



The Bee Line

NEWSLETTER OF

WESTERN CASCADE FRUIT SOCIETY
A NON-PROFIT EDUCATIONAL ORGANIZATION

Volume 20 Number 1

Winter 1999

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

19th ANNUAL SPRING MEETING

ROOTSTOCK AND SCION WOOD SALE

SATURDAY MARCH 6

9:30 a.m. to 3:30 p.m.

A MESSAGE FROM OUR PRESIDENT, ED JONES

and FROM STEVE JACKSON

Happy New Year to all. Your WCFS Board is looking forward to the new year with much enthusiasm. As you read this newsletter you will discover that most of the planning has been accomplished or is in the process for the Spring Event.

This is a time where you meet old and new acquaintances. If you are looking for something special to buy or a tree you would like to graft or have grafted, you can't find a better buy. Come and get involved as this is your organization, teaching others and having a great time.

The planning is also under way for the 1999 Fall Fruit Show. If you missed the one in 1998 at Tuckwilla you missed a real nice show. It was a new facility but we had a good showing with great speakers.

Now it is my turn to ask all Chapter officers to come to our board meetings, help plan the activities, get involved. Remember, this is your organization. Also if you have any thing you specialize in come and share with us. Above all you are needed for your input to help with your ideas and with the planning. WCFS is a great organization but it takes all of us to keep it going that way.

One of the more remarkable aspects of fruit growing is the personal connection to the seasons it brings. Each season of the year offers its own special interests and activities. In summer the trees are in full growth. In fall comes the harvest of fruit. In winter the trees undergo needed cold rest. And in the springtime it is time for the **WCFS SPRING MEETING, SCION WOOD EXCHANGE AND ROOTSTOCK SALE!!!**

Truly the WCFS Spring Meeting, Scion Wood Exchange and Rootstock Sale has something for everyone. A mixture of old-time Grange Spring Social, down-to-earth Farm Coop savings on rootstock, and over the back fence neighborly exchange of scion wood, it is one of this regions most unique seasonal offerings. And you make it happen!

Please mention to a friend about the WCFS Spring Meeting. In this modern day rush rush wall-to-wall ever growing parking lot world, it's nice to be able to take a break and get back down to earth. And in this day and age, few things are more down to earth than the WCFS Spring Meeting, Scion Wood Exchange and Rootstock Sale.

We have scaled back overall numbers of rootstock due to decreased sales in the last two years. although there will be a good supply of rootstock available, please order early to avoid any possible disappointments.

I want to thank everyone for your support of the 1999 WCFS Rootstock Sale. If you have any questions on the most appropriate rootstock or the like, please don't hesitate to call (425) 868-8344 (after 6 p.m. is best).

DATES TO REMEMBER

February 17-21	Northwest Flower & Garden Show
March 6	WCFS Annual Spring Meeting
April 16 -18	Puyallup Spring Fair

**WESTERN CASCADE FRUIT SOCIETY
19th ANNUAL SPRING MEETING
ROOTSTOCK AND SCION WOOD SALE**

**SATURDAY MARCH 6, 1999
AT
UNITED METHODIST CHURCH
1919 Pioneer Ave SW
Puyallup**

\$2.00 DONATION

LOTS OF FREE PARKING

- 9:00 a.m. Registration - coffee and donuts
- 9:30 a.m. 19th Annual Meeting: President's report; Treasurer's report;
Election of Directors, Life Membership award
- 10:00 a.m. Mary Robson "Calendar for Successful Fruit Tree Maintenance"
- 11:00 a.m. Jacky King "Disease Resistant Ornamental Crab Apples"
- 12:00 noon Lunch Break—bring your own
- 1:00 p.m. T.K. Panni "Late Winter Pruning"
- 2:00 p.m. Ray Elder "Orchard Mason Bees"
- 3:30 p.m. Board of Directors Meeting—all members welcome

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

DIRECTIONS:

Northbound I-5 take exit 127, Hwy 512 east to Puyallup. take Meridian St exit to Pioneer, go west to 19th St NW, church is on right.

