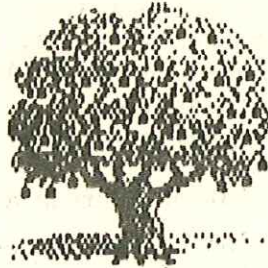




FALL 1987

WCTFA



FRUIT SHOW NEEDS YOUR HELP

WCTFA members are needed to bring fruit for display and to help set up and run the All About Fruit Show on October 31st and November 1st at the Snohomish County Extension Office. See flyer for all the details.

We'll be setting up on Friday, October 30th, starting at 8 am at the extension office and we'll need lots of bodies to move tables and chairs and put up skirting, etc. On Saturday and Sunday we'll need people to man the booths ranging from the membership table to grafting and budding displays. Sunday evening we'll need help to take everything down and put the rooms back together again.

If you would like to help, just show up or contact Emory Leland, 523-6363; John Parker, 437-2313; Nancy Jo Cushman, 659-6087; or another board member.

Apples and other kinds of fruit will be displayed, but due to limited space we will try not to duplicate varieties. In other words, we don't want everyone to bring Gravensteins although we will use the extra fruit for the cider pressing. Bring four fruit of each variety in a paper bag with a note on the outside listing the variety, parentage if known, use, keeping quality, ripening date, grower, location and phone number (if you don't mind getting calls).

We'll try to group varieties by the same grower together, so you will be able to discuss the varieties with the public.

FRUIT FOR DISPLAY WILL BE ACCEPTED ONLY BETWEEN 8 AM AND 1 PM ON FRIDAY. NO FRUIT WILL BE ACCEPTED ON SATURDAY. If you can't bring your fruit on Friday morning, contact a board member since we should all be here working on Friday.

SIMPLE DRIP IRRIGATION FOR A SMALL ORCHARD

By Marilyn Tilbury,
The Urban Scion Post

Tom Barry speaks from several years' experience with the drip system he designed for Canyon Park Orchard. He started out with sprinklers but converted to drip because of its compelling advantages for fruit trees:

- *Much less water consumption (only 2% of water used by sprinklers)
- *Much lower water pressure required (water more trees at a time)
- *Water is applied only where it's needed, at root zone of trees
- *Fruit size and color are enhanced with drip irrigation
- *Fewer disease problems--foliage and fruit stay dry
- *Fertilizer may be applied thru system
- *Economy of time--just crack a valve to water
- *Easy do-it-yourself installation
- *Low cost of materials (see list of sources at end)

The only disadvantage Tom could think of was the cost of electricity if you pump water. Drip systems require more watering time than sprinklers.

To build a drip system we need to learn just a little terminology:

Water pressure is measured in pounds per square inch (psi). Drip systems run around 10-20 psi, rather than the 40+ psi in a house.
Water volume is generally measured in gallons per hour (GPH).

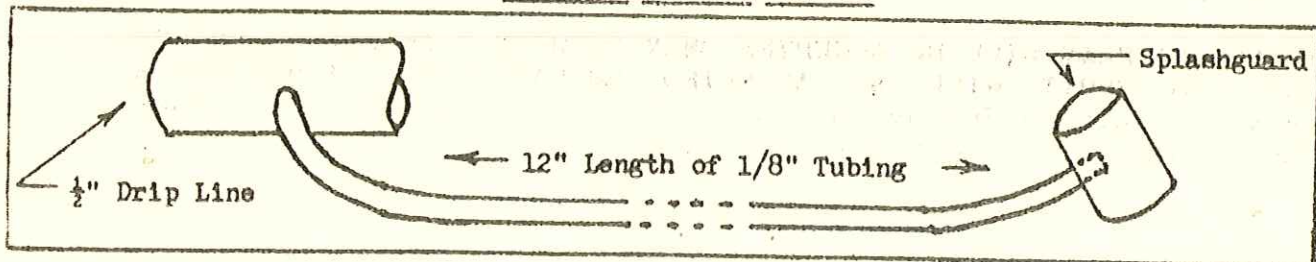
Pipe and tube sizing: Pipe sizes (typically 1/2", 3/4" or 1" in houses) are measured by their inside diameter (ID). Tube sizes (typically 1/8", 1/2" or 3/4" in drip systems) are measured by their outside diameter (OD)--the inside diameter can vary between manufacturers. Since tube fittings in drip systems are usually friction fit, there may be incompatibility between brands!

