research committee screened and the Board of Directors approved 32 research projects for a total of \$32,050. Forty projects were submitted. Projects dealing with various problems related to scion/rootstocks in both stone and pome fruit crops were approved. Projects are funded on an annual basis and are submitted by January 5 each year.

Progress reports (brief or detailed) for informing IDFTA members are requested from time to time. The IDFTA research program has been in effect since 1976 and, until now, over \$110,000 has been approved for rootstock research to various research institutes. These monies come from seventy percent of members' annual dues and volunteer research donations. We have come a long way in a short time, so let's all support this and look to the future.

ROOTSTOCK RESEARCH - HONORABLE MENTION

The following recently contributed to the rootstock research fund:

Minnesota Fruit Growers Association	\$ 500.00
Indiana Hort. Society	500.00
Stark Bros. Nurseries	500.00
Durand-Wayland, Inc.	500.00
Elsie Klackle, toward Klackle Memorial Speaker Fund	2000.00
Research and Scholarship Foundation, Washington State Hort. Assoc.	100.00

Many other members have contributed \$100 or more to promote research for a better fruit industry. Hundreds of members also have sent in research donations accompanying annual dues. The Association recognizes all of these with thanks. We wish we had the time and space to list all of them.

NEXT IDFTA CONFERENCE

After holding the annual conferences in Michigan for the first 25 years, the 26th will be in New York. The place is the Marriott Hotel, Exit 46 (New York Thoroughway), Rochester. The dates are Sunday, March 6, through Wednesday, March 9, 1983. We look forward to another interesting and educational conference at this new location. Suggestions for speakers with informative material are welcome.

IDFTA FUNDED RESEARCH PROGRESS REPORT

Project Title: Early Identification of Prunus Stock Scion Compatibility by isoenzyme analysis

Dr. R. C. Rom and Dr. F. H. Huang, Department of Horticulture and Forestry, University of Arkansas, Fayetteville, Arkansas.

The initial phase of this research involved the development of a procedure for extraction of water soluble proteins in the bark of Prunus plant material. This involved a series of studies involving freezing plant material, grinding, extraction, filtration, centrifugation, and concentration. Improvement of these methods is still under investigation. The second phase of this research involved Isoelectricfocusing. Here we applied the proteins obtained in phase one studies on a 3.5% polyacrylamide gel and performed electrophoresis at 150 volt, 50mA for 2 hours. After this process the gel plate was fixed to avoid protein loss and diffusion. Staining with coomassie brilliant blue revealed the protein band separations. From our preliminary results we think that a protein located at 1.1cm from the origin may prove to be valuable in identifying differences in Prunus that may relate to incompatibilities between stock and scion with different Prunus background.

PROVINCE OF QUEBEC WILL HOST 1982 ORCHARD TOUR

Canada has been generous in the past with hosting IDFTA orchard study tours to Ontario, British Columbia, Nova Scotia, and, next June 15-17, 1982, to Quebec. Canada is large in fruit production, great in scenic beauty, and has a rugged past history parallel to the U.S.A. The Quebec tour will draw attention to fruit production of various cultivars on different rootstocks and, also, tree injury due to temperature variation and diseases.

Headquarters and lodging - McDonald College campus will provide space for registration, meeting rooms, and lodging for IDFTA members attending this interesting study tour. The college is located at Ste-Anne de Bellevue, about fifteen miles southwest of Montreal, on Route 20. Those coming by air will use the Dorval International (17 miles) Airport, serving the Montreal area. Camping and motels are available nearby. Registration is scheduled to start Tuesday noon, June 15. See the pre-registration form at the end of this newsletter.

Wednesday and Thursday, June 16-17, will be full days of orchard study via several buses. A typical Quebec dinner will be served at one of the orchard stops, where the Minister of Agriculture of Quebec may be on hand to welcome the IDFTA orchard study group.

PRUNING BULLETIN

A descriptive and schematic (graphic) publication on pruning has been prepared by Joe E. Costante, Horticulture, University of Vermont, Burlington, Vermont. It is entitled "5 + 4 - The Shape of Things to Come". The cost is 50¢, plus postage.

