

Department of
Horticulture

MICHIGAN
STATE
UNIVERSITY

COMPACT FRUIT TREE

ROOTSTOCK BEHAVIOR

SPUR TYPES

INDUCED DWARFING

CULTURAL PRACTICES

THE INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

Vol. 9, No. 3, April 1976 - Prepared by R.F. Carlson

APPLE TREE EFFICIENCIES

THE IDEAL TREE

Efficient economic production is foremost in most fruit growers' minds. How is this achieved? What kind of tree spacing, tree height and spread, and what varieties and rootstocks are integrated to give this production?

Opinions vary among pomologists and growers, however, the variation is slight. Of importance is that location and soil type also play a role in the final decision in orchard planning.

Ideal tree height for most efficient and high production should not be less than 5 nor more than 10 feet. Agreed? Ideal tree spread should be about 6 feet at bottom and 2 feet at top for most light exposure.

Trees touching in the row in the 6th year will require 6 feet between trees. Add 2 feet for slight added growth and efficiency and we end up with 8 feet between trees in the row.

Then we do the same for distance between rows--8 + 6 feet (work alley) equals 14 feet. This gives us 8 x 14 feet, an ideal spacing for Spur Delicious on M.7. Simple, is it not?

Now check into the many other factors--tree training, soil, type of management and stion combination and you might vary this spacing one foot each distance so you may end up either with 7 x 13 or 9 x 15 feet or more.

Yes, the ideal orchard can be had with a little pre-planning and common sense.

This is an ideal tree in the 6th to 10th year. How to keep this "ideal" tree fruiting and in the allotted space the next 10 or more years is another story.

It will require prudent pruning, branch removal and renewal as well as adequate nutrition, etc. The secret is to keep trees fruiting annually and thus tree size control is easier.

CARE OF BEARING TREES

Once the trees are in consistent annual production, growth control is rather simple. However, some varieties are very difficult to maintain small and yet obtain normal production.

Here are a few suggestions to follow:

1. Do not over-prune at any time.
2. Keep the trees full and expose branches to light by spreading and heading.
3. Heading back of branches should not be done until needed, but some should be done each year.
4. Top the trees when they have reached the height you want them for the particular spacing.
5. Eliminate sucker growth both in dormant and growing seasons. Suckers cause shading and often "rob" nutrients and water from fruit and fruiting wood.
6. Keep the top of trees narrow and the bottoms full. Controlling growth in the top half of the trees is most important.
7. Score vigorous varieties annually. On biennial varieties, it is best to score in year with crop load and not in off-year.
8. "Cracking" and "under cutting" of branches will tend to keep the trees productive and slow down growth.
9. Remove poorly placed branches, especially those with sharp, crotch angles.
10. Cut out at base all vigorous perpendicular branches.

CARE OF DAMAGED TREES

Damage from rodents will vary from year to year. It will vary with the amount of snow and severity of winter conditions. The winter of 1975-76 was unusually severe in damage from rabbits, deer and mice. Young apple trees were chewed up to varying degrees in some fruit areas.

How to correct the damage varies with age of trees and amount done to the trees. The one- and two-year-old trees that have been chewed should not be pruned until new shoot growth appears on trunk or scaffold. At that time, cut off branches outside or above new growth. In this way, new vigorous branches can be established on the leader.

Paint damaged parts of the trees with quick-drying white latex paint or with grafting compound. This will prevent chewed trees from drying out. New shoots are developed from adventitious buds both on central leader and on scaffold branches.

THE INTERSTEM TREE

The well anchored, free standing, interstem apple trees should have a "shank" on the rootstock of 6 to 12 inches between the root zone and the bottom graft. Observations in our work with interstem trees has shown that the interstem restricts root spread of both seedling and vigorous clone rootstocks. Furthermore, dwarfing interstems, due to some constriction of the 2 grafts, will encourage sucker growth even on none-prone suckering rootstock.

