

# The Bee Line

NEWSLETTER OF

## WESTERN CASCADE FRUIT SOCIETY

A NON-PROFIT EDUCATIONAL ORGANIZATION

Volume 19 Number 1

Winter 1998

Apples Pears Figs Grapes Kiwi Cherries Nectarines Peaches Plums Blackberries Raspberries Strawberries Blueberries Currants Huckleberries Gooseberries Nuts

## 18th ANNUAL SPRING MEETING ROOTSTOCK-SCION WOOD FRUITING PLANT SALE

SATURDAY MARCH 7  
United Methodist Church  
1919 Pioneer Avenue SW Puyallup

### PRESIDENT'S MESSAGE

I have greatly enjoyed my tenure as president of the Western Cascade Fruit Society. We have an active, strong organization.

The society is very sound financially. The success of the past Fall Fruit Shows and Spring Events has produced a record bank balance. If you have any good ideas on how to spend the money, please communicate them to a board member for consideration by the board.

The society is also very healthy. We have a strong, active board and good participation by the membership. In particular, we have a nice blend of rookies and veterans supporting and guiding the society. We must continue to encourage new ideas and wider participation.

We provide quality services and products to our membership and the general public. Special recognition to Evelyn Troughton, the talented editor of "The Bee Line," which I believe to be the best newsletter in the country. In addition, we continue support of fruit research and demonstration orchards at both the Mt. Vernon and Puyallup Research Stations.

Looking to the future, your board is investigating World Wide Web technologies to provide information and services via the Internet.. The membership may become worldwide. (We already have a member from France. Maybe we should schedule a board meeting in Provence!). Let us know if you have any experience building web pages; it's a great opportunity to support your society.

Finally, I would like to take this opportunity to express my appreciation for the friendship and support I have received as your President for the last three years. I especially want to thank the WCFS officers and board members (past and present) for their expert advice and commitment to service.

I am very positive about the future of the society and look forward to many years of fruitful fellowship.

Joe Zeppa

**WESTERN CASCADE FRUIT SOCIETY  
18TH ANNUAL SPRING MEETING  
ROOTSTOCK, SCION WOOD  
FRUITING PLANT SALE**

**SATURDAY MARCH 7, 1998  
AT  
UNITED METHODIST CHURCH  
1919 Pioneer Ave SW  
Puyallup**

**LOTS OF FREE PARKING**

- 9:00 a.m.** Registration - free coffee and donuts
- 9:30 a.m.** 18th Annual Meeting: President's report; Treasurer's report; Life Membership award; Election of Directors;
- 10:00 a.m.** **FRUIT DISEASES**  
Ralph Byther, WSU Plant Pathologist
- 11:00 a.m.** **TREE FRUIT PEST MANAGEMENT**  
Art Antonelli, WSU Entomologist
- 12:00 noon** Lunch Break-bring your own
- 1:00 p.m.** **NEW DEVELOPMENTS IN FRUIT VARIETIES & ROOT STOCKS**, Dr Robert Norton, WSU
- 2:00 p.m.** **SMALL AND UNUSUAL FRUITS**  
Gil Scheiber, Seattle Tilth, Grower
- 3:30 p.m.** Board of Directors Meeting-all members welcome

**10:00 a.m. to 3:00 p.m.**  
**ROOTSTOCK, SCION WOOD AND FRUITING PLANT SALES  
GRAFTING INSTRUCTIONS AND WORKSHOP**

# 1998 ANNUAL MEETING AND SALE

## CAN YOU HELP HERE?

On the day before the sale, Friday March 6 from noon til ?- can you be there?

On the day of the sale help is needed in various places. Where would you like to help?

- 1) Arrive early to help set up
- 2) Rootstock sales, scion wood sales, small fruits
- 3) As a cashier- two or more needed
- 4) Demonstrate grafting techniques
- 5) At registration, membership, education tables

## WHO TO CONTACT

Set-up: Orel Vallen (206) 772-2119  
 Rootstock: Steve Jackson (425) 868-8344  
 Scion Wood: Bill Davis (425) 771-8978  
 Other Areas: Evelyn Troughton (206) 282-6191

## SAVE YOUR SCION WOOD

Bill Davis, in charge of scion wood sales, says it is not too early to start thinking about saving your scion wood for the sale. (And your editor hopes it isn't too late given the date this is going in the mail!) The scion wood will be sold for \$1.00 each (you won't find that price anywhere else!) to help support our research fund. All members are requested to save scions of their favorites that do well in your area and any rare or unusual varieties. Bill will appreciate knowing what will be coming in, call or send your list to him, please don't wait until the last minute to do this.

The scions for spring grafting must be from last seasons growth, cut before the buds start to swell 8 or 19 buds in length from **healthy** trees of a **known** variety. Please, no patented varieties as we do not want to be in violation of the law. It is **very** important to label **each one** accurately. Masking tape works well, **print legibly**, (spelling and neatness count!), and specify fruit if it isn't apple (Frost Peach, Comice Pear).

Protecting the scion from drying out is important. They can be placed in an air tight plastic bag with a slightly moist paper towel and stored in the crisper of your refrigerator, **NOT THE FREEZER**. If that isn't possible, bury the bundles in sawdust or soil on the north side of a building, deep enough so they will stay cold even in late spring. (See page 6 for more information).

## SCIONS WILL BE RECEIVED FROM 8:00 TO 9:30 A.M

Call Bill if you have any questions: (425) 771-8978 after 5 p.m. or mail to : 21102 Summit Lane, Edmonds, WA 98026

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## LIFE MEMBERSHIP

☆ Is there someone you know who has given outstanding service to WCFS? For many years WCFS has recognized outstanding contributors to the organization with a "Life Membership", honoring those who have given of time and talent. Although the Life Membership means just that, a lifetime dues-free membership, many recipients continue to support WCFS goals with continued volunteerism and remittance of dues.

☆ In 1997 Marlene Falkenbury was honored. Other Life Members include, Chuck Parkman, Orel Vallen, Paul Vander Hoek, David Battey, Nancy Jo Cushman, Paul Donaldson, Aaron Haynes, Lyle Knudson, Emory Leland, Ed Lewis, Daphne Lewis, Walt Lyon, Bob Norton, John Parker, Gerald Pate, Tom Perkins, Norm Schut, Bob Sestrap, Tom Thornton, Dick & Marilyn Tilbury, and Helen Zuelow.

☆ To nominate a candidate, send a short resume of your nominee's activities that go above and beyond the norm to Joe Zeppa (address on page 26). If your nomination is accepted, you will be notified and asked to present this nomination at the general meeting on March 7. Please give a copy of resume to editor for publication in next newsletter.

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## EDUCATION TABLE

Available at the Spring Sale are the remaining eight copies of Fruit, Nut and Berry Inventory. (There was so much interest from new members that we ordered some for the Fall Fruit Show.) These will not be reordered for a couple of years, so those new members who haven't seen one come by, look it over and buy your copy. Price is \$14.00 picked up at sale, \$16.00 mailed to you.

Other material available includes: Ten Best apples, Educational Opportunities of Back Yard Orchardists, Disease and Insect Control, Educational Resources for Fruit Growers, and many more.

Prices for these publication vary to cover printing costs.

## NOMINATING COMMITTEE REPORT

The Nominating Committee has not completed its search for candidates for Board members as we go to press. Your help is needed in guiding WCFS. The Board meets about six times a year in a location that is central for all members. If you would like to be a part of the decision making call Orel Vallen, (206) 772-2119 or any board member listed on page 26.



Once again, Steve Jackson is stepping in and handling the rootstock ordering, presale and on site sale at the WCFS Annual Meeting and Rootstock, Scionwood and Fruiting Plant Sale on March 7. Our thanks to you, Steve. He sends the following information.

Greetings of the growing season fellow WCFS grafters. The 1998 spring season is coming up fast!

Thank you for your continued support of WCFS Spring Meeting, rootstock and scionwood sale. If there is something we can do to make it a better service for you, or if you have any questions on grafting supplies, etc. please do not hesitate to ask. Call me after 6:00 p.m. at (425) 868-8344.

Our rootstock supplier has consistently done his best to provide WCFS with good quality rootstock and has extended to us every possible discount. More importantly, our rootstocks have been delivered on time in late February for our sale.

Considering the flooding in recent winters, this is no small farming accomplishment. Rootstock, like many crops, have seasonal up and down years due to fluctuations in temperature (either high or low) as well as various external forces such as El Niño, insects, etc.

Apple cloning dwarfing rootstock "liners" have very tender roots that are easily broken and dessicated by digging, grading, shipping, grafting, handling, and planting.

For best results, try "lining out" (planting in a line) a few extra rootstocks this spring and chip bud or T-bud this summer when roots are more established. Or lift them and bench graft at a convenient time next winter and you will be pleasantly surprised with more roots (and much better growth).

There are three main reasons for graft failure:

1. Lack of cambium contact
2. Dessicated inferior scionwood
3. Poorly rooted rootstock

But poor aftercare of grafts can also quickly cause failure or poor growth. Be sure to "paint" all exposed wood. Prevent competition from weeds at all costs.

Also prevent Garrotting by grafting rubbers. Provide water as needed. Mulch is beneficial, as is weekly foliar fertilization. Stake to ensure quick growth.

If there are any of you who would like to make a volume purchase (over 100) please check with us to see if we can be of help.

For your convenience there is an order blank is on next page.

## ☆☆☆ NEW ROOTSTOCK IN 1998 ☆☆☆

**Pajam 2** is a highly rated M9 clone from France worth of trial.

**Provence Quince BA29C** is another rootstock from France for those who like a more dwarfing pear rootstock. About 55% of standard. It requires an interstem such as Old Home unless the scion is compatible on quince. Good for espalier.

Grafting can be an international exercise:

**P22** is from Poland

**B9** is from the old USSR

**M9T337** is from the Netherlands

**EM26** is from the United Kingdom

**Mark** is from Michigan, USA

Have a good year and great grafting.

Steve Jackson (425) 8686-8344

## BERRIES

Orel Vallen is the man to talk to about other fruiting plants we will have available at the sale, but not today (Jan 22).

He has not been able to get any commitment from growers as to variety or price. Hopefully, we will have about the same selection as last year, at about the same price.

Regarding the **Blueberry Patriot** (*Vaccinium corymbosum* "Highbush" US3 x Earliblue) University of Maine introduction. Early season highbush, heavy producing plant, with extremely cold hardy early blooms, giving a consistent fruit set every year. Moderately upright, vigorous bush, yields 10 to 20 pounds. Bearing very large medium blue berries of excellent flavor, with 50 berries to a cup. Height 4 to 6 feet when mature. Only variety resistant to *Phytophthora cinnamomi*, widely distributed soil fungus that causes root rot. Tolerates wet or clay soils well.

This blueberry will be available by preorder only. To order call Orel Vallen (206) 772-2119

## ATTENTION! ATTENTION! ATTENTION! GOOD FRUIT GROWER SUBSCRIPTION

Renewals and/or new subscriptions for this publication are due April 1, 1998 to the WCFS Treasurer.

Good Fruit Grower is published semi monthly January through May, monthly June through December.

Group subscriptions are \$17.00. In order to receive this rate, all subscriptions must be submitted at one time and one check to cover them. Make your check payable to WCFS and indicate it is for Good Fruit Grower. Is your address current on the check?

This publication is worth it for the cover alone!

## BERRIES AVAILABLE AT WCFS SALE

STRAWBERRIES    RASPBERRIES    SASKATOON    BLACKBERRIES    BLUEBERRIES

VARIETIES AND PRICES UNKNOWN AS WE GO TO PRESS—COMPARABLE TO LAST YEAR

### ROOTSTOCK AVAILABLE

Rootstock	Diameter	% of standard seedling size	Species	Rootstock	Diameter	% of standard seedling size	Species
P22	¼"	20%	Apple	M9 T337	¼"		Apple
Bud 9	¼"	25%	Apple	M9 PAJAM2	¼"		Apple
Mark	¼"	40%	Apple	BA 29C		55%	Provence Quince-Pear
EM 26	¼"	45%	Apple	OHxF333	¼"		Pear
EM 7	1/4"	55%	Apple	Pyrus Calleryana	¼"		Pear
EM 111	¼"	75%	Apple	St Julian A	¼"		Plum, Peach, Apricot

ORDER EARLY! Place your order by February 15 to receive the special price (see order form), the best selection—some varieties are limited. All rootstock not sold through pre-orders will be available to the public March 7. The earlier your order is received the easier it is for Steve to plan for his volunteers to help him put the orders together. Return the order form with your check payable to WCFS to Steve Jackson 2330 229th Ave NE, Redmond, WA 98053

	Pre-Order Price	March 7 Price
EM 26, EM 111, St Julian A, P Calleryana, EM7	\$1.50 ea/10 or more \$1.25 ea	\$1.75 ea/10 or more \$1.65 ea
Mark, M9-T337, M9 PAJAM 2	\$1.75 ea/10 or more \$1.50 ea	\$2.00 ea/10 or more \$1.85 ea
OHxF333, BA 29C, Bud 9	\$2.00 ea/10 or more \$1.75 ea	\$2.25 ea/10 or more \$2.15 ea
P22,	\$2.50 ea/10 or more \$2.00 ea	\$2.75 ea/10 or more \$2.65 ea



TYPE	NUMBER	COST EACH	10/MORE EACH	TOTAL
EM 26		\$1.50	\$1.25	
EM 111		\$1.50	\$1.25	
St Julian A		\$1.50	\$1.25	
P. Calleryana		\$1.50	\$1.25	
Mark		\$1.50	\$1.25	
EM 7		\$1.50	\$1.25	
M9 PAJAM 2		\$1.75	\$1.50	
M9-T337		\$1.75	\$1.50	
Bud 9		\$2.00	\$1.75	
OHxF 333		\$2.00	\$1.75	
BA29C Provence Quince		\$2.00	\$1.75	
P-22		\$2.50	\$2.25	
<b>SUBTOTAL</b>				
<b>SALES TAX @ 8.6%</b>				
<b>TOTAL ORDER</b>				

## SCION GATHERING

As most know, the terminal bud on stems produces a hormone, auxin, that prevents branching. Auxin also delays maturation, hence fruiting. Different terminal buds on the same tree produce different amounts of auxin. If a large amount of auxin is produced, later fruiting results, conversely, if a small amount of auxin is produced, early fruiting is produced.