Southbound on Hwy 167 exit onto Hwy 512/162 to Puyallup, take Pioneer W exit, left on Pioneer W, go to 19th St NW, church is on right.

Southbound on I-5 take exit 142B, turn right then left onto Enchanted Parkway/161. It becomes Meridian St in Pierce Co.—follow it to Pioneer St, turn right go to 19th St NW, church is on right. (This is the "scenic route!")

1999 ANNUAL SPRING MEETING AND SALE

CAN YOU HELP HERE?

On the day before the sale, Friday March 5 from noon till?-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
- 3) As a cashier-2 or more needed
- 4) Demonstrate grafting techniques
- 5) At registration, membership, education tables

WHO TO CONTACT

Set-up: Carmen Franco (253) 565-2908
 Rootstock: Steve Jackson (425) 868-8344
 Scion Wood: Carmen Franco (253) 565-2908
 Other areas: Evelyn Troughton (206) 282-6191

Remember—it is easier -and very kind- for the volunteer to make the contact than for the contact person to call many prospective volunteers to find **YOU**.

SAVE YOUR SCION WOOD

Carmen Franco, in charge of scion wood sales, says it is not too early to start thinking about saving your scion wood for the sale. 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. Carmen 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 counts), and specify fruit if it isn't apple (Frost Peach, Cornice 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 Carmen if you have any questions: (253) 565-2908 or mail to: 5015 E128th St, Tacoma, WA 98446-4915

LIFE MEMBERSHIP

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

In 1998 there were four members so honored: Ed Jones, Ron Schaevitz, Evelyn Troughton and Joe Zeppa. Previous years Life Members are David Battey, Nancy Jo Cushman, Paul Donaldson, Marlene Falkenbury, Aaron Haynes, Lyle Knudson, Emory Leland, Ed Lewis, Daphne Lewis, Walt Lyon, Bob Norton, John Parker, Chuck Parkman, Gerald Pate, Tom Perkins, Norm Schut, Bob Seatrap, Tom Thornton, Dick & Marilyn Tilbury, Orel Vallen, Paul Vander Hoek and Helen Zuelow.

To nominate a candidate, send a short resume of your nominee's activities that go above and beyond the norm to Ed Jones (address on page). If your nomination is accepted, you will be notified and asked to present this nomination at the general meeting on March 6. Please give a copy of the resume to the editor for publication in the next Bee Line.

WCFS NEEDS YOU

The Nominating Committee: T.K. Panni (425) 747-4541, Dick Tilbury (206) 723-9009 and Orel Vallen (206) 772-2119, would appreciate a call from any member who would be interested in serving on the Board. Elections will be held at the Spring Meeting.

ATTENTION NEW MEMBERS

In the Winter 1998 Bee Line were several articles on grafting. If there is enough - or any- interest in them, copies can be made and will be available at the education table. Send me an e-mail or fax, or a postcard or a phone call to let me know.

The education table will have pamphlets on many subjects of interest, including: Ten Best Apples, Educational Opportunities of Back Yard Orchardists, Disease and Insect Control, Educational Resources for Fruit Growers, and many more, at a small fee to cover printing cost..

Also for new members, I am reprinting the article on scion gathering.

ROOTSTOCK AVAILABLE

Rootstock	Diameter	% of standard seedling size	Species	Rootstock	Diameter	% of standard seedling size	Species
M9 337	1/4"		Apple	EM 111	1/4"	75%	Apple
EM 27	1/4"		Apple	St Julian A	1/4"		Plum, Peach, Apricot
Mark	1/4"	40%	Apple	OHxF333	1/4"		Pear
EM 26	1/4"	45%	Apple	BA29C	1/4"	55%	Provence Quince
EM 7	1/4"	55%	Apple				

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 6. 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 you check payable to WCFS to Steve Jackson 2330 229th Ave NE Redmond, WA 98053.