Hose and pipe threads: Hose threads are coarser and are incompatible with pipe threads. Adapters are available for just about any mix or match. On the component display cards the 3/4" garden hose threads are coded MHT or FHT, for male or female hose tap. Pipe threads are similarly coded MPT or FPT. Mind your H's and P's!

Emitters may be either in-line or on-line. Their output is rated from 0.5 GPH and up. The key to Tom's system is his low cost, homemade, on-line "Okanogan" emitters, developed by an eastern Washington orchardist.

For each emitter use tin snips to cut a 1/2" long piece of 1/2" tubing. Use a 1/8" tube punch to punch a hole midway; this is the splashguard. Now cut a foot-long piece of 1/8" tubing and partially insert into splashguard. At 20 psi, the output for .025" ID tubing is 4 GPH, the output for .080" ID tubing (more readily available) is 8 GPH. These emitters cost less than 10¢ each versus about 50¢ for commercial on-line emitters. The output can be reduced by increasing the tube length up to 4 feet or by tying overhand knots in it.

Okanogan On-Line Emitter

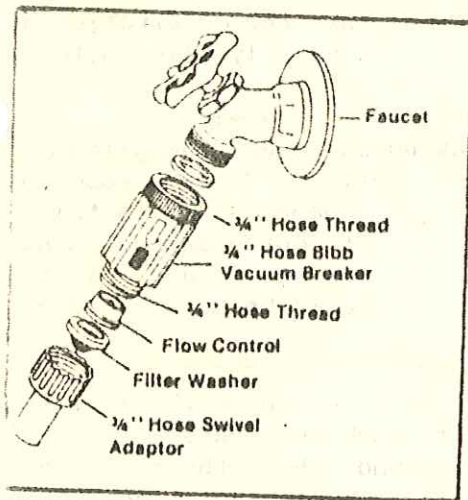


Tubing: Drip tubing is made from polyethelene and is incompatible with most glues. UV resistant tubing costs more and probably isn't needed in our maritime climate. Use either 1/2" or 3/4" tubing, depending upon whichever combination of tubing, fittings and adapters is cheaper. Cut tubing to size with pruning shears. Punch holes for on-line emitters with a special tubing punch. (Goof plugs are available to fill any ill-placed holes.)

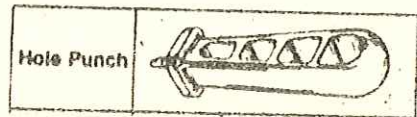
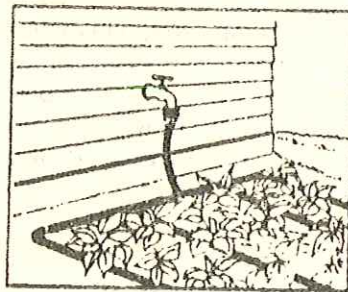
Fittings: Most brands of couplings, elbows and tees have rows of barbs. They simply slip into the tubing and remain in place without glue (and don't leak). Look for fittings of substantial wall thickness like those sold at Teufels. Don't buy el cheapo glued together fittings.

Tom advises using a vacuum breaker, particularly if your line will run uphill. His water source is a pond so he also uses a good filter which he cleans twice a season. Stainless steel filters clean easier than plastic.

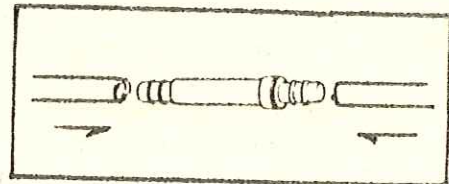
Shop around to see what is available and to compare prices. Tom feels Home Club has especially good prices for backyard needs. Different manufacturers offer literature describing their components and layouts. Raindrip, for instance, has a good 50 page booklet available at Ernst for \$1. Lay out your system on paper and make up a materials list before buying any components. Tom's system uses 1/2" tubing and includes three 130' lines. If line length becomes a problem, step up to 3/4" tubing further out or build a manifold at your water source and run several shorter lines.



Manifold Design



In-Line Emitter



Tom runs his drip line on a wire about a foot off the ground down each row of trees. This allows a visual inspection for leaks and clogged emitters. He inserts an Okanogan emitter about 3 feet from the trunk of each side of a tree. He terminates each line with a hose cap for easy flushing. (Be sure to flush your system after construction.) Each fall he flushes the system and drains it. If your system is designed right, it will drain easily.

Now that you've built it, how do you use it? One can use a tensiometer or complicated formulas. An easier way is the shovel test: dig down at the tree drip line. Is the soil moist enough (or too moist)? Tom's soil is able to absorb a lot of water and he runs his system two hours per watering. He generally starts his system in June and stops by September 1 to allow the trees to get ready for winter and/or early hard frosts like we experienced on Thanksgiving 1985.