Since scions are collected from one year old wood, all scions are directly associated with a terminal bud. In general, the more vigorous the growth, the greater the amount of auxin. Scion taken from the laterals have the least amount of auxin, therefore, they will fruit later. Water sprouts have the most auxin and will take almost the same length of time to fruit as if the tree was planted from seed.

### GATHERING AND PREPARATION OF SCIONS

1) Be careful of the cultivar or variety name if the scion being collected. Take wood only from a tree that has fruited and of a single variety.

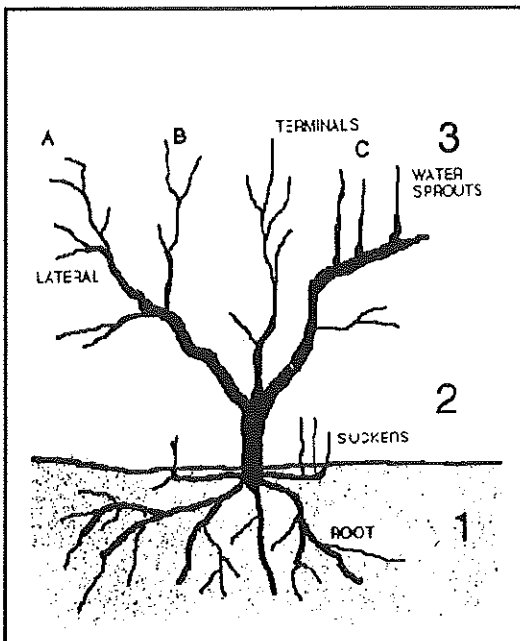
2) Collect the scions from one year old wood. Terminal stems are the best; lateral stems next best; and water sprouts are the least desirable. This is based on the concentration of a plant hormone that inhibits fruiting.

3) Collect scions in the dormant period (after leaves fall, from December to February), and about pencil diameter, 8-12 inches long.

4) Dormant spray your wood with a copper spray and dormant oil spray. It will be free of aphids, mite eggs, powdery mildew, scab, and peach leaf curl.

5) Label each variety carefully with a water proof label at cutting time.

6) Store scions in tightly sealed plastic bags. Test the plastic bags for air leaks because frost free refrigerators can quickly draw the moisture from the scions. Put some water in the plastic bag, shake it out and the remaining water will be sufficient. Seal and place bags in the refrigerator and check for adequate moisture periodically.



## VARIOUS VIEWS ON GRAFTING

### LESSONS OF A NOVICE

by Kevin L. Matthews - Aurora Illinois

Looking ahead at the calendar, I see that the benchgrafting season is fast approaching; with a smile and a chuckle I reflect on my own first naïve attempt at benchgrafting. Ah, the mistakes I made, and the mistakes I still make! But bearing in mind the frustration and disappointment I felt as a result of my first pitiful attempts at benchgrafting, and feeling nothing but empathy for my fellow novices, I have set out with keyboard in hand to offer advice and solace to all those neophytes who choose to walk the same path. So come along and laugh with me as I recount the "Lessons of a Novice."

1) Scions should be small when joined to the rootstock. Remember the scion is going to live off the starch stored in the rootstock; the larger the scion, the more energy it needs.

Several of the pieces of scionwood I had purchased had buds spaced very far apart. My "take" ratio would have been much higher had I grafted only one bud per rootstock rather than grafting on a six or eight inch piece of scionwood that contained two buds to one rootstock.

2) Label your benchgrafts and record the name of the scion and rootstock at the time of grafting. The best method is to write the name of the scion wood and the rootstock on the label before you begin benchgrafting.

Even though I knew better, I still managed to end up with an assortment of unidentified benchgrafts. And every expert have talked has done the same thing at one time or another. This administrative detail appears to be merely a matter of discipline.

3) Benchgrafts can be held inside for a long period of time by planting them in sand and feeding them with a diluted meal of fish emulsion. I was worried about the excessive length of time my benchgrafts had been callusing. Therefore despite miserable weather, I set the benchgrafts out, with predictably disastrous results.

4) Learn to properly harden off your benchgrafts if they are held inside for a period of time. If a killing frost is going to come, cover up the benchgrafts. I had a 98% success rate going, each benchgraft having leafed out and grown at least six inches inside, and yet I still managed to kill the scions off by setting the plants out over a weekend that was followed by a real cold snap.

5) Squirrels, rabbits, and raccoons are the enemy; always protect your benchgrafts. I found out the hard way that, even in midsummer, a rabbit will gnaw on a young fruit tree in spite of the abundance of other food.

5) Protect young plants from insect damage. I naïvely assumed that insects were attracted by the blossoms and fruit of maturing fruit trees and would not bother whips and benchgrafts. I quickly found out that earwigs are capable of defoliating an entire whip in a day or two.

6) Properly seal the top of benchgrafts and the graft union to avoid moisture loss. The proper method is to use grafting tape to wrap the graft union and to seal the top of the benchgraft with a grafting sealant. I had sealed both the top and the grafted area with Vaseline before securing the graft with monofilament fishing line covered with a strip of plastic.

Later examination showed that the Vaseline had worked its way into the cambium layer between the rootstock and scion and aborted the graft.

7) A small, sharp knife used in the correct fashion makes all the difference. Do not crush the cambium layers by exerting pressure on the scion or rootstock when benchgrafting. Slice through the rootstock and scion swiftly and evenly.

I couldn't even fathom using a pocket knife for an important function like benchgrafting. So I initially used a very expensive, sharp, large, heavy kitchen knife to benchgraft. The size of the knife dictated its use, and I laid the scions and rootstocks on a table and attempted to slice through them in a fashion that is best employed when using a mechanical paper slicer. This resulted in a pulped cambium layer and a poor success rate.

8) Check the fertility of your soil. My yard contains beautiful rich, black, organic soil and I assumed my benchgrafts would thrive under these conditions. Yet by mid-August my benchgrafts stood only six inches tall with two or three leaves. Suspecting some sort of nutrition deficiency, I applied an extremely diluted solution of fish emulsion (½ tablespoon to 1 gallon of water) and was amazed by the results. A week later each benchgraft had grown at least three inches and leafed out considerably.

Lately, I am sure you will hear from me next spring, as the experienced are certain to note, in the form of an article entitled "The Danger of Fertilizing Late in the Summer and Not Giving New Vegetative Growth a Chance to Harden Off in the Fall" (see number 8 above). Excelsior!

### LET'S REEXAMINE GRAFTING

by Lud Seufert - Bridgeville Delaware

When I started this round of experiments in 1984, I purchased commercial apple stock, antique apples, and grew my own seedlings from the seed of purchased eating apples. I also bought scionwood and grafted onto my seedling trees

My conclusions were that the seedlings of commercial apples were the most vigorous and disease-resistant. I speculated that commercial varieties had achieved above-average ecological adaptation.

I then decided to put in a collection of magnolia trees, obtaining my stock from a vendor who grafted his trees. Most of the trees died back in a manner that looked similar to fireblight in fruit trees, and resprouted from their roots.

This gives me an alternate hypothesis to my apple tree experiments, which is that non-grafted stock is more vigorous and disease-resistant than grafted stock. I am not sure I can verify this idea. However, I do want NAFEX experts to consider it. Does self-rooted stock have preferred vigor and disease resistance?

### GRAFTING NOVELTY

by Albert R. Scholl - Connersville, Indiana

Thanks to some sucky grafting on my part, a seedling apple tree grows in my neighbor's yard with 18 varieties thereon. The story is a natural one. A volunteer seedling came up and was nurtured by a lady who was sure it would match a nearby tasty Red Delicious. After the first crop of

small tasteless fruit, she asked me, the neighborhood sprayman, to "do something".

The spiraling scaffold limbs offered ideal spacing for the grafts. In 1989, the first year, fifteen of the eighteen grafts were successful. The three remaining grafts were added the next year.

I would never recommend this procedure as being either profitable or practical, but there is a certain satisfaction in showing off this novel oddity.

### PEARS AND APPLES TOGETHER

by Ethan A. Natelson, MD - Houston, Texas

Would there be any interest in a fifteen-foot tree that bore apples and pears on alternate branches? Could such an entity be constructed? These questions occurred to me when I obtained a sample of Super Clone rootstock three years ago. This is a patented seedling of the Starking Delicious apple that is alleged to have supported both pears and apples - on separate trees - in Washington state for more than twenty years, producing semi-dwarf, productive trees (Pomona Vol 25 No 4, p. 51). Perhaps, in part, because Super Clone is difficult to root, it does not seem to have been widely used and does not appear to have been tested in the South.

To conduct my experiment, I first grafted Super Clone to a variety of apple rootstocks that I had available, including Mark, EM VII, EM 111, faux CG-65 (Pomona Vol. 29 No. 1 pp. 23-25) and French crabapple. These served as "nurses" for the difficult to root Super Clone. After the graft was well healed, the nurse and graft site were buried below the soil line and the tree was allowed to grow to about five feet and branch before applying alternate grafts of pear and apple.

Aside from some annoying root suckers, the French crabapple appears to have been the best root selection, although all trees survive. To this point, several southern pear selections grafted, including the pear/sorbus cross (*Shipova*) appear compatible, and several have flowered so far this season, as have the apple. As you might predict, grafted apples generally show more vigorous early growth than pears, with one possible exception being the Patten pear. Thus, some pruning will be in order to maintain a balance, if this is desired.

Obviously, long term observation will be necessary to see if compatibility is sustained, but the initial observations are interesting. I also have some pears grafted alone on a long interstem of Super Clone to evaluate this combination as a possible dwarfing pear rootstock for our area.

If any reader has more information about, or experience with, this unusual rootstock, I would like to hear from you.

Ethan A. Natelson, MD, 8707 Wateka Dr.,  
Houston, TX 77074 (713) 652-3161

Ed's Note: These "Views on Grafting" were published in the Winter 1998 edition of Pomona

## DATES TO REMEMBER

February 4 - 8	Northwest Flower & Garden Show
March 7	<b>WCFS ANNUAL MEETING AND SPRING SALE</b>
March 14	WWTFRF/Mt Vernon Open House
<b>April 1</b>	Send in your Good Fruit Grower renewals or new subscription (see page 4)
April 17 - 19	Puyallup Spring Fair
October 17 - 18	<b>WCFS 1998 FALL FRUIT SHOW</b>

### IN MEMORIAM

It is with sadness that I report the passing of Ed Lewis on January 9, one month short of his 92nd birthday. Ed, a member of Piper Orchard Chapter, was a charter member of WCFS. He served as WCFS president for three years, 1982, 1983 and 1984 and editor of the WCFS newsletter in 1982, 1983, 1984 and again in 1990. Born in Everett, he retired from Pacific Northwest Bell (now US West) having worked his entire career there. In addition to WCFS Ed was active with the American Camellia Society.

When I assumed the position as newsletter editor, Ed was most kind and helpful. He will be sorely missed.

Western Cascade Fruit Society extends its condolences to his widow, Barbara, and his family.

### PUBLICATIONS OF INTEREST

The U.S. Apple Association has published a consumer education brochure about fresh (unpasteurized) apple cider safety for cider producers and retailers.

The USAA developed the brochure to aid cider producers and retailers in communicating about the product's safety with customers. The brochure can be used to comply with a recent FDA request that cider producers voluntarily provide warning information to consumers.

Cider producers and retailers who want to receive the reprintable art for the brochure can call Julia Stewart Daly, director of communications, USAA, at (800) 781-4443.

"Introduction to High Density Apple Orchard Management" is a new educational product which includes a 20 minute video and a 30-page instructional booklet outlining the seven basic concepts of high density orcharding. Released by the Ontario Ministry of Agriculture, Food and Rural Affairs it is targeted at growers who are contemplating establishing a high density orchard and those who have a planting in the ground but are novices. The package is available for \$29.95 U.S. funds plus \$10 shipping and handling. To order: The Grower, 355 Elmira Rd, Unit 3, Guelph, Ontario N1K 1B5, Canada



Did you think you would never get another WCFS newsletter? Apologies to all members for the late delivery of the Winter 1998 Bee Line. The date for mailing the Winter edition needs to be changed, December holidays and all. And then it seemed that there was some information that needed to go out to you this month, so delaying the mailing until all of it was gathered seemed to be the wise thing to do. The holidays slowed all of us it would seem!!