QUOTE FROM THE IDFTA 25TH JUBILEE

"Sometimes we have to look back into the past to look intelligently into the future."--Alan Todd, England

LIST OF HOTELS NEAR MACDONALD COLLEGE CAMPUS

1 - Within a 17-19 mile radius from the College:

- | | |
|--|--|
| a - Holiday Inn - Airport Dorval
12505 Cote de Liesse
631-2411 | b - Ramada Inn - Airport Dorval
6600 Cote de Liesse
392-2262 |
| c - Best Western
13000 Cote de Liesse
631-4811 | d - Grand Motor Hotel
7700 Cote de Liesse
731-7821 |
| e - Holiday Inn Chateaubriend
6500 Cote de Liesse
739-3391 | f - Holiday Inn Pointe Claire
6700 Trans Canada Highway
697-7110 |

2 - Within a 19-21 mile radius from the College:

- | | |
|---|---|
| a - Holiday Inn Seigneurie
7300 Cote de Liesse
631-2411 (St. Laurent) | b - Holiday Inn Le Seville
4545 Cote Vertu
332-2720 |
|---|---|

3 - List of camping grounds near MacDonald College:

- | | |
|--|---|
| a - L Anse-a-L orne
Pierrefonds
626-3268 | b - Daoust Camping
Hudson
458-7301 |
| c - Club de Raquette
Rigaud
451-5534 | d - Domain de Lac Chantale
Vaudreuil
455-4748 |

ORGANIZING COMMITTEES, SUMMER TOUR, 1982

We wish to recognize Pierre Phillion, Huntingdon, Quebec, Canada, and his committee members of growers and researchers for planning and organizing the upcoming June orchard tour. Considerable effort and time is involved in setting up tours which will benefit all in attendance.

The McDonald College has an assembly hall where we can hold evening discussions on varied topics. If you have informative slides, plan to bring them for "show and tell".

1982 SUMMER TOUR

Growers of Quebec are proud to host the International Dwarf Fruit Tree Association's 1982 Summer Study Tour. You no doubt have heard that "Quebec is different," so now you will see it for yourself. You are invited and welcome to our interesting program, organized by growers and research people. The program does have both a technical and a tourist taste. All areas, and, specifically, St-Lawrence River Valley, are inviting to visitors. This warm and unique cachet of her, "Bonjour et Bienvenue chez Nous", says it all.

The tour will be headquartered at MacDonald College in Ste-Anne de Bellevue, located on Westend Island, Montreal, at the junction of St-Lawrence and Outaouais Rivers, with easy access by Routes 20 and 40. A map will be available.

Hourly shuttle service will be available from Dorval Airport to MacDonald College, starting at 1:00 p.m., June 15, 1982 (fare: \$5/person). For those looking for tourist information, please directly contact Miss Kathleen Fish, Panorama Tours, P.O. Box 281, Place Victoria, Montreal, Quebec, H4Z 1E8, telephone: 1-514-866-8856, now, or at the registration desk during the congress.

Dates: Tuesday, June 15 - Afternoon registration at MacDonald College: evening meal on your own and available from 5-7:00 p.m.

Wednesday, June 16 - Orchard tours

Thursday, June 17 - Orchard tours

Friday, June 18 - Breakfast and check out

ADVANCE REGISTRATION

Advance registration is a necessity, to make sure things go smoothly. A fee of \$120/person, based on double accommodations, will include three nights lodging, seven meals, and bus transportation for orchard tours and entertainment. Deduct \$30/person if you do not lodge at the College. The deadline for advance registration is May 14. Registration after this date will be \$130/person. Please sign up as early as possible. Further information will be forwarded upon receipt of advance payment. Please make checks payable to IDFTA Summer Tour and in Canadian currency only. Send reservations and payment to Bill Stevenson, Franklin (Quebec), JOS IEO CANADA. Welcome to the heart of McINTOSH COUNTRY.

Name(s): _____

Address: _____

Number in party: _____

Enclosed payment: \$ _____
(\$120/person)

Travelling by car? _____

If travelling by air, please give: Arrival time _____, flight # _____

Departure time _____, flight # _____

OVERSEAS ORCHARD STUDY - TENTATIVE

Considerable interest in a January/February orchard tour has come to our attention. To see fruit in season, such a tour would be to the southern hemisphere. Tentatively, we are starting plans for New Zealand and Australia, with a possibility of a "round-the-world" fruit tour, depending on the cost factor. Members interested or those having a preference in tours, please contact your IDFTA secretary at 301 Horticulture Building, Michigan State University, East Lansing, Michigan 48824.

RECIPIENTS OF IDFTA ROOTSTOCK RESEARCH GRANTS - 1982

1. Frank Gilbert and Eldon Stang - University of Wisconsin
2. William J. Lord - University of Massachusetts
3. Gary A. Couvillon - University of Georgia
4. Christopher S. Walsh - University of Maryland
5. Paul A. Domoto - Iowa State University
6. R. L. Perry, J. A. Flore, A. Iezzoni, and G. W. Bird - Michigan State Univ.
7. Frank L. Caruso - University of Maine
8. Joseph F. Costante and D. L. Weller - University of Vermont
9. Roy K. Simons - University of Illinois
10. Kenneth S. Yu - Colorado State University
11. Roger D. Way, Jim Cummins, and R. D. Lamb - Cornell University
12. Roy C. Rom and F. H. Huang - University of Arkansas
13. David C. Ferree, M. A. Ellis, and F. O. Hartman - Ohio State University
14. John A. Barden - Virginia Polytechnic Institute
15. Nancy W. Callan - Montana State University
16. Matthew K. Rogoyski - Colorado State University
17. David R. Walker, et. al. - Utah State University
18. Pichard P. Marini - Rutgers University of New Jersey
19. M. N. Westwood and P. Lambord - Oregon State University