For these reasons, a rootstock shank will improve tree anchorage and reduce sucker growth of these trees. The shank can vary in length depending on soil type. A light, well-drained soil could use a 12-inch "shank" for deeper planted trees, thus improving tree anchorage and reduce basal shoot growth.

MALLING 27 RELEASED FOR PROPAGATION

The following release from R. L. Knight of the National Seed Development Organisation, Cambridge, England was received February 23, 1976.

American orchardists interested in using the dwarfing rootstock Malling 27 will be pleased to learn that arrangements have been made to multiply and distribute the EMLA clone of M.27. It promises to be of use both as a rootstock and as an interstem and will be of value to orchardists wishing to increase their planting densities beyond those made possible by the use of M.9. M.27 may have potential use as a rootstock for patio trees.

The National Seed Development Organisation Ltd. (NSDO) of Cambridge, England has been granted a US Plant Patent for this more dwarfing rootstock. East Malling has completed the testing of the virus free EMLA clone of M.27 and an agency agreement has been made between NSDO and Oregon Rootstock Inc., Sherwood, Oregon, for increase and distribution to Experiment Stations and nurseries in the USA.

After the introduction of Plant Breeders Rights in Britain and elsewhere in Europe, the NSDO was set up in 1967 to market all crop varieties bred at state-aided plant breeding stations in the United Kingdom.

This Organisation is responsible for a very wide range of crops including cereals, forage grasses, vegetables, soft fruit, tree fruit and rootstocks. It is expected that all new East Malling varieties will be introduced with the protection of Breeders Rights or Plant Patents and that this, plus commercially effective agency agreements, will ensure that stocks are built up, as rapidly as stringent health standards will permit, to meet the fruit industry's requirements.

The propagators at the Oregon Rootstock Inc. will increase the EMLA M.27 as rapidly as possible and make rooted plants available to Research Stations for testing with commercial varieties and under varying orchard conditions. It is estimated that five years will elapse before any quantities of trees on M.27 will be available for commercial fruit production.

NEW BULLETIN ON FRUIT GROWING

"Growing Tree Fruits for On-the-Farm Markets" is the title of this new publication. For one free copy, write for Extension Bulletin E-927, Bulletin Office, MSU, P.O. Box 231, East Lansing, Michigan 48824.

This newsletter information is free, so when quoting, please mention IDFTA.

CONTRIBUTORS TO ROOTSTOCK RESEARCH

Contributors of \$200.00 or more

J. M. Garrett	-Kentucky
Chervenka's	-Washington
G. Whaley & Sons	-Canada
Eckert Orch., Inc.	-Illinois
Richard Bachman	-Ohio
Eger Brothers	-New York
Fred Fredrickson	-Virginia

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Moose Hill Orch., Inc.	-New Hampshire
Cherry Hill Orchards	-Pennsylvania
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Marion Campbell	-Massachusetts
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Other Contributors

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Mahlon Shiffer	-Pennsylvania
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Auvil Fruit Co.	-Washington
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Sunny Beach Farm	-Wisconsin
Moore & Moore Apples	-Washington
Hersey Bros.	-Michigan
Community Orchard	-Iowa
Sandra Smith	-Minnesota
Dave Ferree	-Ohio
Hill Orchards	-Michigan
Al Martin's Orchard	-Iowa
Kaste's Morningside Orch.	-Wisconsin

Successful industries are based on active research and development. New ideas and foresight in production and promotion leads to progress and profit. So, Let's all pitch in and be a part of a healthy, growing fruit industry.

ANNUAL DUES 1976

Since all members did not have the opportunity to pay the dues (\$5.00) at the annual meeting, these can be mailed to P.O. Box 143, Hartford, Michigan 49057 or to 303 Hort., MSU, E. Lansing, Michigan 48824. Make checks payable to IDFTA.