I'm still working on all your great suggestions so have patience. And your suggestions for other than The Bee Line have been forwarded to the appropriate person

Keep on sending your suggestions, this is your society, and you are needed. Thanks to those of you who do take the time to let me know what you want.

Evelyn



New Internet Book Available—"How to Find Agricultural Information on the Internet" shows farmers, ranchers, Extension agents, consultants and gardeners the basics of choosing an Internet provider, figuring costs, using electronic mail, getting answers from e-mail discussion groups, searching the World Wide Web for practical information, finding graphics on the Web, and copying information from the net for their own use. Aimed at both beginning and intermediate users, the book walks readers through real life examples. The book can be purchased through the University of California DANR Communication Services, 6701 San Pablo Ave., Oakland, CA 94608-1239 for \$12 plus \$3 handling and \$.99 CA tax. Make checks payable to UC Regents. Visa, MasterCard or purchase orders; (800) 994-8849, (510) 642-2431; FAX (510) 543-5470

"Apple Harvesting, Handling, and Storage", NRAES-112, provides an overview of current issues in harvest and postharvest technology. The 84 page publication brings together 10 papers on subjects ranging from management of variety quality to methods of storage. Available at \$15.00 plus \$3.50 shipping from: NRAES, Cooperative Extension, 152 Riley-Rob Hall, Ithaca, New York 14853-5701



## QUESTION and ANSWERS

By You and For You

One of the suggestions sent in on the survey sheet above the membership renewal form was a question and answer column. I invited the member who made the suggestion to submit some questions, which he did, and a response to one of his questions has been received. He would still like an answer to the other two questions (reprinted to the right). Please send more questions and/or answers to Editor, WCFS Newsletter-2625 13th Ave W Unit 306, Seattle, WA 98119 for publication in the next issue.

**QUESTION:** Fifteen years ago I planted 3 "American" persimmon trees. The largest is about 20 feet high with fifteen feet spread, another 12 feet high with a 10 foot spread, and the third is on 6 x 6. I have never seen a blossom let alone a fruit on any of these. **What can I do to stimulate some fruit production?**

**ANSWER:** Some reasons why you may not have had any fruit on American Persimmon trees to date:

1- You may have seedling trees which are all male, all female, or are too young to bloom yet. Most American persimmons (*Diospyros virginiana*) have male and female flowers on separate trees and need one or another within 150 feet of each other to ensure adequate pollenization and fruit set. In seedling trees, this is quite variable and you cannot be sure of what you have until they are mature enough to bloom, which could take 15 to 20 years for seedlings.

2- Your trees may have already bloomed, but you did not notice the flowers. American persimmon flower buds are about 1/8 inch long and look almost exactly like vegetative buds except for small ridges. When they bloom, they are approximately 3/8 to 1/2 inch long with the small greenish yellow petals showing about 1/8 inch or less - in other words, they are very inconspicuous and blend in quite well with the foliage.

My advise would be to top graft scionwood from known varieties that are mostly self-fertile and are known to do well here in Western Washington, such as "Meader", "Garretson", "Yates", "Evelyn", etc., or use your trees for a woodworking project (Ebony is what persimmon wood is called) and buy some grafted trees. do not give up on American persimmons...I think they have a much better flavor than Asian persimmons (like a combination of honey and apricot with a dash of cinnamon) and are better suited for this climate.

For more information about American persimmons, I have found an excellent source to be Michael Dolan of Burnt Ridge Nursery at (360) 985-2873.

Michael Hughes, DC-Tahoma Chapter  
11201 193rd Ave E  
Bonney Lake, WA 98390  
(253) 862-0156

**QUESTION:** My mini-farm is located at 300 feet elevation between Snohomish and Everett. Typical mid day summertime temperatures are about 3° to 5° F cooler than the valley floor. About 28 years ago I planted a Concord grape on the south side of my barn right under the eaves. That hot location has been great and it has produced well. Fifteen years ago I planted an Interlaken grape next to it about 4 feet out from the barn; then to the west along the barn side I planted an unidentified grape, given by a friend, under the eaves and a Canadice grape out 4 feet from the barn. All of these grapes have flourished. All have produced well except for the Interlaken. It blooms well but very few grapes develop. Last year I called the company where I purchased the Interlaken. The representative suggested I not prune it so severely this year. So I left a long lateral to the west with about 50 buds for all laterals. This has resulted in a moderately good production of grapes along that part of the lateral which is away from the Concord. The Concord is trained along the eaves so that its laterals are about 4 feet above and 3 feet to the side of the Interlaken laterals. **Could the Concord pollen be interfering with proper pollination of the Interlaken?**

**QUESTION:** Nine years ago I planted a female and a male hardy Kiwi (*Actinidia arguta*). Last year was my first fairly good crop, but still amounted to only about 50 fruit. This year there were very few blossoms and only about a dozen fruit set. The plants look good. **Are my plants lacking something?**

**These questions still need an answer, someone out there must know.**

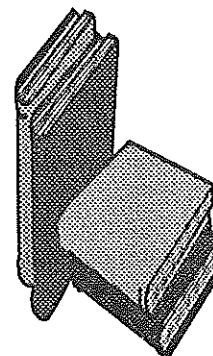
### BROOKS AND OLMO'S FRUIT VARIETIES REGISTER REVISED

We have seven orders for the Fruit Varieties Register. I have been in contact with the publisher and they can be sent directly to you for a \$7.00 shipping and handling fee. This is about equal to what it would cost to have all seven sent to me, then I would send them on to you. (And it saves me the time to wrap and take to the post office.)

The price each is \$135.00 plus the \$7.00 shipping for a total of \$142.00.

As soon as I receive checks from those of you who have ordered I will mail the order. In case you have forgotten, you are: Chuck Parkman, Ann Pullman, John Greever, Dick Tripp, Steve Jackson, Erik Simpson, Louise Luce. Make your checks payable to ASHS Press.

The publisher requests that all orders be sent in together by WCFS and will then send the book to individuals.



## HISTORY CORNER - IMPORTED BLACKBERRY PESTS OF WASHINGTON

This is not a story with an entomological flavor. The pests in this story are not insects, but the actual berry vines themselves. Since childhood I have been aware that the large, eager, prolific, fiercely barbed, fruitful, briar patch building blackberries of the Pacific Northwest were not natives. I am referring, specifically, to the commonly named "Evergreen Cutleaf" and "Himalayan" blackberries. In the short time since Euro-Americans transplanted them here they have been diabolically efficient at covering acres and acres of land in the Puget Sound Country. We might even call them the Kudzu of the Maritime Pacific Northwest. Hardly anyone grows them for berries anymore, preferring newly bred or selected "thornless" types, but with the help of birds dropping their seed and the tip-rooting of their long canes, they are marching relentlessly over our landscape.

Pre-contact Native Americans of the Pacific Coast made exhaustive use of plants - what with dressing in cedar bark clothing and all. Plants for food were also a major food source, and collecting enough food was a challenge. Maize (corn) and "real" potatoes were not found this far north. Indian potatoes were not really potatoes, and were much smaller and more difficult to gather than the giant spuds of today. In the early 1850's Puget Sound pioneer and explorer Samuel Hancock wrote of Indian women and children filling canoes with berries, which they allowed their bare-foot children to stomp in for awhile before squeezing out the juice and some of the seeds to make berry cakes to dry for the winter. Most folks today would consider the filling of a canoe with berries to be a challenge, but certainly not an impossible task, given the prolific Evergreen and Himalayan blackberries that roam everywhere over the land. However, the natives didn't have these prolific weeds to pick from. Native berries were mostly what we call Salmon and Thimble berries, along with huckleberries, salal berries, Oregon grape, and a few wild blueberries and rare strawberries. All of these berries are sparse producers and the most abundant of them (Salmon and Thimble) are full of large seeds. So filling and preserving a canoe full of berries was a real challenge for lots of busy hands.

On the other hand, these same natives didn't have to worry

about running through the woods and getting caught in a briar patch. The real native blackberries are the very low growing (and exceptionally good tasting) types, whose "canes" rarely exceed 3/16 inch in diameter and whose genes have been bred into many of the best newer varieties. If the Evergreen and Himalayan berries had been around, their heavy 3/4 inch canes and 3/16 inch curved barbs would have really ripped in to moccasins and bare legs. As it was, even in the winter, most local Native Americans wore little or no clothing (although most women did wear cedar-bark skirts). But that didn't give the Indians a free run through the woods, since they had another plant to contend with that used an arching and limb-tip rooting process much like blackberries. This plant was vine maple. Vine maple likes the low land along rivers and lakes - the type of land typically traversed by Indian trails. It grows slowly in the undercanopy, and has little trunk rigidity. Once hit by a heavy enough snow, the vine maple becomes horizontal, and the underlying branches take root. Then another generation arises, becomes top-heavy, and falls over to root again. Some Native Americans called vine maple "snake root". A patch of the stuff starting from one point and spreading for hundreds of years could cover many acres of understory and was almost impenetrable. Almost all of the patches of vine maple we see today are younger, and although they often block the way, are small enough to circumvent. In the last 150 years we have almost eliminated the challenge caused by vine maple, and replaced it with thorny imports.

Next time - more on the immigration of the killer blackberries.

Dave Battey - Snoqualmie

Editor's note: Dave Battey is a former WCFS newsletter editor and a history buff. He has some fascinating books in his library. This article was originally published in the Winter 1992 newsletter, and is reprinted with the author's permission.

## HUGE BLACKBERRY FROM OREGON AGRICULTURAL EXPERIMENTAL STATION

By next spring, commercial growers in parts of the west and south will be able to plant what is being called the world's largest blackberry. Dubbed "Black Butte", the berry could start showing up in grocery store produce sections nationwide in the summer of 2000.

"Black Butte's fruit is huge and its uniform shape and nice color are visually appealing," said geneticist Chad E. Finn, who works for the Agricultural Research Service, chief research agency of the U.S. Department of Agriculture. Finn developed the new berry in cooperation with the Oregon Agricultural Experimental Station in Corvallis. Finn is at the ARS Horticultural Crops Research Lab, also in Corvallis.

Black Butte berries average 1" in diameter and 2" long.

Individual berries weigh more than 2/5 of an ounce - almost twice the size of other varieties of fresh blackberries

"Similar size berries may grow on vines used for research or breeding, but this is the only named, publicly-released cultivar with berries this large," said Finn. While trailing berries are usually soft skinned and best suited for jams, juices and other berry products, Black Butte has a firmer fruit suited for the fresh market. It ripens in late June, 4-6 weeks earlier than most of the other "erect" or "semi-erect" types usually used for the fresh market.

Black Butte should grow well in areas where winter temperatures stay above 10° F.

## BITS AND PIECES

### WORD FROM ABROAD

To Western Cascade Fruit Society

Dear Sir,

I am a retired surveyor and my hobby is growing top fruit. I am a Friend of Brogdale Horticultural Trust at Faversham, Kent (the home of our National Collection of apples, pears, plums, cherries, etc.) and a member of the Royal Horticultural Society of London.

The reason for my writing to you is that your Fall Fruit Show was mentioned in the forthcoming events in the Brogdale Newsletter. **I should be pleased to be put in touch with one or two of your members who might like to correspond with an English amateur grower, to compare notes on varieties, rootstocks and general fruit matters.**

I hope your Washington show went off very well! Do your members really have to travel all the way to Lynnwood to attend their own show!

Yours faithfully,

J. Charles Shane  
4 Parkview House  
Stanmore Hill  
Stanmore, Middx HA7 3DT  
England

Tel 0181 954 3034 24 answerphone

Editor's note: I hope someone will correspond with Mr Shane and share his notes with the rest of us. I read the following the day after I received his letter.

The difference between America and England is that Americans think 100 years is a long time, while the English think 100 miles is a long way.

Earle Hitchman-Readers Digest November 1997

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WCFS and The Bee Line are now international. We have a new member who lives in France. Jean-Luc Carrieres tells me he heard of us at the NAFEX conference this past summer in Wooster, Ohio.

Ann Pullman of Friday Harbor writes: "I discovered a new great scionwood source this year - a man in Oregon has over 2,000 fruit varieties (over 100 plums). In case you don't know about him, he is: Nick Botner, 4015 Eagle Valley Rd., Yoncalla OR 97499. Phone: (541) 849-2781. Ann is big on stonefruit, and would like more articles about them, so we'll try to oblige. But you folks have to help me out.

Send information on stonefruit that I can publish.

### BAIT TRAPS FOR APPLE MAGGOT & CODDLING MOTH

Orel Vallen says: This will be the first and last warning of 1998 from me on the material you need to get for the control of the Apple Maggot (AM) also the Coddling Moth (CM). As you know they like a lot of different foods, (especially the AM) mainly apples, pears and plums to name a few.

If you are going to use the jug and burlap method for the CM, the bait jug should be up by April 10, depending on the weather, also the plum and pear blossoming times. They should remain up and working until the fruit is harvested.