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No. 3, August, 1982 - Prepared by Robert F. Carlson

THE 1982 ORCHARD STUDY TOUR IN QUEBEC

The fruit growers and advisory personnel in the province of Quebec put on an excellent and well-organized tour of two major fruit areas to the southwest and south of Montreal. A total of 338 IDFTA members from major fruit areas of the United States and Canada attended this two-day orchard tour, June 15 to 18. Yes, they came from coast to coast--Washington to Nova Scotia.

Eleven orchard stops, including one experiment station, were made during the two-day visit. All were most interesting, for various reasons.

The Silverton Farms, Inc., at Franklin Centre, was well-managed, with trickle irrigation and planted with early to late maturing varieties--from Jerseymac to Mutsu. Tree spacing was mostly 10 x 14 feet and trained on three or four wires. Lower branches were lost either to winter injury or poor quality fruit. Many varieties lost all fruit spurs on main branches due to the 1980-81 cold winter. Temperatures in some orchards dropped to minus 40° F.

The Gerald Lussier orchards were semi-dwarf with M. 7 and A-2 as rootstocks. The orchard site was of gravelly stony soil, so irrigation was a must for proper growth. In a planting made in 1979 with early varieties on M. 7, M. 26 showed a fair fruit set. However, most of the orchard has a relatively light fruit set.

At the Frelighsburg research station, we saw the NC-140 cooperative planting. Some trees got off to a slow start, but others showed good growth this year. A comparison study of different spur types was of interest; however, some delicious strains showed dead fruit spurs. None showed any significant superiority over others.

Various other tests were in progress, such as tree training, tree density, and nutrition. Although we observed some scab and insects, the station was well-managed.

At the Marc Bieler orchard, trees were trained on wires in the form of the Palmette training system. It was thought that this system would give better fruit color, no breakage in deep snow, and laborers could be trained to follow this pattern of tying and pruning. The rootstocks were M. 7, MM 106, and M. 26 with ten varieties. He questioned the hardiness of Empire, Vista Bella, Tideman, and Golden following the cold winters of 1975 and 1980-81.

Without further detailed descriptions of all the orchards, it was also interesting to note that summer pruning was practiced quite extensively. The main reason for this was that, due to cold winters, they do not dare to prune dormant until after February 15. Thus, pruning during the growing season causes less winter injury. Both growers and researchers seemed to agree that some trees are killed if pruned in December and January.

The cold winter of 1980-81 certainly was evident by numerous dead trees. The percentage of tree loss was reported to be from fifteen to thirty percent and appeared correct. This proves one point, that hardy cultivars and rootstocks are needed in a cold climate.

VOLUME 15 NOW AVAILABLE

The proceedings of the 25th annual conference, held in Grand Rapids, Michigan, has been mailed to members. Extra copies are available by mailing \$25 (1982 annual dues) to the Treasurer, 4598 Seneca Dr., Okemos, Michigan 48864.

The 268 page book has the names and addresses of the current IDFTA members, some 45 practical articles, covering topics from rootstock to tree culture, and interesting reviews by past presidents of the Association.

Back issues of previous conferences are also available: Volume 7, \$2; Volume 11, \$10; Volume 13, \$12; Volume 14, \$12; and Volume 15, \$15.

IDFTA CONFERENCE IN ROCHESTER, N.Y.

The 26th annual conference will be held March 6-9, 1983, at the Marriott Hotel, south of Rochester, near the New York Thruway, and only minutes away from the airport. Plan now and mail in your reservations, marked for the IDFTA conference.

Note that the formal meetings begin on Monday, March 7, rather than on Wednesday. This will allow travelling to the meeting over the weekend and getting back on Thursday. Wednesday, March 9, will be devoted to seeing many well managed, high density fruit plantings of western New York.

EFFECT OF SPACING AND SUMMER PRUNING ON SKIN FINISH

Shading improved skin finish; it also decreased fruit size and color. In a spacing trial of Cox on M. 26, the proportion of fruit down-graded for russet and the proportion graded Extra Class for color both fell as tree to tree distance decreased.

Similar effects of shading on russet and color are becoming apparent in a trial of Cox on M. 9 EMLA with a range of row to row spacings. In this trial, summer pruning is also being compared with winter pruning. With summer pruning, fruit is protected at the time when it is most sensitive to russetting, but is exposed to the light later in the season to improve color. Summer pruning had

little effect on russetting in 1980, the year in which it was started, but improved skin finish in 1981. In both years, fruit color was improved . . .
. . . Dr. John Palmer, East Malling, England.