	Pre-order Price	March 6 Price
EM26, EM111, EM7, St Julian A	\$1.50 ea/10 or more \$1.25 ea	\$1.75 ea/10 or more \$1.65 ea
Mark, M9-337	\$1.75 ea/10 or more \$1.50 ea	\$2.00 ea/10 or more \$1.90 ea
OHxF333, BA29C	\$2.00 ea/10 or more \$1.75 ea	\$2.25 ea/10 or more \$2.15 ea
EM27	\$2.50 ea/10 or more \$2.25 ea	\$2.75 ea/10 or more \$2.65 ea



TYPE	NUMBER	COST EACH 1 to 9	COST EACH 10 or MORE	TOTAL
EM26		\$ 1.50	\$ 1.25	
EM7		\$ 1.50	\$ 1.25	
EM111		\$ 1.50	\$ 1.25	
St. Julian A		\$ 1.50	\$ 1.25	
Mark		\$ 1.75	\$ 1.50	
M9 337		\$ 1.75	\$ 1.50	
OHxF333		\$ 2.00	\$ 1.75	
BA29C		\$ 2.00	\$ 1.75	
EM27		\$ 2.50	\$ 2.25	
			SUBTOTAL	
			8.6 % TAX	
			TOTAL	

KNOW YOUR ROOTSTOCK: BUD 9

By Ron Perry MSU Dept. of Horticulture from Great Lakes Fruit Growers News

Everyone knows how the computer industry is in rapid dynamic change. Typically, you purchase the latest and fastest computer on the market that runs all the latest software. Six months later yours is average in capability and the software companies come up with their latest version that requires a speedier computer.

Frustrating? You bet. While the speed at which things change is slower in our fruit industry, it still is an applicable analogy. Not long ago M.26 and Mark rootstocks were being touted in some circles and bashed in others for their impact on the apple industry. Since then we have learned much about these two stocks and where they best fit into commercial apple enterprises.

The most confusing set of rootstocks that the apple grower has had to deal with lately are the M.9 clonal stocks. NC-140 researchers started testing many of these clones several years ago and we now have developed a better understanding of how these stocks, from Europe, fit into orchards in North American. Certainly the jury is still out on many of these and we are in the process of evaluating a whole new round of rootstocks in this and other vigor categories.

There is one rootstock in the M.9 vigor category that we can safely say has had adequate testing in Michigan and merits more than experimental application. That rootstock is Budagovsky 9 also know as Bud. 9 and B.9. Bud.9 came from the Michurinsk College of Agriculture in Russia. It has been tested in Michigan since 1984 in several trials and has been tested thoroughly in other states and Canadian provinces. Some of the general characteristics are as follows:

1. Hybrid of M.8 X Krasnij Standard (not a clone or strain of M.9).
2. Similar to M.9 in support requirement, vigor and productivity.
3. More cold hardy than M.9
4. Very resistant to *Phytophthora cactorum* (root rot).
5. Susceptible to fireblight, similar to M.9. Some lab studies indicate that it has slightly more tolerance

than M.9.

6. Scion varieties produce consistent cropping with good fruit size.

Vigor of trees of Bud.9 appear to fluctuate according to various reports. In some reports and many initial trials, Bud.9 appeared to be as vigorous as the most vigorous of the M.9 clones, M.9 EMLA (Quamme, et al., 1996). In Virginia, Barden (1995) reported trees to be slightly smaller than M.9 EMLA. Our experience in Michigan (Clarksville) is that Bud.9 is more similar to M.9 NAKB 337 and smaller than M.9 EMLA. (See Table 1.)