The burlap bands should be in place, about 24" up from the ground and fastened with clothes pins, by June 1st. They should be checked and cleaned at least once a week until mid-July then checked at least every other day. When I say checked, I mean taken down and cleaned and put back up. I would like a count of the pupae each cleaning, date and weather if you would be so kind. The coddling moth have legs and run all over the tree looking for loose bark to pupate under, that is the reason for the burlap band around the trunk. Your tree should be free standing, I mean nothing touching it for the CM's to by-pass the burlap.

I have presently on hand, and will furnish it to you at my cost the following items:

1. Lemon yellow Fluorescent paint for the finish coat on the bait panels, with a good grade of exterior primer you should cover 35 - 9" x 5½ " bait panels - \$3.25
2. The scent or bait I currently have is ¼ lb sealed bottles \$3.75
3. Clear plastic envelopes (6mil) \$.03 each

McLendon Hardware stores still try to keep the Tanglefoot product on hand that you must use, as Honey Bees will not stick to this product. It is a clear, odorless bright viscous gel made by combining several grades of polybutenes with stabilizers. The material is non-repellent and does not contain any insecticides or fungicides. It comes in 1 qt tin cans - covers about 70 panels. The label reads Insect Trap Coating - Brush on Formula. The brush I use has not been cleaned for 4 years and it is still pliable. Keep dust and dirt away.

Steuber Distributing Co say they will stock Tanglefoot. Their address is 3rd and Pine St - P.O. Box 100; Snohomish, WA 98290. They accept cash and checks only. Hours are 8:00 a.m. to 5:00 p.m. weekdays, 8:00 a.m. to noon on Saturday. Later in the spring they will be open until 2:00 p.m. on Saturday.

# APPLE MAGGOT MONITORING, CHEMICAL CONTROL AND SANITATION

by Dick Tilbury

In the last few years the apple maggot fly (*Rhagoletis pomonella*), hereinafter referred to as AMF, has become a very serious pest of apples in most of western Washington. It has been a pest of apple growers in New England and eastern Canada since about 1865 when AMF decided to supplement its natural egg laying hosts, the fruit of native hawthorn and junberries, with apples. The little beasts have now migrated to our part of the world.

Both my wife and I are WSU Master Gardeners, WCFS members and hobby orchardists. This association coupled with our interest in AMF control has led to inquiries about AMF control being forwarded to us from County Extension and the Master Gardener telephone clinic.

All of these inquiries, the general frustration of an increasing number of apple growers and a lot of misinformation on the subject has prompted this article. As an example of misinformation I recently heard a prominent local radio garden talkshow host tell his audience that the only AMF control measure for the backyard orchardist was a trapping program. For an organic control program I heartily agree, as I use it myself, but it is not the only control. Chemical control has been the primary control measure for years.

With the apparent budget constraints at WSU I don't foresee any meaningful updated publications resulting from WSU research and extension to address this western Washington problem, so I will cite other references for chemical controls.

**A. 1996-1997 New England Apple Pest Management Guide**, pages 26 and 108, a publication of Cooperative Extension of Universities of Connecticut, Maine, New Hampshire, Massachusetts, Rhode Island and Vermont

**Apple Maggot Fly** "The first emergence of AMF ranges from the second week in June to the first week in July. Emergence peaks in mid-July to early August. Red ball sticky traps can indicate the timing and degree of apple maggot fly average immigration into a block. The recommended treatment threshold is when an average of 5 AMF per odor-baited trap have been captured. For unbaited traps the threshold is an average of 1 or 2 AMF per trap (note Extension guide lines may vary by state).

"After treatment, ignore trap captures until insecticide residue is expected to begin losing effectiveness (10-14 days after a full rate application unless there is abundant rain). Then clean the flies off the traps and begin counting from 0 to see if the threshold is reached again, indicating the need for another treatment.

"The life span of a female AMF is about 30 days. They begin mating and egg-laying 7 to 10 days after emergence. Eggs are laid beneath the apple skin. The survival rate of the eggs and larvae is low in immature fruit. As apples approach maturity, the survival rate of newly laid eggs and

larvae increases greatly. After tunneling for 2-4 weeks, larvae leave the dropped fruit and pupate in the soil.

"Control measures are aimed at the adults, because eggs and larvae are protected against pesticide sprays. The adults are active and spend much of their time on leaves and fruit where they feed on honeydew. This characteristic makes AMF relatively easy to control with insecticide. Guthion (and also probably Imidan) will kill AMF at 1/2 to 1/4 the full label rate. At an even lower rate, Guthion still effectively deters AMF egg laying. Reducing the dosage will also reduce the length of residual protection, though not necessarily in direct proportion to the dosage.

"Removing unsprayed apple, crabapple, and hawthorn trees that are near the orchard can help to reduce the local AMF population.

**Sanitation** "Weekly drop (fallen fruit) removal after mid-August to interrupt lifecycle of apple maggot, codling moth, leafrollers.

**Chemical Control** "Apple Maggot, Codling Moth, Red-banded Leafroller

Chemical	Amount/100 gallon water
1 Azinphos-M 50 WP	1/2 lb.
2 Guthion 50 WP	1/2 lb.
3 Guthion 3F	1/2 pint
4 Imidan 70 WP	14 oz.
5 Lorsban 50 WP <sup>1</sup>	11 to 16 oz
6 Sevin (carbaryl) 80 S <sup>1,2</sup>	1.25 lb.
7 Sevin (carbaryl) 50 WP <sup>1,2</sup>	2 lbs

for other Sevin formulations, see label for pests listed and rates.

<sup>1</sup> Less residual activity than other insecticides listed at this time for this pest.

<sup>2</sup> Poor control of Redbanded Leafroller. Can cause thinning if used within 30 days of petal fall"

[Note: the above chemical and application rates are specifically for the New England area. Check labels for the chemicals and application rates valid in Washington state.]

**B. Common Tree Fruit Pests** by Angus H. Hewitt, Michigan State University Extension, October 1993, pages 33 and 34.

**Life History:** "The apple maggot passes the winter in the pupal state in the top 2 or 3 inches of soil. In the summer these pupae give rise to flies, which emerge from the soil from late June through early September.

"The flies do not begin to lay eggs until 8 to 10 days after emergence. During this period, called the preoviposition period, both the males and females rest and feed in the

general area in which they emerged. They move readily from tree to tree but normally only for short distances, usually no more than 200 or 300 yards. The flies are not particularly attracted to apple fruits during this period and may be found in unfruited trees and shrubs in and around the orchard.

"At the end of the preoviposition period and after mating, the female flies seek out the fruits. They place the eggs just under the skin through a puncture made by the sharp, needlelike ovipositor. Females may lay eggs over an extended period of time. Eggs usually hatch in less than a week. Maggots hatching from these eggs tunnel through the apple causing a breakdown and discoloration of the pulp. The mature maggots leave the fruit and enter the soil, where they transform to the pupal stage.

**Monitoring:** "Use canary-yellow, sticky baited traps and red spheres coated with bird Tanglefoot to detect adult emergence. Growers can enhance the attractiveness of traps by sprinkling one or two teaspoons of fresh ammonium acetate over each trap when it is hung.\*

\*Do not add ammonium extracts to the red ball sticky coating. AMF associate red balls as a place to lay eggs on mature fruit, not as a food source. Use an apple volatile lure in conjunction with the red ball trap. Dr. Ron Prokopy found that adding ammonium extracts to red ball traps **repels** AMF.

"Place four yellow traps per orchard at about eye level in the foliage on the southside of trees one to two rows in from the edge of the orchard. Change the traps every three weeks until the end of July. Then replace the yellow traps with red spheres (with volatiles available) to detect female egg-laying activity. Clean and renew the Tanglefoot every two weeks.

"Using 50° F as a base, degree-days (DD) for apple maggot activity\*\* are:

900 DD - first adult emergence (1170 DD using 40° F as a base per reference H [on page 12])

1100 DD - first eggs laid

1600 DD - peak adult emergence

1750 DD - peak egg laying

2800 DD - end of adult emergence

\*\*Data from Michigan State University PETE model

**Control** "The only practical means to control the apple maggot is to kill the flies before females deposit eggs. Measures directed against any other stages have not proven successful. Eggs are deposited through minute punctures in the skin and cannot be killed by known ovicides. Furthermore, the skin punctures are undesirable blemishes on the fruits that should be prevented. The maggots are also protected within the fruits. The maggots go directly from the fruits to the soil, where they and the pupae into which they transform cannot be reached readily with insecticides

"At present, no practical method of treating soil to destroy

this stage has been devised, although in the past, when persistent pesticides such as the cyclodienes were employed as fruit sprays, the soil in the drip areas of the trees contained high levels of these insecticides from the spray fallout. These residual pesticides in the soil were lethal to larvae leaving the fruit to pupate in the soil and greatly reduced resident populations of the pest in orchards.

"Successful apple maggot control by killing the flies before egg deposition is possible and practical because of the 8 to 10 day preoviposition period. This usually allows sufficient time to kill the flies before they can infest the fruit. Theoretically, a toxic spray need not be applied until 8 days after the first emergence and not again until 8 days after the residual action of the spray is gone. In practice, however, a material with 10 days residual activity must be applied at 10 day spray intervals to ensure good control.

"Practically, then, it is necessary to maintain a toxic residue in the orchard during most of the period of fly emergence. Adding liquid protein hydrolysate (available commercially) to the spray can greatly enhance the spray's effectiveness, because the fly actively feeds on and ingests the mixture of spray with the liquid bait. This can help compensate for inadequate coverage and reduced pesticide dosages.

"Because flies move about freely in vegetation around the apple trees, particularly during the preoviposition period, it is desirable to spray interplanted and adjacent trees and shrubs. **This free movement makes maggot control in backyard plantings very difficult.** (emphasis added)

"Apple maggots are rarely residents of commercial orchards - they normally fly into commercial orchards from abandoned or neglected orchards. When flies enter commercial orchards varies greatly from orchard to orchard and from season to season. Monitoring will detect the first entry of flies into a commercial orchard. With careful monitoring, growers can control apple maggots with a minimum number of sprays.

"Studies conducted by entomologists have demonstrated that entry into an orchard by adult flies may vary from early July until mid-August. Traps should be set in the periphery of commercial orchards in locations where flies are most likely to enter. In many cases it may be necessary to treat only the first several rows on the periphery, where flies enter the orchard. **If at any time during monitoring an average of 5 flies per trap are caught in a week, apply an insecticide immediately** (emphasis added). Flies caught for one to four days following the insecticide spray can be discounted."

**C. Integrated Pest Management for Apples and Pears,**  
University of California Publication 3340, 1991, page 144:

"To detect first emergence of adults, hang yellow sticky traps in abandoned orchards or unsprayed apple trees in

(Continued on page 14)

(Continued from page 13)

infested areas. The traps attract flies in search of food. To detect the beginning of egg laying, hang the red sticky spheres in apple trees. When female flies are ready to lay eggs, they seek out fruit.

"In Oregon, where some orchards are now being treated regularly for AMF, the first maggot spray is applied 7 to 10 days after the first fly has emerged. Later sprays follow at 10 to 14 day intervals as long as adults are active and being caught in traps. If the apple maggot is trapped immediately after a codling moth spray has lost effectiveness (about 10 days to 2½ weeks depending on the insecticide used), additional treatments are necessary. Otherwise, the codling moth spray schedule may adequately control apple maggots."

**D. Management Guide for Low-Input Sustainable Apple Production**, published by USDA Northeast Apple Production Project plus Cornell University, Rodale Research Center, Rutgers University, and Universities of Massachusetts and Vermont, undated, published around 1991, pages 52 and 66:

**Life History:** "AMF overwinter as yellowish/brown pupae in the top 2" to 3" of soil under trees with infected apples. Adult AMF emerge from soil from mid-June until September. Upon emergence, AMF are sexually immature and require 7 to 10 days before successful mating and egg laying can take place. After females mate, they are attracted to the fruit in which they will lay their eggs, often laying many eggs on a single fruit. Eggs hatch in about 3 to 7 days, after which larvae tunnel through the fruit for 14 to 30 days. **Mature maggots leave the dropped, mature fruit and enter the soil, where they pupate** (emphasis added).

**Monitoring:** "Adult flies are monitored with either yellow sticky boards or sticky red spheres. Research has shown that yellow boards attract sexually immature flies, while red spheres attract mated adults that are ready to lay eggs. Because treatment decisions are based on controlling adults that are feeding or laying eggs on the fruit, red spheres are preferred in commercial orchards. The addition of synthetic apple volatile increases trap catches.\*"

Traps should be placed by early to mid-June in the southern part of its range (southern PA and NJ), and by late June in New York and New England. Traps should be placed at head height, clearly visible, and 1" to 2" away from the nearest foliage or fruit. Traps should be placed on the outside one or two rows of a block, preferably bordering the woods or in earlier-maturing varieties such as Paulared or Twenty Ounce."

\*For red ball traps only. Ammonium carbonate or ammonium acetate should be added to the yellow panel trap sticky coating to enhance AMF capture.

**E. Orchard Pest Management** edited by Elizabeth Beers, Jay Brunner, Michael Willett and Geraldine Warner, Good Fruit Grower, 1993, pages 102 and 104

"Adults can be monitored with sticky traps. Use either a red sphere or a bright yellow panel with protein and ammonia extracts as a lure.