ROOTSTOCKS AND PLANTING DISTANCES

South Africa's citrus industry is based upon rough lemon rootstock. More than 90% of the commercially established trees in this country are on this stock. Since the inception of the Citrus Improvement Programme, however, other stocks have come into greater use, the most prominent of these being Troyer citrange. To a lesser extent Cleopatra mandarin and trifoliate selections have also become more popular.

Rough lemon is not considered as suitable rootstock for Satsumas as it induces unacceptably low soluble solids in the fruit. It can, however, be used for Clementines and Ellendales in cool areas where slower tree growth leads to better internal quality. Nevertheless, it is always preferable to try for the best internal quality possible by using alternative, less vigorous stocks. Troyer citrange has proved to be an excellent stock for Clementines but is no longer recommended for Satsumas due to rootstock/scion incompatibility problems encountered in California. Growers who have already planted Satsumas on Troyer citrange need not be overly perturbed as in California, the only country which has so far reported this decline, trees only start to decline after 16 years or more and there is no proof yet that this will occur in South Africa. It cannot be ignored, however, and Cleopatra mandarin and Poncirus trifoliata are now recommended as rootstocks.

The above easy peeler cultivars have either a more upright growth habit or are less vigorous than most orange or lemon cultivars. They are subsequently planted more densely per hectare. Satsuma and Clementine trees can be expected to reach about 3.5 metres in diameter after about 12 years. Thereafter, tree size increases very slowly.

A suitable planting distance (single planting) would therefore be 5.5 x 3.5 m for both cultivars. On the other hand, in most deciduous fruit areas where citrus tree growth is slow and land expensive, it may be more realistic to use a closer or even double planting in the rows while keeping the rows the same distance apart, e.g. 5.5 x 2.5 m giving 730 trees to the hectare for intermediate espacement or 5.5 x 1.8 m (1010 trees per hectare) in a double planting . . . Pome News, Paarl, South Africa.

Letter: "The IDFTA and its accomplishments to the benefit of the industry are magnificent. Your contributions and the work of the officers are really appreciated. There are very few organizations that can claim such meaningful accomplishments for such relatively low expenditure and small staff. Thank you!"--Robert R. Dolson, Scottville, Michigan

Note: A group of fruit growers (Pomsters) will visit Washington and Oregon from Saturday, August 28 to Thursday, September 2, 1982, leaving from Grand Rapids, Michigan. Space is available. For more information, please call R. F. Carlson, (517)355-5200, or Jan Murry, (517)351-6010.

FRUIT NOTES FROM JAPAN

While in Japan for three weeks, during July, 1982, I noticed several changes since our 1977 visit there. Certainly, much progress has been made in conversion from large to small apple trees. Fifteen percent of trees in the ground are on some dwarfing stock--mainly M. 26 and MM 106 and a few interstem trees.

Currently, they have 100,000 hectars of apple in Nagano Prefecture and are aiming to increase to 250,000 during the next decade. In both Iwate and Nagano prefectures, land was cleared of brush and wood and planted to apple trees. Outside Morioka, 17 hectars owned by 17 farmers had been planted in 1977 on new land. Another area of 30 hectars, near Nagano, was cleared for apples and stone fruits.

It is doubtful that Japan will ever have an over-production of apples unless a better marketing program is developed. The large apple, which costs from \$1 to \$2 each, is in demand by the upper income group, but, the lower income group cannot afford this price. It occurs to this writer that a 2" to 2-1/2" apple would be attractive to millions of people who never see an apple, except the one wrapped in styrofoam and weighing over 300 grams, or 2/3 of a pound.

Researchers and growers with whom I spoke indicated that with the smaller and open tree, there is no need to wrap each fruit twice with special impregnated paper. This will eliminate considerable hand work, and yet yield a fine finished product.

How do they grow such large fruit? I was told, and observed, that only one apple is allowed to develop per four spurs. A six year old tree had only forty fruit compared to 250 or more fruit of 2-1/2" apples it was capable of holding.

Yes, the apple industry is changing, but, apparently, unless the system of marketing is changed, apples are a luxury, not an everyday product, in Japan.

--Robert F. Carlson

FIRST MAJOR ROOTSTOCK RESEARCH SUPPORT FROM EUROPE

Mr. Charles Andre, nurseryman and fruit grower, 02600 Villers-Cotterets, France, contributed \$500 in June, 1982, to the IDFTA for rootstock research. A fine example, Charles--thank you.

IDFTA FINANCIAL REPORT

The last two pages of this newsletter contain a five month treasurer's report, which shows how members' annual dues and research contributions are spent.