Retail Drip Sources

Ernst, Pay n Pak and most hardware stores
Home Club (membership) 17310 Highway 99, Lynnwood, 742-7900

Wholesale Drip Sources

- Teufel Nursery Supply, 666 134th SW, Everett (W and 6 blocks S of I-5 exit 186)
**Tom Thornton, Cloud Mtn. Farm, 6906 Goodwin Rd., Everson, WA 98247, 206-966-5859
**Ron Engeland, Hamilton Equipment, Okanogan, WA, 509-422-3030
W.W. Grainger Co., 6725 Todd Blvd. (Southcenter) 251-5030/322-5684
**source of 1/8" tubing in .025" ID

ESPALIER TRAINING OF FRUIT TREES

by George Pinyuh, King Co. Extension Agent

Although any fruit tree can be espaliered, apples and pears probably are the easiest to work with. With limited garden space in many urban and suburban lots and with the growing conditions we face here in western Washington, an espaliered apple tree may be just the ticket. A fruit tree trained in a flat plane on wires, close to a sunny wall that reflects heat, will not only save space but may provide nearly ideal conditions for ripening quality fruit here in our maritime summers. Espaliered fruit trees can also be used as fences between property or to separate and define the different use areas of a single garden or landscape.

Apple trees on dwarfing rootstocks are best for espaliering. Varieties on M27 or M26 can be planted as closely as 4 to 5 feet apart; M26's will need a minimum of 6 feet between trees. However, because the espaliering process is a very labor intensive one, good training, pruning, watering and fertilizing practices may make the observation of planting distances not so critical. A single espaliered tree is usually allowed to grow out about six feet on each side.

The first order of business with any espalier undertaking is to get the wires arranged that the tree will be trained into some sort of trellis. Treated wood posts and galvanized wire ranging in weight from No. 9 to No. 12 are commonly used in this process. The number of posts and amount of wire you need will of course depend on how many trees will be espaliered and/or how long a fence line you wish to create. If the trellis is going to be put up against a south facing wall, it should be kept at least 12 inches from the wall.

The most common form of espaliering fruit trees consists of a single vertical stem with horizontal branches trained along the wires at about 18 inch intervals. The first wire is however often started about 12 inches up from the ground, while the rest are fastened 18 inches from each other. How many wires you use will, of course, depend on how tall you wish to make your espalier and how vigorous the combination of rootstock and variety you've chosen is.

It's always best to start out with quite young trees; whips, if you can get them. Older, already branched trees are usable, but you will have to do some radical removing of all the top growth. Plant the tree with its bud union about 2 inches above the ground and close enough to the wires so the stem touches the first wire after the planting process is completed. At this point, cut it back to 14 to 15 inches above the soil surface, which should make it 2 to 3 inches higher than your first wire. As the upper buds begin to grow from the headed-back tree, the top shoot should be trained vertically and two shoots below trained to the right and left along the wires. If any of the buds near the top of the tree seem unwilling to grow, it may be appropriate to cut a small notch in the bark above the bud you want to grow. Interrupting the flow of sap to the bud will tend to prevent sprout. Use a temporary stick or bamboo cane to train your vertical stem. Use plastic ties or cord to fasten the stems and branches to the cane or wires. During this first growing period (spring/summer), the only growth should be from 3 buds: one going straight up and the others going right and left along the lowest wires. All other buds or shoots

should be eliminated. Because it is often not easy to get the two lower shoots to grow in a completely horizontal fashion this first season, it may be prudent to allow them to grow at more of a 45 degree angle. They will be much more vigorous and in the fall they can then be forced downwards and tied securely to the wire.

During late winter/early spring of the following year, cut back the vertical stem about 2 inches above the second wire. Choose three buds, one to go straight up and the lower two to form the second tier of branches. Repeat the same process of training these as they begin to grow, as you did with the growth along the first wire. At the same time the lower two laterals should be headed back about a third of their length; however, if they didn't grow too vigorously the previous summer, they should be headed back even more say to more than half their growth.

During the second summer, after the upward-growing branches from the lateral arms have matured, they should all be cut back to about three leaves, above the basal set of leaves where they are attached to the horizontal branches.