"The need for control is based on results of monitoring. Apply control treatments within 7 days of trapping an AMF in the orchard. If flies continue to be caught, repeat treatments in 14 to 21 days. If no more flies are caught within 14 to 21 days of the first capture, do not treat again until another fly is detected."

**F. Disease and Insect Spray Schedule for Home Orchards in Western Washington Apples and Pears**, WSU Cooperative Extension Bulletin EB 0846, published periodically, most recently December, 1994:

"Special instructions for AMF - - since AMF is established in parts of western Washington, the following spray program is offered and encouraged for control of this pest. . .

Apply diazinon as per label instructions, beginning early August\* and again at intervals of 2-3 weeks up til 14 days of harvest."

\* I don't agree with this timing. Using our own AMF trapping data and a timing criterion of 7 to 10 days after first capture, I would have sprayed about June 20 in 1996 and July 8 in 1997.

**G. 1997 Crop Protection Guide for Tree Fruits in Washington**, WSU Cooperative Extension Bulletin EB 0419, page 25

"Detection of the apple maggot within its present geographical limits in Washington is a high priority of the WSDA. There has been no major expansion of the known apple maggot distribution in eastern Washington since 1987.

"Management Recommendation. Chemical controls are only required in orchards threatened by the apple maggot. Biology, monitoring and management guidelines are available in **Orchard Pest Management, A Resource Book for the Pacific Northwest** [reference E, above], published by Good Fruit Grower. Apply sprays as needed based on results of monitoring.

"Pesticide Recommendations for Apple Maggot:

Use of any of the listed materials	Amount per acre	Amount per 100 gallons	Days from last spray to harvest
Guthion 50 WP	1.5 to 2 lb	0.375-0.5 lb	7
Imidan 70 WP	3 to 4 lb	0.75-1.0 lb	7"

**H. The Orchard Almanac - A Seasonal Guide to Healthy Fruit Trees** by Steve Page and Joe Smillie, agAccess, Davis, CA, 1995

A must reference for the backyard fruit grower. Their very practical approach to trapping, monitoring and chemical control of AMF is excellent, e.g. page 114

(Continued on page 15)

"Imidan seems to be the synthetic insecticide least harmful to beneficial insects in the orchard. It has a LD<sub>50</sub> of 300mg/kg in tests with rats and must be used with extreme caution. It gives effective control of codling moth, apple maggot, redbanded leafroller, pear psylla, curcullo and many other insects."

To emphasize the magnitude of the AMF problem in this area I offer the following capture records for our city lot in south east Seattle.

YEAR	1994	1995	1996	1997
Date Traps Deployed	6/28	6/9	5/15	5/15
Date of first catch	7/26	6/10	6/10	6/29
May	0	0	0	0
June	0	6	15	1
July	4	37	228	273
Aug	3	143	863	558
Sep	0	3	105	17
Oct	0	0	0	0
Date of last catch	8/15	9/3	9/28	9/24
Date traps removed	10/1?	10/5	10/11	10/11
<b>TOTAL AMF TRAPPED</b>	<b>7</b>	<b>189</b>	<b>1211</b>	<b>849</b>

Note: We made no attempt to verify that none of these insects were the lookalike snowberry maggot.

In 1997 we started with a mixture of sticky yellow panel traps baited with ammonium carbonate and Gempler brand red ball traps with their butyl hexonate apple volatile lures. In late July we switched to all Gempler red balls and volatile lures with the exception of one homemade Ladd trap and volatile lure hung in a Karmijn de Sonnaville tree. Traps were hung in 9 out of some 30 trees in our yard. We observed minor AMF damage in the Karmijn and Elstar (no trap in this tree). There was fairly heavy damage in the Holstein. Total AMF capture per tree was:

Tree	AMF trapped
Holstein	116
Jonamac	57
Jonagold (2 traps in tree)	221
Karmijn	191
Melrose (front yard)	19
Melrose (side yard)	22
Melrose (back yard)	49
Summerred	150
Whitney Crab	12

As WSU Master Gardeners we respond to AMF control inquiries in the following manner:

1) Query the homeowner to make sure the problem is AMF damage. Does the client know the difference between AMF and codling moth damage? Does the client know how to identify AMF flies and codling moths? What monitoring procedures has the client used?

2) If the homeowner truly has AMF damage and his trees are on dwarfing rootstock we recommend a trapping program to help control AMF. We acquaint the client with the three types of traps and the merits of each; baited yellow sticky panel trap, sticky red ball trap with apple volatile lure, and the Ladd trap. We stress the importance of at least one trap per dwarf tree, deployment by June 1 and periodic monitoring and servicing of the traps. We stress trapping is not a 100% control measure and some minor damage may still be sustained. Dr. Ron Prokopy, an entomologist at the University of Massachusetts, is the leading researcher of AMF traps. We subscribe to the UMass newsletter "Fruit Notes" to keep abreast of Dr. Prokopy's research.

3) If the homeowner is a perfectionist, can't tolerate any damage, and insists on a spray program, we recommend a spray program with Imidan (phosmet). Imidan seems to be the pesticide of choice in the New England states and also is one of the least toxic to beneficial insects. We ask the client to deploy monitoring traps as in (2) above and only apply pesticide when the monitoring traps indicate the presence of AMF.

Note: One source for Imidan is the Stark Brothers Nursery catalog for Spring 1998, page 24. They offer it in one pound lots of wettable powder for \$9.95. Be sure to follow the label directions - it's the law.

4) We further stress the importance of good sanitation, i.e., weekly pick-up and disposal of all fallen fruit starting in August. Fruit may be boiled and composted if covered with several inches of dirt. Fruit may also be refrigerated for 40 days and then buried, may be placed in a sealed plastic bag for garbage pickup or buried under at least one foot of soil.

Fruit growers in western Washington are getting essentially zero help on this AMF infestation from WSU and Washington State Dept of Agriculture. It appears we backyard orchardists are on our own. I would urge all WCFS members to write down their experiences in combating this pest - good, bad, indifferent - and submit them to our newsletter editor, Evelyn Troughton (address on back of newsletter). If we pool all of our knowledge perhaps we can jointly come up with some good control measures.



This article was forwarded by Chuck Parkman of Carlsborg (near Sequim) with this note dated Jan 13, 1998: I attended a Western Washington Council Apple Growers breakfast in Mt Vernon yesterday where I obtained this information. The commercial growers are very concerned as there appears to be no spray program to prevent it. When we toured an orchard near the Mt Vernon WSU Station, we found an infection in one of the apple trees there.

## ANTHRACNOSE CANKER ALERT

Geoff Menzies of the WSU Nooksack IPM project in Whatcom County announced a serious threat to fruit trees in Whatcom and Skagit County by an invasion from British Columbia of Anthracnose Canker from a serious infection in British Columbia that is destroying orchards in that Province. Chemical control has not been effective.

### **Anthracnose canker of apples; put away the sprayer and get out the knife and brush!**

by Jim Rahe, Dept of Biological Sciences  
Simon Fraser University

Anthracnose canker is the most serious disease affecting apples in coastal British Columbia. It can take entire orchards out of economic production within 4 to 6 years of its introduction if nothing is done to control it. Fungicides have been recommended and extensively used for control of anthracnose canker, but their use has not provided acceptable levels of control. Growers often ask, "When does infection occur? What chemicals are best? When should I spray? How often should I spray?" Is the failure of fungicides to control anthracnose canker simply due to failure to apply the most effective materials, or failure to apply them at the right time?

**Time of infection.** When does infection occur? We collected and examined cankers from the field at weekly intervals and found that distinctive curved spores (conidia) are produced in abundance on 1st year cankers during the late summer and fall, sometimes as early as late August. To find out whether and when the conidia are infective, we tied pieces of canker bark onto the stems of potted, healthy M7 rootstock trees for 1 week long intervals during the late summer and fall months, then removed the pieces and transferred the trees to a 'clean' site located about 30 meters away. The study site was an outdoor fenced compound at Simon Fraser University, remote from any other apple trees. The canker bark pieces were cut from 1st year cankers that were collected from a naturally infected orchard just before each exposure interval. Cankers developed in the M7 trees from early April through June of the following year. The experiment was done in both 1994 and 1995. Although the majority of cankers occurred in trees that had been exposed to canker bark in weeks with frequent rain in both years, some cankers resulted from each of the 14 week-long exposure intervals between the end of August and early December. All of the cankers that developed were on the main stems, below the points where the canker bark pieces had been attached. Overall, 34% (182 of 532) of the inoculated trees and 4.5% (12 of 266) of the control trees that were placed 2 meters from the inoculated trees developed cankers. No cankers developed on any of 1370 uninoculated trees that were kept continuously in the 'clean' area.

These results showed us four important things about an-

thrachnose canker:

- 1) that the canker bark pieces were sources of inoculum,
- 2) that inoculum from the canker bark pieces was deposited over a prolonged period during the late summer and fall,
- 3) that the inoculum was only effective over a short distance,
- 4) that the inoculum was probably spread by rain. (If it had been spread by wind or insects, some of the cankers would have occurred above the points where the canker bark pieces had been attached to the stems.)

**Chemical control** - What chemicals are best? We tested 12 fungicides that are registered for use on apples to compare their direct toxicity to the anthracnose canker fungus. Copper-based fungicides were almost non toxic to the fungus, and captan was only moderately toxic. Thiophanate methyl (Easeout) and thiram were found to be highly toxic to the fungus, and were selected for testing in the field. For the field test we again used potted M7 rootstock trees to which pieces of canker bark were attached at the end of August, but this time the pieces of canker bark were left on the trees until the following spring. Biweekly spray regimes were begun on 25 August, 11 and 22 September, and 5, 16 and 30 October, 1995, such that the total number of sprays applied ranged from six through zero (control). Cankers developed during March through May of 1996, and were counted during the 3rd week of June, 1996. Contrary to expectations, none of the spray regimes provided control of anthracnose canker in this field trial. The percentages of trees that developed cankers ( $n = 19$ ) ranged from 47% to 84% in the thiram treatments, from 37% to 94% in the thiram plus thiophanate methyl treatments, and was 72% in the control. With the exception of an 8 day period of sub-freezing temperatures from 27 October to 3 November during which no precipitation occurred, only 6 and 10 of the 71 days between 26 September and 3 December lacked leaf wetness and precipitation, respectively. The failure of these fungicides to prevent anthracnose canker in the field may be due in part to the limited opportunities that are afforded by the coastal B.C. climate during the fall months for drying and retention of the spray materials on bark surfaces. We are repeating the fungicide field test again this year and have included some additional fungicides, and the use of a sticking agent that is supposed to increase retention of the spray materials on plant surfaces. Regardless of the results, however, the conclusion that fungicide sprays cannot be recommended for control of anthracnose canker is obvious. To be effective, the spray materials

*(Continued on page 17)*



(Continued from page 16)

would have to be retained strongly by plant tissues during the time when fruit is being harvested - an unacceptable condition.

If we can't control anthracnose canker with fungicides, what can we do to control this devastating disease? In principle, cultural control of anthracnose canker can be achieved by excluding or eradicating sources of inoculum from the orchard. To do this, we need to know:

- 1) what is inoculum?
- 2) where does it come from?
- 3) when is it produced?
- 4) how does it spread?

**Sexual spores** - Our time of infection studies in 1994 and 1995 showed us that canker bark is a source of inoculum, and that the distinctive curved conidia are one type of inoculum. Those studies showed that the inoculum from 1st year canker bark (conidia) could only infect over a short distance. Because anthracnose canker appears to spread over considerable distances in orchards, however, we felt that a second type of inoculum also might be involved in the epidemiology of the disease. The fungus that caused anthracnose canker is known to produce a second, sexual spore type that is called an ascospore, but little is known about the role of ascospores in the epidemiology of anthracnose canker. During our research we had observed the sexual stage of the fungus from time to time in overwintered canker bark, but never in 1st year cankers. When we did see the sexual stage, the ascospores were almost always inside the sacs in which they are formed; only rarely did we see a free ascospore. We set up experiments to discover how the ascospores are released from the sacs, and learned that they are discharged into the air beginning in the spring. This discovery strongly suggests that if cankers are allowed to overwinter in infected trees they can produce ascospores that can be carried by wind over substantial distances. This probability substantially changes our understanding of the epidemiology of anthracnose canker. While intensification of the disease within a tree that is already infected is likely due mainly to conidia that are washed from 1st year cankers by rain in the fall, the initial introduction of the disease and its dispersal throughout an orchard is probably caused by windblown ascospores, and these infections may occur during the spring or summer.

**Cultural control** - There are probably two kinds of inoculum, rain spread conidia and wind borne ascospores. Both of these spores are produced in dead canker bark. Conidia are produced in 1st year cankers and ascospores in overwintered 2nd year cankers. Cultural control practices must take both kinds of spores into account. Winter pruning must include thorough removal of all cankers, even though infections by conidia will already have occurred in the fall. Thorough removal of all visible cankers during winter pruning will, however, greatly restrict the potential for spread of the disease throughout the orchard by elimination of the wind borne ascospores. This will allow the grower to concentrate on elimination of 'hot spots' by removal of new 1st year cankers during the summer.