CONTRIBUTIONS FOR ROOTSTOCK RESEARCH

Due to generous contributions of many members for rootstock research, several rootstock research projects will soon make more rapid progress in developing and releasing improved rootstock clones for commercial fruit production. To speed up and improve these research projects, mail your contributions to: Virginia Ebers, 3134 Pleasant Grove Terrace, Grand Rapids, Michigan 49505. Make checks payable to the Rootstock Research Foundation.

NINETEENTH CONFERENCE - 1976

The program of the 19th IDFTA conference was well attended with well over 500 persons from several states and Canada. Due to many interesting speakers, members of the association gained much information and also had the opportunity for visitations and exchange of fruit growing ideas.

The proceedings of the conference will cover the detailed information presented during the 3 day meeting.

The orchard tour to 4 varied and interesting orchards gave the 300 participants a chance to observe different growing and cultural practices. Although the distance traveled to see these orchards was great, the members also gained some knowledge from seeing Michigan's diverse agriculture and land topography. Fortune bestowed rain prior to and following the tour.

SUMMARY OF BOARD ACTION

President Albert Ten Eyck called for the secretary's and treasurer's reports. The balance as of March 1, 1976 showed \$5,004.82. He also appointed awards and nominations committees effective March 9, 1976. It was pointed out that the board is open to suggestions for new members to serve on the board. Suggestions on improving all aspects of the association are welcome and can be sent to any member of the board.

Virginia Ebers reported on the fund drive for the Rootstock Research Foundation. Updated as of March 12, 1976, the amount collected is \$5,740.00. No change was approved as to members serving on the Rootstock Research Committee. Discussion concerned whether or not to have commercial rootstock propagators on the board.

Three rootstock research areas of practical value to the fruit industry were outlined:

1. Increase, via rapid propagation methods, the newly developed clones.
2. Propagate these with commercial varieties and plant in different areas for production performance and wanted characteristics.
3. Continue developing new clones of all fruit crops by way of breeding and field testing.

A brief brochure describing the aims and objectives of the Rootstock Research Foundation will be prepared. Following submittal of brief rootstock research project proposals by active rootstock workers, funds will be allocated and put to work toward improved, dwarfing and adaptable clones.

The board approved two study tours, one for June 22-26, 1976 to Washington and Oregon and the other for August 1977 to Japan and China.

TOUR SPONSORED BY IDFTA

June 22-26, 1976 - Visits to leading fruit areas of Washington and Oregon. Charter flight will leave from Detroit and Chicago and arrive in Wenatchee, Washington in time for lunch on Tuesday, June 22.

In the afternoon of Tuesday, June 22, there will be a tour by bus to orchards in the Wenatchee vicinity. The first evening will be free, relaxing at the motel pool.

Wednesday morning we will depart for an all day bus tour for viewing orchards in the lower Yakima Valley. That evening, an informal discussion session can be arranged, visiting with Washington growers and pomologists.

Thursday morning the group will depart for a visit to the Irrigation Station at Prosser. A picnic lunch at the station grounds will save time and keep it informal.

From Prosser, the tour will move to Hood River Valley for visits of the Research Station at Hood River. Lodging convenient to the touring of that fruit area will be arranged.

Friday, June 25, the group will visit the fruit nursery production area south of Portland.

Saturday morning, we will complete orchard visits and transfer to Portland Airport, Oregon for home departure.

Detailed program will follow. Reservations will be on "first come, first serve" basis. Call area code 517-351-6010 or 517-355-5200 or write 303 Hort., MSU, E. Lansing, Michigan 48824.

"Wisdom thoroughly learned will never be forgotten"---

Pythagoras

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SUMMER ORCHARD STUDY TOUR June 22-26, 1976

The fruit grower, the research and extension person is becoming more and more cognizant of the value of communication for exchange of information throughout the fruit industry. In 1970, a group of men and women from Eastern fruit areas of the United States and Canada toured the western Washington fruit valley and into Summerland, B.C. Ninety-six persons participated and returned with a better understanding of the entire fruit industry. These are business and working tours. After visiting several orchards during the day, the group spends the evenings in informal sessions, exchanging ideas and information valuable to both the tour and the host personnel.