Most of the income from dues (70%) goes to research and to the printing of newsletters and proceedings. Mailing also cuts heavily into the budget.

INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

Treasurer's Report

January 1, 1982 - June 1, 1982

Shirley W. Carlson, Treasurer

Bank balance - January 1, 1982	\$ 18138.93
Receipts - January 1 to June 1, 1982	42890.58
Total	<u>\$ 61029.51</u>

Bank balance - June 1, 1982	\$ 13829.35
Disbursements - January 1 to June 1, 1982	47200.16
Total	<u>\$ 61029.51</u>

Receipts

Annual dues:	
Commercial	\$ 12969.92
Educational	2901.57
Proceedings (<u>Compact Fruit Tree</u>)	762.00
Research contributions	4140.25
Conference income	12239.02
Interest	338.69
Rootstock Research Fund deposit (until new account is opened)	9539.13
Total receipts	<u>\$ 42890.58</u>

Disbursements

Conference - March, 1982:	
Printing (programs, tickets)	\$ 580.42
Speakers (travel)	1444.00
Insurance (Civic Center)	210.00
Cash (change for registration)	350.00
Buses for orchard tour	1575.00
Banquet: rooms and meals for speakers	6732.03
Convention Bureau and City of Grand Rapids (badges, labor, etc.)	390.00
Bonding charge for Secretary and Treasurer (3 years)	214.00
Secretarial services	1125.00
Treasurer services	666.66
Secretarial expenses	345.76
Postage	21.00
East Malling Research Association membership	8.00
Bank charges	15.69
Rootstock Research Fund (includes \$ 9539.13 payback)	33522.60
Total disbursements	<u>\$ 47200.16</u>

IDFTA Klackle Memorial Speaker Fund	
Bank balance - January 1, 1982	<u>4025.17</u>

IDFTA Special Support Fund

Receipts	
4/10/82 - Durand-Wayland Spray Co.	\$ 500.00
4/14/82 - Gerber Products	2500.00
Balance	<u>\$ 3000.00</u>

IDFTA Rootstock Research

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No. 1, January, 1982 - Prepared by Robert F. Carlson

IDFTA Silver Anniversary Conference

March 2-5, 1982
Grand Rapids, Michigan

The program is complete with speakers from many states, Canada, and Europe. Subject matter is varied to please small and large fruit growers and includes summer pruning, tree density variations, rootstocks, tree nutrition, soil condition, temperature effects, flower induction and development, etc., etc.

"The tree" as a unit and its progression and development from the nursery to cessation will be discussed and illustrated by two competent men from England--a researcher and a grower/nurseryman.

Nutrition of the tree for optimum growth and fruiting is more important in today's orchard than it was twenty-five years ago. With closer tree spacing, there is more root competition for available nutrients. More fruit and prunings are removed per unit of land from high densities than from the old standard orchard. For these reasons, the grower must be alerted to possible nutrient depletions when trees are grown and when in full production. Our speaker from the Netherlands has researched both high and low tree densities as related to nutrient levels and, thus, comes with practical information for all of us.

The program enclosed will verify that the fifty program participants come with a message, from collar rot control to fruit size, subjects which will be of interest to the grower for the next decade or more.

Also of tremendous fascination and interest will be the evaluation of fruit growing the next quarter of a century by the Association's past presidents. These men are "seasoned" fruit growers with a wide range of fruit culture knowledge.

Conference sites: The "old Pantlind" hotel was officially opened in September, 1981, with a new name, "The Amway Grand Plaza Hotel" or, for short, the "Grand Plaza". It is grand, pleasant, and pleasing. The conference room rate (single or double) is \$50.

The concurrent subject matter sessions, Wednesday evening, March 3, will be held in the Continental Room and the Ballroom of the Grand Plaza. The formal

sessions, Wednesday and Thursday, will be in the De Vos Auditorium of the Civic Center, which can be reached by a "walkway" from the second floor of the Grand Plaza. The banquet will be in the Grand Plaza Ballroom.

The annual orchard tour is Friday morning, March 4, from 8:00 a.m. to 1:00 p.m. It will include pruning demonstrations and a view of different growing systems.

Informative Notes

Cherry micropropagation - Dr. Ron Perry reports that six different cherry species gave successful shoot proliferation in a medium with 1-3 mg/l BAP + .1 mg/l NAA and adventitious shoot formation from the epidermis of leaf lamina of MXM14 were obtained. Also, Ron will have a student from the People's Republic of China assisting in fruit tree rootstock research, starting January, 1982.

Rootstock frost hardiness - Dr. A. Czynczyk, at Skierniewice, Poland, reports that M. 26, to date, seems to be hardy, and may have a place in the future fruit industry of Poland; whereas, M. 9 was found not to be hardy, due to tree loss after moderately severe winters.