This process of dormant season and summer pruning should be carried out until you've got your tree trained on all the wires that make up your trellis. After your espalier has been fully formed, it's merely a matter of keeping the height and width of the plant in bounds. The horizontal branches and central leader are usually pruned every summer, after that season's growth has matured, to keep the tree dwarfed and confined to its allotted space. All vertical growing laterals from the horizontal branches are also headed back each summer after they've hardened off. Occasionally, some fruiting spurs may have to be removed because of overcrowding; these, though, are usually pruned out at the points of origin during the winter dormant season.

UPDATE ON KIWI HARDINESS

by George Pinyuh, King Co. Extension Agent

In November 1985, when the weather turned so beastly cold so early, many gardeners in western Washington who had planted kiwi fruit vines (Actinidia chinensis) either had their plants badly damaged or in some cases outright killed. This probably occurred because the vines had not at that point hardened off; most were still in full leaf. These particular conditions might not have caused any trouble had they appeared in December or January when the plants had effectively shut down operations. Kiwi vines begin their growth surge fairly early, say in late February, and continue to be quite active well into November. Any significant spring or fall cold weather can consequently have unfortunate effects on the species. This is probably what transpired that November.

Many of the plants that I saw that were not actually killed were severely damaged at the base of the trunk, or in some fewer cases, higher up on the main stem. The bark was frozen, killing the cambium and separating from the wood. When this happened, if the separation or cambial death occurred all the way around the stem, any parts of the plant above the girdling were killed. If, however, the girdling was only part way around the stem, it probably recovered and little or no damage occurred to the top parts of the plant. The roots and crowns of established plants were not normally killed and those whose tops were lost invariably sprouted from the base and went quite a way toward producing a new top the summer following the disastrous fall freeze.

Kiwi vines have also reportedly been injured in winter when sunny days are followed by extremely cold nights. The sun probably heats up the bark on the lower trunk, which then splits and separates over night, as the temperature plummets. This kind of damage may be preventable by insulating the lower two to three feet of trunk before the onset of cold weather. Foam or fiberglass insulation, the kind manufactured to prevent pipes from freezing up in winter, could probably be used to protect the lower trunk. This should prevent the extremes in bark temperature between day and night.

The tops on many of these girdled plants might also have been saved had the process of bridge grafting been carried out in spring. This is often done by orchardists to save a fruit tree that has been girdled by rodents or cold. Bridge grafting is done when the bark "slips", usually when growth becomes obvious in spring. With kiwi, this is likely in late February into March. Pieces of one year old scion wood, long enough to bridge the damaged area, must be taken from the top of the plant. Cut both ends of each scion with a long, smooth, sloping cut about 1½ inches long, going completely through the scion so that each end comes to a point at the base. The cuts at both ends must be on the same side of each scion. At this point, a horizontal cut about the width of the scion is made on the trunk below the injured area. Pull the bark loose from the wood and shove the base of the scion under the flap. Push it in until the whole inch and a half slice is down under the bark and next to the wood of the trunk below the damage. Drive a wire brad or two through the scion into the trunk to hold it in place. All cuts and exposed surfaces should then be covered with grafting wax. The top of the scion is dealt with in the same way, and is attached to the trunk above the damaged area. Depending on the diameter of the stem you're repairing, one or more of these scions is bridge grafted around the injured area.

A female kiwi variety that has been growing in British Columbia for more than 20 years and has reportedly not been damaged by winter conditions that have damaged the standard 'Hayward' variety that most of us have is likely to become available for planting in the future in our area. It's called 'Saanichton 12' and, to my knowledge, at this time is available at only one nursery here in the U.S. northwest, and that is Northwoods Nursery, 28696 S. Cramer Rd., Molalla, OR 97038.

Several other species of Actinidia are also becoming more available locally, and although they don't produce as large a fruit as the Chinese gooseberry, or kiwi, they are extremely hardy, to 'way below zero, and should never be injured no matter what a winter comes on with. Both species are in fact reportedly hardy to 40° below and should even be able to grow and produce in eastern Washington. Actinidia arouta is an incredibly vigorous vine, just like Actinidia chinensis, but its fruit is smaller and without the fuzzy skin of its relative. It's more like a large grape, is usually sweeter, and can be eaten skin and all. There are a number of different named females in this species, but one called 'Ananasnaja' may be most prevalent. A number of nurseries and garden centers in the Seattle-Tacoma area had these for sale this spring; female plants in pink pots and males in blue! One more species is Actinidia kolomikta, also producing smaller but sweeter fruit than the commercial kiwi. This one does not grow with the immense vigor of actinensis or arguta, but is probably the most ornamental of the three. Both males and females have pink and green variegated leaves, where the base of each leaf is green and the tips cream colored to pink.