1976 - Orchard Tour - Now, six years later, the International Dwarf Fruit Tree Association is sponsoring another tour to Washington and Oregon. A charter plane will depart from Chicago June 22 and stop down in Yakima where 3 buses will be boarded and proceed to Quincy and Wenatchee to visit orchards. The evening will be free. Lodging will be at the Thunderbird Motel, Wenatchee. Wednesday morning, various stops will be made in the valley. In the afternoon, the buses will leave for Yakima. An informal session is planned for the evening of June 23 at the Thunderbird Motel, Yakima. Washington growers are helping plan this evening's session. Local growers also are invited to participate in the daily and evening sessions.

Thursday morning, June 24, the group will visit orchards in Yakima Valley and move on to Prosser to see fruit tree research projects at the Irrigation Research Station. In the afternoon, the group will move to Hood River, Oregon, and check into the Hood River Inn. Another informal session with local growers and extension personnel will be held in the evening.

Most of the morning of Friday, June 25, will be spent touring the Hood River fruit area and the Hood River Fruit Research Station. Later, the buses will depart for the Ramada Inn near Sherwood, Oregon.

Friday afternoon and Saturday morning will be spent visiting prominent fruit tree nurseries and fruit growers in the Willamette area south of Portland, Oregon. The Board of Directors of the IDFTA will hold a meeting at 8:00 p.m. on Friday.

Departure for Chicago will be approximately 11:00 a.m. on Saturday, June 26.

Some of the personnel who have offered to make this orchard study tour a success are:

In Washington: Jim Ballard, Dick Bartram, Ray Hunter, Paul Larsen, Ed Proebsting, and many fruit growers.

In Oregon: Dave Burkhard, Wayne Roberts, Walter Melenthin, Bob Stebbins, and many nurserymen and fruit growers.

Each bus will have one or more moderators for carrying on a discussion enroute and for pointing out interesting aspects of the areas visited.

Tour Specifics - The departure via charter will be from O'Hare, Chicago. Departure from Detroit was not practical. North Central Charter will leave Chicago Tuesday, June 22, at 11:00 a.m. and arrive in Yakima at 1:00 p.m. Flights from your home to Chicago, and Chicago to home, can be arranged by Ann Allen, College Travel Office, 130 West Grand River, East Lansing, Michigan 48823, Telephone: (517) 351-6010.

Cost including air Chicago/Yakima and Portland/Chicago, bus transportation for 5 days, lodging for 4 nights is \$321.00 per person. Meals will be on your own.

Ladies and children of high school age are welcome to come.

Many have already signed up for this tour. In order to have an exact count (100 persons) by June 1, please fill in this part and enclose a check and mail to:

Ms. Ann Allen
College Travel Office
130 West Grand River
East Lansing, Michigan 48823

NAME: _____

ADDRESS: _____

NUMBER IN YOUR PARTY: _____

ENCLOSED IS CHECK IN AMOUNT OF: _____

Make check payable to College Travel Office.

"Tis not the dying for a faith that's so hard; 'tis the living up to it that is difficult..."

Thackeray

TWENTIETH ANNUAL CONFERENCE - IDFTA - 1977

The annual meeting will be held March 2, 3 and 4, 1977 in the Pantlind Hotel, Grand Rapids, Michigan. Plans have been initiated for both informal and formal meetings which will include progress reports for the first 20 years of the Association by growers and pomologists. Interesting speakers from abroad will present practical information useful to the fruit industry. There will be up-dates on new rootstock research by members of the Rootstock Research Foundation, etc.

A full day orchard tour by buses is being planned to the central and Belding fruit areas of Michigan. Some of the details that will be shown include: management of semi-high density orchards on different rootstocks; super-high density care, cost and early production; detailed pruning demonstrations by dormant and summer methods.