Loss of trees with M. 9 stem sections - We have several reports of inter-stem trees dying in Michigan and other fruit areas. It is a tendency to think that fireblight may be the cause. However, since only the stem section M. 9 seems to be affected, more likely the cause is low temperature. It is well known that the bark of M. 9 is thick, succulent, tender, and more subject to winter kill than other rootstocks. Certainly, more research is needed of several aspects of scion/rootstock combinations.

Effect of row orientation on photosynthesis - Dr. A. S. Devyatov and Dr. A. V. Gomy, Poland, made the following conclusions from research of north (N) - south (S) vs. east (E) - west (W) row orientation: 1) W-E hedgerow orientation of the bearing orchard increased the rate of photosynthesis by 40% as compared with N-S orientation. 2) The daily course of photosynthesis on the southern side of W-E oriented hedgerow and on the eastern and western sides of N-S oriented hedgerow corresponded with the daily course of irradiance. 3) A relatively high rate of photosynthesis was noted on the northern side of W-E oriented hedgerow. 4) The rate of photosynthesis at midday hours was high on the southern side of W-E oriented hedgerow but low on both sides of N-S oriented hedgerows because of insufficient irradiation.

Fruit Tree Rootstock Research

In March, the IDFTA Rootstock Research Committee will evaluate the research projects submitted by researchers up to January 5, 1982. The amount granted to experiment stations for the 1982-83 year will depend on voluntary donations received prior to February 15, 1982, and to seventy percent of members' annual dues.

It turned out to be a good year in the fruit industry and, therefore, now is the time to put some of the returns into research. The IDFTA has tax exempt status.

The IDFTA Board of Directors, in their December 8, 1981, meeting, appointed Shirley Carlson as treasurer, effective January 1, 1982. Annual dues and voluntary research contributions can be mailed to her at 4598 Seneca Drive, Okemos, Michigan 48864. Checks should be made out to the IDFTA in U.S. dollars.

The Association wishes to extend its appreciation and thanks to Virginia Ebers who has so capably handled the research treasury since 1975.

For I.R.S. reasons, the Association now has only one treasurer; however, all designated research donations will be allocated for research along with the seventy percent of annual dues as in previous years.

Visit to Chile

The fruit growers in Chile seem to be moving ahead in changing tree plantings to smaller, more manageable trees. This is true for both peaches and apples. More trees per hectare has been the trend the past decade.

The fruit land is flat and lies north-south between the Andes Mountains on the east and the coastal range on the west. Most apples are grown southward from Santiago. The soil is rather on the heavy side for fruit; however, the soil water content is controlled mainly by flood irrigation and, thus, root and collar rot is not too prevalent. Like South Africa, most of the rain falls during their winter, June to September.

The climate is ideal for peach culture with no spring frost, winter injury, or canker to plague the trees. They grow mostly free stone varieties and some white fleshed sorts.

'Granny Smith' has been a leading variety but, due to shipping/marketing problems, the growers are easing up on planting these now. They do use 'Granny' as pollinizers for 'Red Delicious'. Chile is almost unique when it comes to apple varieties because currently, as well as in the past, only 'Delicious' and 'Granny Smith' are grown. Yes, a few 'Goldens' are sprinkled among these two. The conditions there seem to be ideal for multi-variety apple culture. With the economic conditions changing in the populus status, the local in-country marketing for fruit no doubt will improve.

Happy New Year's Wishes To All

The IDFTA Board of Directors and the secretary take this opportunity to send their best wishes to all of the fruit industry people for a most healthy, productive, and happy 1982. We also want to recognize with thanks your contributions for continued rootstock research.

Hope to see most of you in Grand Rapids, March 2-5, 1982.

PRE-REGISTRATION FOR THE 25TH ANNUAL CONFERENCE

It is time to pre-register for the 25th Annual Conference in order to make arrangements for adequate lodging, meals, meeting rooms, bus transportation, and to expedite registration during the conference.

Pre-registration forms with check should be returned to:

Dr. Robert F. Carlson
Department of Horticulture
Michigan State University
East Lansing, MI 48824

no later than February 10, 1982. Checks should be in U.S. dollars and made payable to the International Dwarf Fruit Tree Association.

Lodging reservations are to be made directly to:

Amway Grand Plaza Hotel
Monroe Avenue, N.W.
Grand Rapids, MI 49503
(616)774-2000

These reservations should be made by January 20, 1982, or sooner. The IDFTA conference hotel room rate is \$50 (single or double).