TIME TO CONSIDER ROOTSTOCK ORDERS

Walt Lyon, rootstock orderer, would like to know what pear, apple, and stone fruit rootstock members want to try for spring grafting. Please let Walt know as soon as possible what you want and how many. This is not a firm order, just an indication of what members are interested in. You may contact Walt at 19717 80th NE, Bothell 98011; 483-5574.

PEST MANAGEMENT RESOURCES: NUTS AND TREE FRUITS

There are numerous resource books available on pests of tree and nut fruits. Some of the newer books give very technical details for complex, integrated pest management programs; the older books give line drawings and basic life cycle information. Many of the references are based on studies of pests in the east or midwestern United States; some are from England. All references which might provide information on pest management or diagnosis of tree and nut fruits are listed. Many are no longer in print but might be available through the interlibrary loan system or used book dealers. Undoubtedly there are some newer books which I have not yet seen so if you can add to the list please do so.

No matter which book you might be using, keep in mind some basic facts:

1. Pesticides listed (no matter how new the book) may be outdated. The label is the ultimate legal document unless EPA has ruled otherwise (as in the case of DDT, Aldrin).
2. Life cycles are often based on studies done elsewhere (eastern United States, Canada, even eastern Washington, etc.). The life cycles are useful and generalities (number of generations, etc) will hold true for the Northwest, but actual dates of emergence may vary. Use your own observations and more localized information when available. Otherwise you may miss a vulnerable life stage.
3. No one book has all the information on a pest or problem. It may take several references, old and new, to get the information needed.
4. There will be conflicting information in even excellent references. This could be due to different interpretations (the glass is half full/half empty) of the same data, misinterpretation of the data, differences in research results from different states, or new research with new findings. Often the author of one book uses other books as a resource; thus an error in one might be perpetuated. It is time-consuming to search out the original research in journals which are buried in too few libraries. The written word should be correlated with local observations.
5. Finally, there are all the possibilities I've forgotten to mention or haven't even thought up yet.

BOOK SOURCES

Libraries

King County Public Library

Seattle Public Library

University of Washington Campus

Science Library (Suzallo)

Forest Sciences Library, Bloedell Hall

Elizabeth Miller Library, Center For Urban Horticulture

Edmonds Community College Library

Washington State University Library

Oregon State University Library

Some nurseries maintain a library for their patrons and staff. Some book stores and used book dealers specialize in books in horticulture.

Many books are available through Interlibrary loan from other libraries. Check your local branch library.

PUBLISHERS

Ag Access is available now by subscription. This bi-monthly publication lists book reviews, author profiles, features crops and bibliographies on various topics, and offers a buyer's guide to current books. It often includes offerings from various university publications such as Cornell, University of California Press, etc. Ag Access, 615 Merchant St, Vacaville, CA 95688. \$8.50/year.

Local bookstores or regional or national used book dealers often specialize in horticulture, agriculture, or natural history.

The AVI Publishing Co. Inc., offers technical publications. P.O. Box 831, Westport, CT 06881. Has many titles in Pest management and crop production.

Thomson Publications, P.O. Box 9335, Fresno, CA 93791, (209/435-2163). Topics include pesticides, horticultural and ornamental crops, seed ID kits.

ABSTRACTS OR JOURNALS

Entomological Society of America

Annals Of Entomology Of The Entomological Society Of America
Environmental Entomology
Journal Of Economic Entomology
Journal Of Horticultural Science
Bulletin of the Entomological Society of America

Phytopathological Society Of America

Journal Of Plant Disease (expansion of the former Plant Disease Reporter)
Compendia of Diseases for Various Crops: i.e. Rose, Elm, Wheat, etc.

Others Journals

Journal of Horticultural Science

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BOOKS ON PEST MANAGEMENT: NUTS AND TREE FRUITS

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*Prepared by Debbie Hayward, Green Dragon Nursery, and S.J. Collman, King County Cooperative Extension.