Notice that in these trials, trees on Bud.9 are similar in size to trees on Mark rootstock, and in some cases smaller than Mark. Vigor in these plots is affected by cropping. In the case of the seven year old trial with Gala, cumulative and average fruit size was superior on Bud.9 than all other stocks. In the orchard systems and rootstock trial, Jonagold and Empire produced more consistently than M.9 EMLA and to a certain extent, Mark rootstock. In other younger aged trials, productivity of Golden Delicious and Gala has not been different from M.9 EMLA and many of the other clonal M.9 stocks. Trees on the M.9 clones NAKB 337, EMLA and Nic (RN) 29 have thus far been impressive in productivity. In the Vertical Axe system, trees after seven years on M.9 EMLA have excellent balance of growth and productivity.

In summary, Bud.9 is more cold hardy than M.9 clones (Quame, et al, 1996), resistant to *Phytophthora* root rot and just as productive and susceptible to fireblight as M.9 clones. Given these characteristics Bud.9 is the best rootstock in this vigor category for commercial apple orchards in Michigan. Realize that in computers, a newer and better version of this style stock will likely be seen soon.

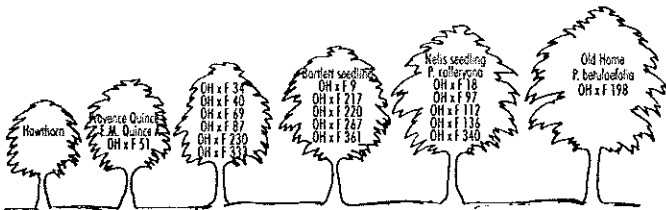
It will be a few years before the industry has the opportunity to evaluate G. 16 (from the Cornell-Geneva program), which is touted as a new M.9 style stock with resistance to fireblight, *Phytophthora* and wooly apple aphids. Until then, Bud.9 is a reliable rootstock that growers can trust.

Table 1. Relative vigor given in percent (trunk cross sec. area) of apple varieties in six trials at Clarksville in comparison to M.9 clones NAKB 337 or EMLA.

Scion	Gala	Golden	Golden	Gala	Empire	Jonagold
System	V Sys	HYTEC	Guttn V	HYTEC	SS	SS
Tree Age (yrs.)	4	5	5	7	7	7
M.9 EMLA	129	87	88	100	100	100
Bud.9	117	88	91	89	87	88
NAKB 337	100	100	100			
Mark	109	112	148	101	79	82

MORE ON ROOTSTOCK DOES PEAR ROOTSTOCK AFFECT FRUIT SIZE?

Recently, there have been questions raised as to whether or not seedling pear rootstocks will give you bigger pears than Old Home x Farmingdale rootstocks. In 1988, Mike Willett, at that time a WSU Cooperative Extension agent, did a NC-140 Yakima Valley Pear trial. He compared various OHxF roots (not including OHxF 97 or 87), with Bartlett seedling and Betulaefolia rootstocks. The trees were planted 10x16 (272 trees per acre). With this trial the trees were trained to central leaders with little pruning using Bosc and Bartlett. Accumulated yields per tree were calculated for 7 years with Bartlett production started in year two and Bosc production in year four.



Approximate relative size of pear cultivars on a number of clonal and seedling stocks. The special blight-resistant Old Home X Farmingdale (OH X F) clones were obtained from rooted dormant cuttings. [After Westwood, Lombard, and Bjornstad, 1976]

In this trial both trunk diameter and fruit size were measured. Trunk diameter did vary, but FRUIT SIZE DID NOT VARY. Current research by Tim Smith at WSU Research Station of Bartletts using seedling and OHxF 97 has not shown any differences in fruit size.

Cumulative Yield Yakima Valley NC-140 Pear Rootstock Trial 1989-1994

Rootstock	Yield (lbs/tree)	
	'Bartlett'	'Bosc'
'Bartlett' seedling	205.0	164.4
P Betulaefolia	225.9	176.5
OHXF 40	250.5	160.7
OHXF 217	245.6	189.3
OHXF 333	202.4	128.4
OHXF 339	156.5	93.3
OHXF 513	199.0	139.1

(N.W. Hort Council)

So what does affect fruit size and how should you base your decision of what and how to plant pears on what rootstock? There are at least six considerations in order to make that determination: orchard site, variety selection, tree density, soil type orchard management, training system, and irrigation system. Each of these are important and one choice may change another.