Our research is now focused on learning more about the conditions that favour production of ascospores, and the times of the year when they are released under field conditions. Although many questions are still to be answered, what we know at present is enough to substantially modify the recommendations for control of anthracnose canker. There has never been any evidence that chemicals can control this disease, and our first year of field testing provided evidence that even fungicides that are very toxic to the canker fungus under lab conditions are not effective in the field. This means that emphasis must be placed on cultural control.

### Recommendations for cultural control of anthracnose canker

**New plantings** It should be relatively easy to control anthracnose canker in new orchards if the planting site is isolated from old apple trees. Old trees will likely have anthracnose canker and are a potential source of ascospores. Such trees should be removed if possible. Planting stock should be obtained from reputable nurseries and carefully inspected to insure that it is free of cankers. After the trees are planted they should be inspected carefully and frequently during the first year, and any trees that develop cankers should be removed. To prevent the disease from getting established in the planting, inspect regularly and remove any cankers as soon as they are found.

**Rescue and replant situations** Whether or not anthracnose canker can be brought under control once it is established in an orchard will depend on the number and sizes of infected trees, how widely the disease is dispersed in the orchard and how much effort the grower is willing to commit to the task. The first step is to remove all trees that are 'lost causes'. Then remove all cankers from the remaining trees during winter pruning, and remove all cankers that appear during the following spring as soon as possible, and not later than the end of August. Do not replant unless all existing cankers have been removed during winter pruning. Replant in blocks, never within rows of older trees with cankers.

### ON PRUNING BLUEBERRIES

Pruning is required to maintain the vigor and productivity of blueberry bushes, and to develop the proper growth habit for harvesting, according to the Highbush Blueberry Production Guide.

Pruning reduces fruit numbers and permits sunlight to reach further into the canopy, thereby improving the sweetness and size of fruit. It improves air circulation, and that reduces conditions favorable for disease development. It is used to remove diseased plant parts.

Proper pruning will allow for elimination of older, less productive canes and rejuvenation of new cane growth, which is essential for stable production.

Early spring is the best time to prune. Winter-injured wood is most easily identified - carbohydrates produced in autumn have had enough time to move into the roots and crown for storage.

## FRUIT FACTS: PINEAPPLE

aka *Ananas comosus* (L.) Merr. Bromeliaceae

Common Names: Pineapple, Pina, Nanas

**Origin:** Brazil and Paraguay. It had spread through South and Central America to the West Indies before Columbus arrived. In 1493 Columbus found the fruit on the island of Guadaloupe and carried it back to Spain and it was spread from there around the world on sailing ships that carried it for protection against scurvy.

### DESCRIPTION

**Growth Habit:** A small tropical or near-tropical, herbaceous, perennial, with long sword-like leaves, arranged in a spiral around a short stem.

**Foliage:** Sword like leaves may or may not bear marginal spines. They are stiff, leathery in texture.

**Flowers:** An inflorescence at the end of the stem. Seed are generally not found in commercially grown pineapple. The flowers are pollinated by hummingbirds and are very hard, black flattish round to oval in shape, no more than ¼ inch in length.

**Fruit:** Develops from many small fruits fused together. Size varies from 1 to 10 pounds or more. Oval to cylindrical in shape and white to yellowish or orange inner color.

### CULTURE

**Location:** Plant where the temperature remains warmest such as the south side of a home, or in an unshaded portion of garden.

**Soils:** Well-drained sandy loam, mildly acid and fertile is best, but the plant will tolerate many soils if well drained. A pH of 4.5 to 6.5 is desirable.

**Fertilization:** Of the minor elements, iron is needed in higher amounts, particularly in high pH soils. Iron may be supplied by foliar sprays of ferrous sulfate. Nitrogen should be added every four months. Urea, also can be foliar fed.

**Irrigation:** The plant is surprisingly drought tolerant, but adequate soil moisture is necessary for good fruit production.

**Miscellaneous:** Fruiting can be forced when the plant is mature by using calcium carbide applied to the terminal bud either as a few grains (10-12) or in solution (30 gms to 1 gal water). Foliar sprays of naphthaleneacetic acid (1 gm in 10 gal water) or B-hydroxyethyl hydrazine. Of the three, the last is most effective. The plants usually produce for about four years, but they may last longer in California since the life cycle is slowed down by cooler weather.

**Planting:** Pineapples are planted outside during the summer months. A ground cover of black plastic works very well for pineapples, both as protection from weeds and for

the extra heat it seems to absorb. It also helps conserve moisture. Traditionally, plants are spaced 12" apart. Crown set about 2" deep, suckers and slips 3 to 4 inches deep.

**Propagation:** By new vegetative growth. There are four general types: Slips that arise from the stalk below the fruit, suckers that originate at the axils or leaves, crowns that grow from the top of the fruits, and ratoons that come out from the under-ground portions of the stems.

Although slips and suckers are the preferred, crowns are the main planting material of the home gardeners. These are obtained from store-bought fruit and are removed from the fruit by twisting the crown until it comes free. Although the crown may be quartered to produce 4 slips, in California's marginal conditions it is best not to cut or divide the crown. The bottom leaves are removed and the crown is left to dry for two days, then planted or started in water.

**Pests and Diseases:** Mealybugs are spread by ants. In most commercial growing areas, nematodes are also damaging, but this has not been a problem in California.

### CULTIVARS

**Smooth Cayenne** 5-6 lbs, pale yellow to yellow flesh. Cylindrical in shape and with high sugar and acid content. Well adapted to canning and processing. Leaves without spines. This is the variety from Hawaii, and the most easily obtainable in U.S. grocery stores.

**Hilo** A compact 2-3 lb. Hawaiian variety of the Smooth Cayenne. The fruit is more cylindrical and produces many suckers but no slips.

**Red Spanish** 2-4 lbs, pale yellow flesh with pleasant aroma; squarish in shape. Well adapted for shipping as fresh fruit to distant markets. Leaves spiny.

**Kona Sugarloaf** 5-6 lbs, white flesh with no woodiness in the center. Cylindrical in shape, it has a high sugar content but no acid. An incredibly delicious fruit.

**Natal Queen** 2-3 lbs, golden yellow flesh, crisp texture and delicate mild flavor. Well adapted to fresh consumption. Keeps well after ripening. Leaves spiny.

**Perambuco (Eleuthera)** 2-4 lbs with pale yellow to white flesh. Sweet, melting and excellent for eating fresh. Poorly adapted for shipping. Leaves spiny.

### Pineapple Grows On Mainland

Eighty years since disease wiped out the last crop, pineapples again will be harvested in Florida early next year. Miami growers have grown the "Queen Victoria" variety on 20 acres from 600,000 seedlings. In 1995, the variety accounted for just 2% of all pineapple production and was grown only in Mauritius and French islands in the Indian Ocean. Queen Victoria is the only variety grown on the U.S. mainland. It boasts a sweet taste and small size, which eliminates the need to core the fruit before serving.

# THE PLANTING OF THE APPLE TREE

WILLIAM CULLEN BRYANT

Come, let us plant the apple tree,  
Cleave the tough greensward with the spade;  
Wide let its hollow bed be made;  
There gently lay the roots, and there  
Sift the dark mold with kindly care  
And press it o'er them tenderly  
As, round the sleeping infant's feet,  
We softly fold the cradle-sheet:  
So plant we the apple tree

What plant we in this apple tree?  
Buds, which the breath of summer days  
Shall lengthen into leafy sprays;  
Boughs where the thrush, with crimson breast,  
Shall haunt and sing and hide her nest;  
We plant upon the sunny lea  
A shadow for the noontide hour,  
A shelter from the summer shower,  
When we plant the apple tree.

What plant we in this apple tree?  
Sweets for a hundred flowery springs  
To load the May wind's restless wings  
When from the orchard-row he pours  
Its fragrance through our open doors,  
A world of blossoms for the bee,  
Flowers for the sick girl's silent room,  
For the glad infant sprigs of bloom,  
We plant with the apple tree.

What plant we in this apple tree?  
Fruits that shall swell in sunny June  
And redden in the August noon  
And drop, when gentle airs come by  
That fan the blue September sky,  
While children come with cries of glee  
And seek them where the fragrant grass  
Betrays their bed to those who pass  
At the foot of the apple tree.

And when above this apple tree,  
The winter stars are quivering bright  
And winds go howling through the night,  
Girls, whose young eyes o'erflow with mirth,  
Shall peel its fruit by cottage-hearth;  
And guests in prouder homes shall see,  
Heaped with the grape of Cintra's vine  
And golden orange of the line,  
The fruit of the apple tree.

The fruitage of this apple tree  
Under our flag of stripe and star  
Shall sail to coasts that lie afar,  
Where men shall wonder at the view  
And ask in what fair groves they grew;  
And sojourners beyond the sea  
Shall think of childhood's careless day  
And long, long hours of summer play  
In the shade of the apple tree.

Each year shall give this apple tree  
A broader flush of roseate bloom,  
A deeper maze of verdurous gloom,  
And loosen, when the frost-clouds lower,  
The crisp, brown leaves in thicker shower.  
The years shall come and pass, but we  
Shall hear no longer, where we lie,  
The summer's songs, the autumn's sigh,  
In the boughs of this apple tree.

And time shall waste this apple tree.  
Oh, when its aged branches throw  
Thin shadows on the ground below,  
Shall fraud and force and iron will  
Oppress the weak and helpless still?  
What shall the tasks of mercy be  
Amid the toils, the strifes, the tears  
Of those who live when length of years  
Is wasting this little apple tree?

"Who planted this old apple tree?"  
The children of that distant day  
Thus to some aged man shall say;  
And, gazing on its mossy stem,  
The gray-haired man shall answer them:  
"A poet of the land was he,  
Born in the rude but good old times;  
'Tis said he made some quaint old rhymes,  
On planting the apple tree."

## DNA IDENTIFICATION OF STONE FRUIT WILL TAKE THE GUESSWORK OUT OF DETERMINING VARIETY

by Evelyn Troughton

T. J. Burnham reported in the September 1997 issue of *The Grower* that stone fruit varieties are now being identified by DNA. Fred Bliss, University of California pomologist, has been conducting research at the UC-Davis Laboratory for Genetic Identification of Fruit and Nut Varieties. His work has involved using isozyme molecular markers and, soon, DNA markers.

Questions over the identity of trees and their fruit have been asked by people in agriculture who want to be sure they are using the varieties they think they are. With new varieties moving into the market at a faster frequency, the identity of fruit is apt to be confused. Bliss offers this service at \$15 to \$20 per sample.

Identification of fruit cultivars has been produced via the isozyme (enzyme protein) assay method. "Within a year we'll be using DNA tests for this purpose and that means it will be possible to provide even greater accuracy for far more precise tests" Bliss said.

Using DNA is important because variation for plant isozymes is not adequate in many cases to distinguish between all the new varieties emerging in the current market. DNA markers will provide greater variability even among closely related varieties, and environmental factors (heat and drought) will have little significance in findings. There is DNA in every single tissue that can be used, whereas certain isozymes may be tissue-specific.

Bliss says that he knows of no other lab offering this service, although there are private companies offering a similar service for vegetables and field crops. The lab also offers nut crop and strawberry identification, and works with rootstocks as well as scion tissue and crop samples.

Bliss said that with fewer cultivars growers could pretty much tell what they had by looking at the visual characteristics such as fruit size, color or the shape of the tree. But these simple solutions are no longer practical because of the many varieties that may be inherently similar. The lab service also can identify trees that have not reached the stage when distinctive traits appear, or if their ID is obscured by environmental factors.

For more information, Bliss gave this phone number to call: (916) 752-4640 or e-mailed at [fabliss@ucdavis.edu](mailto:fabliss@ucdavis.edu).

Will they be able to ID apple varieties also? WCFS has been concerned that there may be a shortage of apple IDers - who is in training for this important function? It makes one wonder if in future Fall Fruit Shows we will be collecting samples and forwarding them on to California for identification rather than having the personal touch that we now enjoy.

## ALL NATURAL HERBICIDE INTRODUCED

by Evelyn Troughton

The Great Lakes Fruit Growers News reported last September that a Soil Technologies Corp., a developer of environmentally friendly products for crop protection, has released Dynaweed, an all natural preemergence weed control product.

Its active ingredient is a corn derivative which effectively inhibits the development of numerous grassy and broadleaf weeds.

In granular form, it will stop weed seed germination in perennial crops such as berries, grapes, herbs and ornamentals; it can also be used on transplanted crops.

Tests at Iowa State University from 1992 - 1995 showed Dynaweed provided weed control comparable to standard herbicides. Of 22 weed species screened for susceptibility, all showed reduced plant survival.

This product also provides an excellent source of nitrogen, according to the company. The granules are primarily protein and as they decompose they produce the effect of a 10-1-0 natural organic fertilizer.



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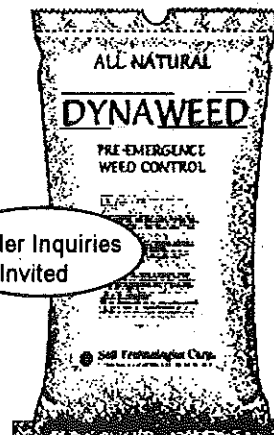
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Dealer Inquiries  
Invited

## FIRST HORT BOARD MEMBER FROM WESTERN WASHINGTON

by Geraldine Warner

Mount Vernon orchardist Alan Merritt is the first person from western Washington ever to serve on the board of the Washington State Horticultural Association in its 94-year history.