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New York State Agricultural Experiment Station, Geneva, New York

- G 789 Apple Maggot Fly Emergonic in Western New York
- FLS 70 Using Sticky Traps to Monitor Fruit Flies in Apple and Cherry Orchards
- FLS 85 Extension-Based Tree-Fruit Insect Pest Management Strategies for Apple and Pear
- Diseases of Tree Fruits
- EB 71 Nut Growing in the Northeast

APPLE ERMINE MOTH IS NEWEST INFESTATION

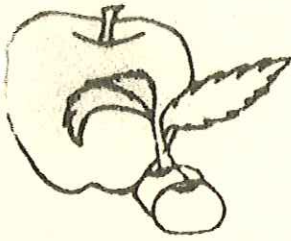
By Sharon Collman, Snohomish Co. Extension Agent

The apple ermine moth has now been found infesting apple trees in San Juan, Whatcom, Skagit and Snohomish counties, according to Erick Lagasa, WSDA Plant Services Division. With the heavy tent caterpillar infestations this pest is likely to be dismissed as just another tent caterpillar nest.

According to Mr. Lagasa, the ermine moth tents are distinctive once you know what you are looking for: size, color and caterpillars. These tents are generally small (tennis ball to ping pong ball sized) and more numerous. The nest contains skeletonized leaves (rare in tent cats) and numerous small spotted caterpillars; or later, white spindle-shaped cocoons clustered together. Little is known about its life cycle here, but tiny white moths peppered with black spots on the wings should appear in July to late September.

The moth lays eggs on the bark of apple or crabapple trees. The scale-like egg masses are bright red for a short time, and then fade to the color of the bark, making visual inspection impossible, according to Mr. Lagasa. The eggs hatch the same year, and go semi-dormant within the bark, only to emerge and begin feeding when the tree develops leaves. The larvae feed in groups in web-like tents, moving as a group and establishing a new tent when the leaves are skeletonized.

According to Mr. Lagasa, the apple ermine moth did as much damage as tent caterpillars in Whatcom county this spring. In an effort to halt the spread of the moth, nursery stock has been quarantined, but not fruit in effected counties.



A N N O U N C I N G

Fruit Research Open House

WASHINGTON STATE UNIVERSITY
Northwestern Washington Research & Extension Center
1468 Memorial Highway
Mount Vernon, Washington 98273

Friday & Saturday
September 18 & 19, 1987

Scheduled Events:

Friday, September 18

- Registration (9:00 AM to 4:00 PM)
- Exhibits and Demonstrations (continuous)
 1. Best Varieties for Western Washington - apples, pears, plums, peaches, cherries, apricots, grapes
 2. Budding and grafting
 3. Fruit varieties identification
 4. Information booth
- Wagon tours (10:00 - 12:00 AM, 2:00 - 4:00 PM) See the fruits on the trees.
- Sit-down talks (9:30 - 11:30 AM, 1:00 - 4:00 PM)

Subjects:

Bird Control
Kiwi Production
Pest Problems - Disease & Insect
Storing and Handling Fruit
Orchard Establishment
Rootstocks for Fruit

Saturday, September 19

- Registration (8:30)
- Tours of commercial orchards (8:45 - 12:00 AM)
Merritts and Perkins Variety Orchard
- Wagon Tours of the Research Center (1:00 - 4:00 PM)
- Exhibit (continuous) - Best Varieties for Western Washington - apples, pears, plums, peaches, cherries, apricots, grapes

Plan to have a picnic lunch at the "Tree House" center of our landscaped fruit garden.

The research center is located on State Route 536 about 3 miles west of Mount Vernon. Take exit 226 (Kincaid St.) and follow Route 536 (Memorial Hwy.) toward Anacortes.

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FALL TOUR ON VASHON ISLAND

Saturday, October 3rd, WCTFA members will be touring two orchards on Vashon Island--Dug Tuma's and Pete Svinth's--and Bob Sestrap's cider processing facility. To get there take either the Fauntleroy Ferry in southwest Seattle or the Southworth Ferry if you're on the peninsula. The 9:45 am ferries will get us to the Vason Island ferry parking lot (1/2 block south of the ferry dock, jog right while going up hill) just after 10 am. Pete Svinth will meet us there and lead the way. Bring a sack lunch.

The first stop will be at Dug Tuma's where we will see a variety of free standing apple trees on M-26 rootstock and a 4-year planting of trellised trees, including some old English cider apples.

At Pete Svinth's "Family Trees, Orchard and Nursery" we will see a conglomeration of fruit trees, mostly apple, and walnut trees. Pete is interested in doing fruit and nut tree research and has a lot of numbered varieties from Summerland, especially cherries. He also has early bearing English type walnuts from Bill Schildgen, which Dr. Norton is also testing at the Mt. Vernon Research Station.

Last stop on the tour will be Bob and Betsy Sestrap's Wax Orchards where we will tour the cider processing facilities. Most of the equipment was engineered and built by Bob and they're well known for "pioneering" no sugar juices and cider.