REGISTRATION FOR THE 25TH ANNUAL CONFERENCE

(all persons attending must register)

_____ Registration fee	\$ 10.00
_____ Spouse and family members.	5.00
_____ Banquet (all inclusive tax and gratuity)	16.75
_____ Bus ticket (orchard tour).	6.00
_____ Ladies' luncheon	6.00
_____ Voluntary rootstock research contribution.	\$ _____
TOTAL \$ _____	

Back issues of IDFTA Proceedings will be available at the registration desk.

Name(s): _____

Address: _____

City: _____ State: _____ Zip: _____

Department of
Horticulture

MICHIGAN
STATE
UNIVERSITY

COMPACT FRUIT TREE

ROOTSTOCK BEHAVIOR

SPUR TYPES

INDUCED DWARFING

CULTURAL PRACTICES

THE INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

No. 4, October, 1982 - Prepared by Robert F. Carlson

THE IDFTA ANNUAL CONFERENCE
Marriott Hotel, Rochester, New York
March 6 to 9, 1983

The 26th annual conference, in a new location for the first time in its history, promises to be the finest meeting yet about high density trees, tree management, and old and new fruit tree rootstocks. The location of the conference this year, being located in one of the largest fruit areas of the United States, will attract many growers, industry personnel, and educators.

The Marriott Hotel, located near the airport and the New York Thoroughway, is easily reached from any direction. The hotel is equipped with adequate lodging, many meeting rooms, the finest restaurants, and the latest projection equipment from Kodak.

The Program

The program of any meeting is "the meat" because it attracts people who want to learn the latest growing techniques and keep abreast with an active, growing, and changing industry.

In this vein, we have developed a theme and a program centering around "Quality Fruit from Quality Orchards". Most persons know what constitutes fruit quality, but not as much about quality in the orchard. Quality in fruit means appearance (eye appeal), color, taste, firmness, shelflife, etc., etc. Orchard quality encompasses enumerable factors, such as site, soil and its preparation, nutrition, pest control, etc. Add to this list the tree (rootstock type and cultivar kind), planting, spacing, training, pruning, fruit thinning, harvesting, etc., etc., and we see that many complex factors indeed are involved in the production of quality fruit from quality orchards. Of course, the most important key in all of this is the orchard manager.

During the past six months, we have contacted several persons from various parts of the world, to discuss and deal with cultural factors in the development of quality orchards for quality fruit. Leading fruit growers always play an important role in developing a useful program. Several from the States and Canada have agreed to participate.

Research and extension personnel provide people in attendance with the latest findings on rootstock and variety as well as cultural developments.

East Malling Research Station has in the past provided much information at annual programs. In 1983, at Rochester, Dr. David Atkinson will be one of our out-of-the-country speakers. He will speak on orchard soil management and cultural practices for smaller trees.

Dr. Rudolph Novak, from Austria, will present orchard information under different growing conditions and management. His subjects are diverse in that he will speak on apple culture and elderberry tree culture.

A full day orchard tour is being planned by Richard Norton and Jack Pearson, which will follow the two-day formal program.

The next newsletter will give more details as well as hotel and conference pre-registration. For now, it suffices to say read this, mark the dates, then pass the information to a neighbor or friend. Extension personnel may pass this information on at local meetings, news releases, and radio. . .Robert F. Carlson, Executive Secretary, I.D.F.T.A.

IMPORTANCE OF LATEST INFORMATION

The progressive, innovative, and informed grower is the one who attends meetings and reads various printed information that comes to his attention. Among the many important state and national fruit meetings available, the International Dwarf Fruit Tree Association has played a very important role in the past 25 years in the development of dwarfing rootstocks, high density growing systems, and orchard efficiency.

The IDFTA annual conferences, the summer orchard tours, the international orchard study tours to world fruit areas, the proceedings (Volumes) of annual meetings, and the newsletters have served to update the growers with new and useful fruit growing practices. The nursery industry has been informed of the importance of growing quality trees for the modern orchard.

Most importantly, the Association has funded research stations in several states and Canada with over \$120,000 during the past six years. These monies have served as "seed monies" for initiating important research and testing projects in developing durable fruit tree rootstocks.

These accomplishments would not have come to fruition without the annual dues and research contributions. With inflation, the printing and mailing costs have steadily increased (see newsletter No. 3). The annual membership dues have not increased since 1975.

At the June, 1982, meeting in Quebec, the Board of Directors of the IDFTA discussed the budget program in detail. Previous to this meeting, a committee chaired by Bill Austin, Hartford, Michigan, had prepared a budget, based on past financial records and future expenditures and presented this to the Board. Based on these facts, the Board voted the annual membership dues to be as follows: commercial dues, \$40, and educational dues, \$25. The Board deemed these increases necessary in order to carry on strong rootstock research support and informative and educational annual programs.