Some of the state's earliest orchards were planted in western Washington, where the climate is mild and wet. But since dams were built and irrigation projects formed in eastern Washington early this century, the bulk of the commercial production has been east of the Cascade Mountains.

Over the past couple of decades, a small, but significant apple industry has been growing in Skagit and Whatcom counties in northwestern Washington. There are about 25 growers with 500 acres of apples. Jonagold, a variety suited to cool climates, is the major variety.

For the past few years, Merritt has been chair of a group of western Washington orchardists called the Tree Fruit Advi-

sory Board, which helps define research projects and organizes meetings for growers. He is a graduate of Class 13 of the Washington Agriculture and Forestry Educational Foundation's leadership program.

Merritt, with 80 acres, is one of the largest apple growers in western Washington. He has been elected to the Hort Association board to represent an area defined as all of Washington State outside of the Yakima and Wenatchee districts. He succeeds Gordon Lowell of Mattawa, in the Columbia Basin.

Merritt grows mainly Jonagold, along with Gravenstein, Gala and several other varieties. Most growers in northwestern Washington grow several varieties in an attempt to spread their risks, he said.

This article, in its entirety, appeared in the January 15, 1998 issue of Good Fruit Grower. You may wish to visit their Web site at: <[www.goodfruit.com](http://www.goodfruit.com)>

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### MORE PUBLICATIONS OF INTEREST

#### Directory of Apple Cultivars Review by Chuck Parkman

This first edition was published in 1994 by the Agroforestry Research Trust in England. There are 234 pages describing 2,640 varieties available commercially in England and North America. The descriptions are separated into dessert, cooking, hard cider and crab apple categories.

Each dessert and crabapple variety shows picking dates, ripening dates, flowering dates, diseases and pests, fruit description, flesh description, tree vigor, parentage and origin.

Each cooking apple variety shows picking dates, ripening dates, flowering dates, diseases and pests, fruit description, flesh description cooking qualities, tree vigor and origin.

Each hard cider apple variety shows picking date, ripening dates, flowering dates, diseases and pests, fruit description, flesh description, cidr apple category-sweet, bittersweet, bitter sharp or sharp, tree vigor and origin.

I checked my list of 235 apple varieties in my orchard with the listings in the book and could not find 32 varieties which I have in my orchard, so the book is not all inclusive on varieties.

The price of £15.00, or \$25.00 is much less than the \$150 price of the Brooks and Olmo's Fruit Varieties Register book that is published by the American Society for Horticultural Science, but is probably not as complete. The directory is legal size pages held together by a plastic spiral holder that will result in some pages coming loose with use and time.

Postage would be about £5 or \$8.25 I shopped around with banks, fees for drafts in pounds would be from \$3 - \$7

**Chestnuts: Production and Culture £8** A complete guide to growing chestnuts, mainly for nut production but includes coppice production. Subjects covered (in 52 pages) species; silviculture and coppice; flowering and pollination; nut types and uses; rootstocks; mycorrhizas; planting; intercrops; pruning; feeding and irrigation; production and harvesting; processing of nuts; diseases and pests; propagation; chestnut cultivars in Europe and North America; cultivars for the UK; sources-nurseries, equipment suppliers, etc. The first comprehensive guide to chestnut cultivation in the English language, this is essential reading for anybody interested in growing chestnuts on a small or large scale.

**Directory of Pear Cultivars £10** This comprehensive directory (100 pages) describes literally hundreds of pear varieties including all those available in Britain, also Perry pears and Asian pears. Like the Apple directory, it contains descriptor lists of varieties recommended for particular situations, and in the main directory section describes individual varieties. A must for all pear enthusiasts.

**Plums: Production, Culture and Cultivar Directory £10** This is a comprehensive 60 page guide to growing plums, including the different plum species, also bullaces, damsons and mirabelles. Includes descriptions of all the different plum species, a minor plums cultivar list, the cherry plum, rootstocks; Cultivation of European plums including siting, pollination, pruning, harvesting, pests and diseases; European cultivar selection which includes tables of flowering characteristics, descriptor lists of cultivars for specific situations, and descriptions of over 250 cultivars; cultivar descriptions of bullaces, damsons and mirabelles; and sources. A must for all plum growers.

The above descriptions are taken from the catalog

If you are interested in ordering any of the above publications, contact the Evelyn Troughton. Address, etc. on page 26

## 1997 FALL FRUIT SHOW REVISITED

The 1997 Fall Fruit Show on October 25 and 26 drew 632 fruit lovers. The lectures were well attended, some had standing room only. The apple IDers from our sister organization in Oregon, the Home Orchard Society, were kept busy. Valle Lunzmann of the B. C. Fruit Testers Association was also doing apple ID. We are always glad to see these folk.

There were fruit displays by members. The tasting table had varieties of apples as well as

Chuck Parkman of Peninsula Fruit Club demonstrated how to prepare a pineapple for serving and also how to grow a pineapple plant. He had a "Fruit Fact" handout on pineapple reprinted on page as promised to those attending the demonstration.

The commercial exhibitors had interesting displays that drew a lot of interest.

The annual raffle for the cider press drew additional interest as there were several other items donated by individuals and businesses.

The following pages contain Dave Battey's excellent report on the inventory of apples grown by WCFS members and displayed at the show. It is interesting to compare the number of plates of a given variety displayed from year to year. Thank you for all your work, Dave.

## AND THE WINNERS ARE

Correll Cider Press  
Mary McCartney  
Dormant Foliar Leaf Spray -donated by Steubers Dist Co  
Judy Pearson  
Jon Maio  
Don Lawson  
Dave Battey  
P. H. Stokes  
Tools donated by Wilson Irrigation & Orchard Supply  
8" Straight Tiger Tooth Folding Saw-T. T. Thorson  
8" Bypass Pruner-J. Zenor  
1 quart Honey-donated by Normandy Park Honey Co.  
Vagn Jensen  
Mason Orchard Bee Condo-donated by Ray Elder  
R. G. Harrington  
Dick Marquardt  
Field Jacket-donated by John Curry  
Addie H.  
Chestnuts-donated by Marlene Falkenbury  
Dave Kurz  
Trees -donated by Leonard Jessen  
Fig Tree-Margaret Allen  
Grape Vine-Alexandra Rust  
Lemon Guava-Ann Brink

Many thanks to the donors of raffle items.

## NEWS FROM THE CHAPTERS

Olympic Fruit Club had a very successful Fruit Festival on November 1. There were approximately 675 attendees. The taste testing table had 75 trays of apples and pear, Mt Vernon Research Station provided 78 trays of apples and pears.

Displays by members:

Chuck Parkman -155 trays of apples, pears, nuts, etc  
Larry Barello 40 -trays of apples, pears, quince, nuts, etc  
Charles Marr -15 trays of apples, figs, persimmons, etc  
Tom Santos -15 trays of apples, figs, persimmons, etc  
Stan Johann -7 trays of apples  
John Parker -Tray of kiwi  
Eric Simpson -apples  
Lois Twelve -apples

John Parker did apple identification, and 35 apple pies were baked and sold by slices.

Congratulations to Olympic Fruit Club.

Wish there was more to fill this space, but maybe next time.

**SEE YOU AT THE SPRING MEETING  
BRING YOUR CHAPTER NEWS FOR NEXT ISSUE**

## THIS IS WHAT YOU WANT FROM WCFS on second thought, retitled THIS IS WHAT WCFS NEEDS FROM YOU TO GIVE YOU WHAT YOU WANT FROM WCFS

Requests and comments sent in on the survey with membership renewal are interesting and workable. But you, yes **YOU**, WCFS member and reader of *The Bee Line*, are needed to help make it work.

Chapter presidents, I can't tell the rest of the membership what you are doing if you don't communicate. We like to hear your success stories, and if you have failures, we need to hear about them so we can offer help.

Requests include members experiences, this is where you have to help, by communicating your experiences to me so I can put it in the newsletter.

What are the other members growing? what size is their property? acreage or a city lot?

Summer apple varieties                      pruning non-apple trees  
Tart apples for hard cider                      pear cider  
and there is more, which we'll publish next issue

Someone requested certain speakers, well come to the Spring Meeting and Sale or Fall Fruit Show, they are there!

# WESTERN CASCADE FRUIT SOCIETY 1997 FRUIT SHOW INVENTORY

Submitted by Dave Battey

The list on the following pages is an inventory of the number of "plates" of a specific apple variety displayed at our 1997 show. There were 230 different varieties (including "sports") shown, which included 66 "new" varieties denoted by an asterisk (\*) which identifies a variety that was not shown in 1996 (It may very well have been shown in a previous year).

Recognize that our inventory list is skewed toward mid to late ripening varieties. Early apples may not "keep" well enough to appear in our Fall Fruit Show. Historically: There were 216 varieties (including "sports") shown in the 1996 show, including 66 varieties not shown in 1995.

There were 251 varieties (including "sports") shown in the 1995 show, including 52 varieties not shown in 1994. There were 356 varieties (including "sports") shown in the 1994 show, including 125 varieties not shown in 1993. There were 276 varieties (including "sports") shown in the 1993 show, included 80 varieties not shown in 1992. There were 333 varieties (including "sports") shown in the 1992 show, included 140 varieties not shown in 1991. There were 218 varieties (including "sports") shown in the 1991 show, includes 47 varieties not shown in 1990.

## Varieties with five plates or more (including "sports"):

### 1997 —

Cox's Orange (15)	Bramley (6)	Burgundy (5)
Gala (12)	Honeycrisp (6)	Fiesta (5)
Liberty (10)	Kidd's Orange Red (6)	Freyberg (5)
Jonagold (9)	Melrose (6)	Holstein (5)
Elstar (8)	Spartan (6)	Hudson's Golden Gem (5)
Gravenstein (8)	Sweet Sixteen (6)	Macoun (5)
Fuji (7)	Akane (5)	Northern Spy (5)
Ashmead's Kernel (6)	Belle de Boskoop (5)	Tompkin's King (5)

### 1996 —

Cox's Orange (12)	Elstar (7)	Macoun (5)
Gala (10)	Belle de Boskoop (6)	Sweet Sixteen (5)
Jonagold (9)	Melrose (6)	

### 1995 —

Jonagold (11)	Karmijn de Sonneville (7)	Freyberg (5)
Elstar (8)	Melrose (7)	Fuji (5)
Bramley (7)	Spartan (7)	Idared (5)
Cox's Orange (7)	Ashmead's Kernel (5)	
Gala (7)	Belle de Boskoop (5)	

### 1994 —

Jonagold (12)	Hudson's Golden Gem (7)	Spartan (6)
Gala (11)	Karmijn de Sonneville (7)	Bramley (5)
Liberty (10)	Arlet (6)	Chehalis (5)
Fuji (9)	Golden Delicious (6)	Elstar (5)
Cox's Orange (8)	Idared (6)	Golden Russet (5)
Melrose (8)	Macoun (6)	Keepsake (5)
Mutsu (8)	McIntoch (6)	Tompkin's King (5)
Northern Spy (8)	Opalescent (6)	

### 1993 —

Spartan (10)	Gala (7)	Arlet (5)
Cox's Orange (8)	Tompkin's King (7)	Gravenstein (5)
Jonagold (8)	Liberty (6)	Macoun (5)
Belle de Boskoop (7)	Spigold (6)	Melrose (5)

**1997 WCFS FRUIT SHOW VARIETY LIST**  
**NUMBER FOLLOWING VARIETY NAME IS NUMBER OF PLATES DISPLAYED**  
 (\*=NOT ON 1996 LIST)

**APPLES**

ACEY MAC 2  
 ADAMS PEARMAIN 1  
 AKANE 4  
 ALASKA 1\*  
 ALKAMENE 3  
 ALKAMENE (RED) 1  
 ARLET (SWISS GOURMET) 4  
 AROMA 3  
 ASHMEAD'S KERNEL 6  
 BELLE DE BOSKOOP 2  
 BELLE DE BOSKOOP (RED) 3  
 BEN DAVIS 1  
 BLENHEIM ORANGE 3  
 BLUE PEARMAIN 1  
 BOGO DE BOSKOOP 1  
 BRAEBURN 3  
 BRAMLEY SEEDLING 6  
 BREakey 1\*  
 BROCK 3  
 BROWNS APPLE 1\*  
 BULMER'S NORMAN 1\*  
 BURGUNDY 5  
 BURNING COALS 1\*  
 CALVILLE BLANC D'HIVER 1  
 CAMEO 2\*  
 CANADA RED 1  
 CARPENTIN 1  
 CHEHALIS 2  
 CHENANGO STRAWBERRY 1\*  
 CHESTNUT CRAB 2  
 CHISEL JERSEY 1\*  
 CHRISTMAS 1\*  
 CINNAMON SPICE 2\*  
 CLAYGATE PEARMAIN 1\*  
 COLLAMAR 1\*  
 COOP-25 1  
 CORDEL 2\*  
 CORNISH GILLIFLOWER 2  
 COURT PENDU PLAT 2  
 COW JERSEY 1\*  
 COX, CHERRY 2  
 COX, KUMMER 1  
 COX, CORVALLO 2  
 COX'S ORANGE PIPPIN 6  
 COX, QUEEN 3  
 COX (RED) 1  
 DALITER (ELSTAR SPORT) 2  
 DALIEST (ELSTAR SPORT) 2  
 DAVEY 1  
 DAVIES 1  
 DAYTON 1\*  
 DEACON JONES 1\*  
 DEMOCRAT 1  
 DISCOVERY 1\*