ITEMS OF INTEREST

Research worker passed away - Professor George L. Slate, Geneva, New York, distinguished scientist in the field of horticulture, and emeritus professor, passed away April 16, 1976. He introduced many fruit varieties to the industry during his 47 years of work at the research station.

Golden (yellow) Apples - a recent publication from Rome and Bologna, Italy lists and describes over 30 strains of yellow apples. Each variety or "strain" of yellow apples is photographed in color and detailed descriptions and photos of tree and fruiting characteristics are also included. Chart illustrations of time of flowering and ripening of these apples provides a helpful guide in their evaluation in other areas.

The name of the publication in Italian is "Le Mele 'Golden-Simili'" and the authors are Silviero Sansavini, Marco Grandi at Bologna; and Paquale Rosati and Walther Faldi at Rome. For information on availability and cost contact: Istituto Coltivazioni Arboree e Centro Miglioramento Varietale in Fruitticoltura, Universita di Bologna, Italy.

History of Fruit Growing - A new and interesting book is now available from 103 Tyson Bldg., University Park, PA 16802. The cost for this 360 page book is \$16.95. The title is History of Fruit Growing and Handling in the USA and Canada, 1860-1972. This book gives a detailed description of progress and development of fruit growing of major importance on this continent.

1976 AWARD RECIPIENTS: INTERNATIONAL DWARF FRUIT TREE ASSOCIATION

"For Leadership and Service in the Association
and the Development of Compact Fruit Trees"

Fred Amberg, Nurseryman, Stanley, New York, for his enthusiastic approach in propagating and promoting the use and planting of compact fruit trees in commercial orchards.

John Bell, Sr., Fruit Grower, Barrington, Illinois, for his lifetime work in adapting dwarfed trees in apple production; and for developing an efficient on-the-farm retail marketing, family-run operation.

Richard Meister, Editor, American Fruit Grower, Willoughby, Ohio, for his many years of service to the fruit industry by publishing international, varied and practical information useful to the grower, buyer and consumer.

Paul Stark, Jr., Nurseryman, Lousiana, Missouri, for his leadership in carrying on the work of his father, Paul Sr., in developing improved varieties and quality nursery plant material for the ornamental and fruit industry.

CHERRY ROOTSTOCK

"...The late Mark Tydeman, East Malling, not content with his apple successes, later assayed the daunting problem of excessive vigour and disease sensitivity in cherry rootstocks. He went back to the species and by crossing the wild sweet cherry Prunus avium with the shrub-like P. pseudocerasus, he gave us fifty or so hybrids, all of which can be readily multiplied vegetatively, are more resistant to disease than our existing clones, and tend to induce compactness and early cropping of the cultivars grafted upon them. Within the past year, Tydeman's No. 21 hybrid has been named 'Colt' and is likely to be in great demand..." R. J. Garner.

OTHER NOTES

Order Now - The fruit grower who is planning ahead for 1978 spring tree planting ought to get his budding order in now. Most fruit trees are budded during August and September. In ordering, both the variety and the rootstock should be specified on the request. This is most important for apple and also becoming rather important for peach and cherries.

The variety list for apples is getting longer each year, especially when we consider various "strain" selections of each variety. You may consider a good strain of 'Delicious', a spur strain of 'McIntosh', 'Idared', and a couple early ones--'Jerseymac' and 'Paulared'. Leading rootstocks for free-standing trees are: MM 111 (rather vigorous), MM 106 (on well-drained soil), M.7, M.26 (avoid clay soil), and M.9 for trellised or staked trees.

Fast as Lightning - Mr. Johnstone of Athelstan, Quebec tells us that a bolt of lightning struck the wires of his M.9 trellised apple planting and killed about 40 trees. Sometimes you can't win!

In Recognition - We were pleased to see, at the March 1976 meeting, the fine delegations from Washington, Oregon and California, and also the usually large crowd from Canada. Congratulations!

"The future belongs to him who knows how to wait..."

Russian Proverb