- 1) Orchard Site
 - a. Slope for air drainage
 - b. Elevation for growing season
 - c. Rainfall for fireblight concerns
- 2) Variety Selection
 - a. Bartletts and Bose do well in warmer, dryer areas
 - b. D'Anjou and Concorde" can be planted in cooler, wetter, higher-elevation areas
- 3) Tree Density
 - a. Variety
 - b. Rootstock
- 4) Soil Type
 - a. Depth of soil
 - b. Light/medium/heavy
 - c. Replant disease or lead arsenic
 - d. Soil treatment
- 5) Orchard Management
 - a. Clean cultivation, weed strip, grass or weed competition
 - b. Fertilization: single or multiple
- 6) Irrigation
 - a. Drip or micro
 - b. Conventional

WHAT'S NEW WITH PEAR ROOTSTOCKS?

Pyrodwarf® (var. Rhenus 1), is an Old Home x Bonne Louise cross made by Dr. Helmut Jacob at Research Station Geisenheim, Germany, in 1980. Pyrodwarf™ starts bearing in the 2nd leaf and produces a tree about 35% smaller than OHxF 333 (between Quince A and Quince C.) There is no significant reduction of fruit size and the trees reach full bearing in 5 years.

All of this research was done in Germany, so there will be trial plantings in Washington starting in 1999 and 2000 to see how well suited it is here. Trees grown in different areas and climates may differ in results.

This article was published in the Fall 1998 issue of Connection Quarterly, a publication "committed to providing concise educational information to help you stay up to date."

A NEW AND EXCITING ROOTSTOCK SUPPORTER™ 4 (VAR. PI 80 SELECT) USPPAF

New rootstocks keep coming at a mind-bending speed. They are essential choices for the orchardist who wants to stay in the lead and maintain production advantages. Much of the discussion of new rootstocks centers on the M9 strains or M9-size varieties. Very few new rootstock types have been offered in the M26-vigor range that have superior qualities to M26.

Attention in Europe has now turned to a rootstock called Supporter™ 4 (var. Pi 80 Select) usppaf. It was bred at the Pillnitz Research Station near Dresden, Germany in 1921. It is a cross of M9 and M4 and has been tested extensively in Eastern Europe. Since there has been little communication with Western European countries until the falling of the Berlin Wall, this root-stock was little known. The thrust of the rootstock research was to replace M9 and find selections that are less vigorous and more yield efficient. Two French nurserymen, Guy Ligonniere and Pierre Demol, were the first in Western Europe to explore the Supporter™ 4 rootstock. They identified a need for a rootstock that was more vigorous than M9. Subsequent rootstock trials sponsored by the French government were summarized in the publication "L'Arboriculture Fruitiere". No. 487, October 1995, and will be presented here.

This summary of the national rootstock trial in France yields data from 5 orchard sites over a five-year period. This trial is much like our NC-140 national rootstock trial. Resistance to Fire Blight and Collar Rot were tested, in addition to ease of propagation and suckering ability.

The results showed that the Supporter™ 4 roots very well in layer beds. It has a compact growth with little tendency for suckering. The trees are very uniform with little burknotting and overgrowth. The production and fruit size are similar to M 9 and the tree vigor is similar to M26.

Tree vigor is rated on an average of 11% to 14% more vigorous than M9 (Pajam™ 2 Cepiland selection). The data showed that with Golden Delicious in the 4th year, (Pajam 2) had a vigor index of 100, Supporter 4 had an average vigor index of 116, and M7 a vigor index of 135. This information indicates that this is an M26-sized rootstock.