DULCET 2  
 DUTCH MIGNONNE 2\*  
 EARLY DAWN 2\*  
 EDWARD VII 2\*  
 EGREMONT RUSSET 4  
 ELLISON'S ORANGE 1  
 ELSTAR 4  
 EMPIRE 1  
 EMPIRE (THOME) 1\*  
 EMPRESS (NY651) 1\*  
 ENTERPRISE (COOP30) 1  
 ESOPUS SPITZENBURG 1  
 FALL WINE 2  
 FAMEUSE 3  
 FIESTA 5  
 FIRESIDE 1  
 FLORINA 2\*  
 FORTUNE (NY429) 3\*  
 FOXWHELP 1\*  
 FREEDOM 2  
 FREYBERG 5  
 FUJI 4  
 FUJI (RED) 3  
 GALA 4  
 GALA (KIDDS) 1\*  
 GALA (RED) 1\*  
 GALA (REGAL) 1  
 GALA (ROYAL) 3  
 GALA (SCARLET) 2  
 GENEVA EARLY 1  
 GERMAN APPLE 1\*  
 GINGER GOLD 5  
 GOLDEN DELICIOUS 1  
 GOLDEN GLORY 1\*  
 GOLDEN NUGGET 2  
 GOLDEN RUSSET 3\*  
 GOLDEN SUPREME 2\*  
 GOLDEN SWEET 2\*  
 GOUDREINETTE (SEE BELLE DE BOSKOOP)  
 GRANNY SMITH 2  
 GRAVENSTEIN 6  
 GRAVENSTEIN (RED) 2  
 GREENSLEEVES 2  
 ?HAROLDSON RED 1\*  
 HARRY MASTER'S JERSEY 1  
 HATSUAKI 2  
 HAWAII 3  
 HENER-20 1  
 HERFORDSHIRE  
 REDSTREAK 1\*  
 HEYER 1\*  
 HIBERNAL 1\*  
 HIGHLAND 1\*  
 HOLSTEIN 5  
 HONEYCRISP 6

HUDSON'S GOLDEN GEM 5  
 IDARED 4  
 INGRID MARIE 2  
 JESTER 2  
 JONAGOLD 5  
 JONAGOLD (JONAGORED) 2  
 JONAGOLD (RED) 1  
 JONAGOLD (WILMUTA) 1\*  
 JONAMAC 1  
 JONATHAN 1  
 JONWIN 2  
 KANDIL SINAP 1  
 KARMIJN DE SONNEVILLE 6  
 KEEPSAKE 1  
 KENT 1\*  
 KERR (CRAB) 1\*  
 KESWICK CODLIN 2  
 KIDD'S ORANGE RED 6  
 KING (SEE TOMPKIN'S KING)  
 KINGSTON BLACK 1\*  
 KIRBY 1\*  
 LIBERTY 10  
 MACOUN 5  
 MAIDEN BLUSH 1\*  
 MAIGOLD 2\*  
 MANTET 1\*  
 MCINTOSH 3  
 MCINTOSH (MARSHALL) 1\*  
 MELROSE 6  
 MERTON DELIGHT 2  
 MINNESOTA 1734 1\*  
 MONARCH 1\*  
 MOTHER 1\*  
 MUTSU 3  
 NEWTOWN PIPPIN (SEE YELLOW NEWTOWN)  
 NEWTOWN SPITZENBURG 3  
 NEW YORK-347 1\*  
 NEW YORK 415 1\*  
 NEW YORK-429 1 (SEE FORTUNE)  
 NEW YORK-75413 1\*  
 NITTANY 2\*  
 NORTHERN SPY 4  
 NORTHERN SPY (HALL) 1  
 NOVAMAC 2  
 NOVA EASYGROW 4\*  
 NUGGET 1\*  
 OPEL 2\*  
 OPALESCENT 4  
 OREI 1  
 ORENCO 1  
 ORIOLE 1\*  
 ORLEANS REINETTE 2  
 OSWEGO 2  
 OZARK GOLD 1\*  
 PALOUSE 2



PARK DALE BEAUTY 1  
PINK LADY 1\*  
PINK PEARL 2  
PINK SUGAR 1\*  
PITMASTON PINEAPPLE 1  
PORTER 1  
PORTERS PERFECTION 2\*  
PRIMA 4  
PRIMEGOLD 3  
RAMBO 1  
RED BARON 2\*  
REDCORT 2  
REDMAX 2  
REIN DES POMMES 2\*  
REINETTE GRISE DU  
CANADA 1\*  
RHODE ISLAND GREENING 2  
RIBSTON PIPPIN 2\*  
ROXBURY RUSSET 2\*  
RUBINETTE 1\*  
SANS A 1  
SAYAKA 2  
SCHWEIZER ORANGE 1\*  
SEKAI-ICHI 1  
SENSHU 2\*  
SIERRA BEAUTY 2  
SINTA 2  
SLIPPERY CIDER 2  
SLOUGH SEEDLING 1\*  
SNOW (SEE FAMEUSE)  
SPARTAN 6  
SPIGOLD 3  
SPOKANE BEAUTY 1\*  
STARK JUMBO 1  
STEARNS 2  
STELLAR (AA62) 1  
STOKES RED CIDER 1\*  
SUGAR SWEET 1\*  
SUMMERRED 1  
SUNDOWNER 2\*  
SUNRISE 2  
SUNSET 2  
SUNTAN 4\*  
SWEET COPPIN 1  
SWEET SIXTEEN 6  
TOLLMAN SWEET 2\*  
TOMPKIN'S KING 2\*  
TOMPKIN'S KING (RUSSET) 2  
TRANSCENDENT CRAB 1  
TSUGARU HOMEI 2  
TSUGARU NATSUKA 2  
TWENTY OUNCE 1  
TYDEMAN'S LATE ORANGE 3  
TYDEMAN'S RED 1\*  
VIKING 1\*  
VIRGINIA GOLD 1  
WASHINGTON  
STRAWBERRY 1\*  
WAYNE 1\*  
WHITE WINTER PEARMAIN 1  
WICKSON (CRAB) 2  
WILLIAMS 1\*

WILLIAM'S PRIDE 2  
WINTER BANNANA 2  
WINTER REDFLESH 1\*  
WINTERSTEIN 1  
WORCESTER PEARMAIN 1\*  
WOLF RIVER 2\*  
YARLINGTON MILL 1  
YELLOW BELLFLOWER 2  
YELLOW DELICIOUS 1\*  
YORK IMPERIAL 2\*  
YOUNG AMERICA (CRAB) 1\*  
ZABERGAU REINETTE 1

#### PEARS

ABBE FETAL 1\*  
ANJOU 2  
A-RI-RANG 1  
BARTLETT 1  
BARTLETT (RED SENSATION) 1  
BARTLETT (RED) 2  
BEAR CREEK BORDEAU 1  
BEAR CREEK BOSC 1\*  
BENNET 1\*  
BEURRE LEBRUN 1\*  
BOSC 2  
BOSC BRONZE BEAUTY 1\*  
BOSC GOLDEN RUSSET 1\*  
BROCK 1\*  
CHOJURO 4  
COLLETTE 1  
COMICE 2  
CONCORD 2  
CONFERENCE 3  
ELDORADO 2  
FLEMISH BEAUTY 2  
FORELLE 1\*  
FOSUI 1\*  
HARROWS DELIGHT 1\*  
HIGHLAND 2  
ICHIBAN-NASHI 1  
KOREAN GIANT 1\*  
KOSUI 1\*  
MAXINE 1\*  
MISHIRASU 2  
MOONGLOW 1\*  
NEW YORK-10274 1\*  
OLYMPIC 1\*  
ORCAS 2  
ORIENT 1\*  
PACKHAM'S TRIUMPH 1  
RESCUE 2  
ROOSEVELT 1  
SECKEL 2  
SENSATION (RED) -SEE BARTLETT  
SHINSEIKI 4  
SHINSUI 1\*  
SIERRA 1  
SIRRINE 1  
STARKRIMSON 1

TWENTIETH CENTURY 2  
(NIJISSEIKI)  
WINTER NELLIS 1\*  
YA LI 1\*  
YOINASHI 2  
YOKO SUCHI 1\*  
YONGI 2

#### CHERIMOYA - 1

#### FIGS

KADOTA 1

#### GRAPES

CAMPBELLS EARLY (ISLAND  
BELLE) 1\*  
CANADICE 1  
HIMROD 1  
NIAGARA 1\*  
VAN BUREN 1\*

#### KIWI

ANANASNAJA 2\*  
ELMWOOD 1  
ISSAI 1\*  
VINCENT 1

#### LEMON

EUREKA 1\*

#### NUTS

BACELONA FILBERT 1  
CASCADE WALNUT 1  
CHEPAKA WALNUT 1  
DAVIDIANA FILBERT 1  
LENS WALNUT 1\*

#### PAW PAW - 2\*

SAPOTE  
NETTIE 1\*

#### QUINCE

BOURGEAT 1\*  
ORANGE 1  
SMYRNA 1\*

## 1997 WCFS OFFICERS AND BOARD MEMBERS

### OFFICERS

JOE ZEPPA, President	206-524-8943	7014 58th Ave NE	Seattle	98115
CHUCK HOLLAND, Secretary	206-523-8350	6831 35th Ave NE	Seattle	98115
EVELYN TROUGHTON, Treasurer	206-282-6191	2625 13th Ave W #306	Seattle	98119

### BOARD OF DIRECTORS

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1999

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2000

SALLY MUSSETER	206-283-7495	2018 Warren N	Seattle	98109
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\*Co-Presidents

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If your address label has the renewal date highlighted in **RED**, this is your last newsletter  
 if it is highlighted in **YELLOW**, your membership dues are delinquent  
 if it is highlighted in **GREEN** your dues are payable before the next newsletter

The Bee Line is the newsletter of the Western Cascade Fruit Society.  
 It is published quarterly; January, April, July and October and is included with membership.

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**NEXT NEWSLETTER APRIL 1998**

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## WE WANT TO HEAR FROM YOU

Your Board of Directors needs guidance, as does your newsletter editor. So we are trying to make it easier for you. As you renew your membership, or if you choose not to renew, would you let us know what you think. You may respond even though your membership is not due for renewal!

Do you like the 2 column format? Yes \_\_\_\_\_ No \_\_\_\_\_ Didn't notice \_\_\_\_\_ Doesn't matter \_\_\_\_\_

What would you like to read about? \_\_\_\_\_

Please be specific use a separate sheet if you need to  
What changes would you make in The Bee Line? \_\_\_\_\_

What changes would you like to see at the Fall Fruit Show? \_\_\_\_\_

What changes would you suggest for the Spring Sale/Meeting? \_\_\_\_\_

What topics for speakers? \_\_\_\_\_

Is there a particular speaker you would like to have? No \_\_\_ Yes \_\_\_ Name \_\_\_\_\_

How else can we help the home orchardist? \_\_\_\_\_

What area do you have for planting, acreage or city lot? \_\_\_\_\_

Any other comments? \_\_\_\_\_

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### WESTERN CASCADE FRUIT SOCIETY MEMBERSHIP INFORMATION

Please indicate standard WCFS membership or affiliation with a chapter. Dues are as noted.

Name(s) \_\_\_\_\_  New  
 Renewal

Street Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Phone \_\_\_\_\_ PLEASE SPECIFY ONE CATEGORY BELOW

_____ Member at Large	\$10.00	_____ Seattle Tree Fruit	\$18.00
_____ North Olympic	\$10.00	(includes monthly newsletter)	
_____ Peninsula-Kitsap	\$10.00	_____ South Puget Sound	\$10.00
_____ Piper Orchard	\$10.00	_____ Tahoma	\$10.00
_____ Donation for Western Washington fruit research at Mt. Vernon			

#### HOW CAN YOU HELP THIS YEAR? PLEASE CIRCLE AS MANY AS POSSIBLE

BOARD MEMBER    FALL FRUIT SHOW    COMMITTEE CHAIR    FIELD TRIPS    SPRING MEETING

ARRANGING FOR SPEAKERS    NEWSLETTER MAILING    OTHER \_\_\_\_\_

#### TELL US YOUR FRUIT INTEREST, SO WE CAN PUBLISH ARTICLES OF INTEREST FOR ALL

Apples Pears Peaches Plums Cherries Kiwis Nuts Berries Other: \_\_\_\_\_

Make checks payable to **WESTERN CASCADE FRUIT SOCIETY** and mail to:  
WCFS Treasurer, 2625 13th Ave W - Unit 306, Seattle, WA 98119-2054

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YOU'LL FIND IT HERE!**

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