Tom Chudleigh
IDFTA President and Chairman of the Board

Orchard Herbicide Research

Improvement in cropping over a five-year period was obtained by converting parts of existing herbicide strip in Cox orchards to overall herbicide on five commercial farms. Even sites that cropped well with the herbicide strip system responded to the change to overall herbicide management, the response being up to 20 tonnes/ha (8 tons/acre) on one farm. The improved yields were largely due to an increase in fruit numbers and there was little effect on fruit size.

At a sixth farm, Comice and Conference pear also cropped more heavily in areas converted to overall herbicide.

Tests also indicate that new orchards can be established in ways that exploit the benefits of overall herbicide management on production while lessening the adverse effects on soil organic matter and erosion. In a trial comparing different ways of establishing the overall herbicide regime, apple trees grew less well in plots established from bare cultivated soil than when the surface was protected either by a grass sward sown before planting the trees, and then killed, or by covering with straw. Nevertheless, trees in overall herbicide established from cultivation with no surface protection grew better than those in herbicide strips with grass alleys. . Dr. David Atkinson, East Malling, England

Effect of Soil Management on Earthworms

Fewer earthworms were present in overall herbicide orchards compared with the large number found under grass. Earthworm populations are fairly large in the tree rows of herbicide strip orchards but consist mainly of surface-dwelling species or immature stages in contrast to the deep burrowers found under grass.

Pot tests showed that simazine is not toxic to earthworms at the rates used in overall herbicide treatments and further tests showed that addition of organic matter to herbicide-treated soil could greatly increase earthworm numbers. Populations were doubled by applying straw at a rate equivalent to 10 tonnes/ha (4 tons/acre) to soil treated with glyphosate (Roundup) and paraquat. . Ms. Coral Hogben, East Malling, England

1983 IDFTA Summer Tour

The annual summer fruit tour will be hosted next summer by the Georgia apple growers. The tour dates are June 21 through June 24. We will be staying at Young Harris College in Young Harris, Georgia. It is located about ninety miles northeast of Atlanta on U.S. Highway 76, approximately five miles south of the Georgia-North Carolina border. This area is in the southern beginning of the Appalachian mountain chain. The orchards we will be visiting range in elevation of 1500 to over 2200 feet above sea level. Very few of the orchards are on level ground and most are quite steep. In addition, we will be visiting the Georgia Mountain Experiment Station where the plantings include over 29 different strains of Red Delicious and eighteen different rootstock combinations.

Registration and lodging costs should be comparable to those in the past tours. We will have more information as soon as arrangements are finalized. . . Robert M. Crassweller, horticulturist, University of Georgia

Notes From South America

Brazil, in the last years, improved their pom production but I do not know if Argentina, Chile, and Uruguay will be able to increase their roles in this well protected market, because each country is changing plantations at different rates. I still think there is much room for fruit commodities in Latin America but I do not foresee a significant increase in the plantation area or in the renewal of old trees in the whole region, due mainly to economic and political considerations.

In the near future, it is uncertain to forecast the development of the local fruit industry. Nowadays, Chile has an international high cost of production and Argentina a low one, particularly due to monetary policies which are suffering a notable change. Lately, some important packing houses and producers of both countries have gone bankrupt. Argentina has done quite well this year and they have boosted their exportation, but the consequences of the recent conflict in the South Atlantic are not settled yet, as is necessary for the European markets--
Ferrerico Carlos Meyer

Versatile Orchard Study Tour

Following the annual conference, a full day (8:00 a.m. to 4:00 p.m.) orchard tour is being planned for Wednesday, March 9, 1983. This will allow time for returning home by air, or a start for home by car.

Several types of orchards will be visited in western New York, such as cultivars on different rootstock and interstem combinations. Various methods of training trees from the detailed Ebro system and Lincoln trellis to free standing trees will be a part of the tour. Richard Norton and other research and extension personnel will be guides and orchard moderators. Buses will be available for transportation of everyone in attendance.

We also have been invited to visit the New York Agricultural Experiment Station at Geneva. Since the station is not located in the Rochester area, but about 35 miles south, it seems more practical to arrange a visit to the station at Geneva on Thursday, March 10. A bus or two can be available for those wanting to visit this interesting research station.

Some of the research in progress at the station is: tree training systems, new pome and small fruit varieties, virus indexing systems, susceptibilities to tomato ringspot, wooly aphid resistance, etc., etc. Those interested in visiting the Geneva station, please write Jack Pearson, 318 Edgemere Drive, Rochester, New York 14612, or call 716-865-3137. This information is needed in order to reserve buses.

Past Research on Double Grafted Trees

Double worked or interstem trees have been around a long time. The early research on this was primarily aimed at inducing winter hardiness to the root-system and the tree by using the hardy Hibernal between the scion and French apple seedlings. Professor Maney, at Iowa State, in 1938, found that the Hibernal produced roots in a few years when planted below ground. "Apparently,