Tests were conducted to rate the resistance to Collar Rot (*Phytophthora cactorum*). The M9 Pajam™ 2 Cepiland was rated very low sensitivity. Supporter™ 4 was rated as low sensitivity. M26 rootstock was rated as sensitive and M106 highly sensitive.

The tests for Fire Blight rated Supporter™ 4 sensitive to Fire Blight and between M9 Pajam™ 2 and M26 in sensitivity. These tests were done in the laboratory. Field tests

may prove to show different levels of resistance for Supporter™ 4.

Productivity and size of fruit were measured and the average values of the sites are presented:

ROOTSTOCK

Vigor Index*	Smoother™ (5 SITES)	G. Smith (4 SITES)	Jonagold (1 SITE)
M9 PAJAM™ 2	100	100	100
MAC™ 9 (MARK)	86	85	99
P1	117	101	120
SUPPORTER™ 4	114	111	114

PRODUCTIVITY INDEX**

M9 PAJAM™ 2	28.1	30.1	5.3
MAC™ 9	21.8	22.8	4.0
P1	23.2	17.6	1.7
SUPPORTER™ 4	27.3	27.4	1.5

SIZE IN 96 GREATER THAN 75

PAJAM™ 2	52	86	83
MAC™ 9	51	79	85
P1	43	80	83
SUPPORTER™ 4	55	80	85

*VIGOR INDEX CALCULATED BY TRUNK CIRCUMFERENCE (CONTROL= 100)
**PRODUCTIVITY: EXPRESSED BY THE RELATIONSHIP OF ACCUMULATIVE PRODUCTION IN KG/C1RCUMFERENCE IN MMX100

In summary, Supporter™ 4 appears to have many of the good qualities of the M9 rootstock both in yield, precocity, and fruit size with an M26 vigor range. It looks like a promising selection that could replace the M26 with the following advantages:

- More precocious and yield efficient
- More resistant to Fire Blight
- More uniform due to lack of overgrowth and burknotting
- Better fruit size
- Less root suckers
- Ease of propagation

This rootstock is available in limited test quantities in the future from Treco Nursery, Meadow Lake Nursery, Willow Drive Nursery, and Tree Connection. Full Grown trees should be available soon at all major nurseries. It is patent applied for and will be sold with a small royalty.

This article was published in the Summer 1998 issue of Connection Quarterly, a publication "committed to providing concise educational information to help you stay up to date."

SCION GATHERING

Reprinted for the benefit of new members

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 of 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.

WSU APPOINTS ADMINISTRATIVE POSITION

Dr Michael Tate has been appointed associate Dean of the College of Agriculture and Home Economics and associate director of WSU Cooperative Extension.

Dr Tate, a Detroit native, has over 26 years of experience with cooperative extension at Michigan State University, serving as interim and assistant director of Extension, Extension educator and administrator and state Extension head.

His primary goal during his first year will be to see WSU Cooperative Extension work more closely with agriculture and the community.

NEWS FROM THE CHAPTERS

PENINSULA Chapter announces it's new officers: President, Scott Thomson; Vice President, Paul Weisdepp; Secretary, June Neilson; Treasurer, Linda Macareag.

Retiring president Michael Shannon reports that they were short a few apples this year at their Fruit Show in October, "but we still put on a pretty good show. We need to give Muriel and Don Lowery special thanks for the effort that they go through each year for our Fruit Show. We have a good group of people in our club that enjoys putting on our Fruit Show and our Grafting Demonstrations.

"We are on the look out for speakers for our club meetings. If you know of anyone who is interested, give Scott a call. Speakers are needed to help keep our clubs together and the excellent information we receive is greatly appreciated by everyone."

NORTH OLYMPIC FRUIT CLUB's 2nd Annual Olympic Fruit Festival, with co-sponsor Master Gardeners, was held October 3. There were about 350 attendees. Over 100 varieties of apples and pears were on the taste testing table, with Master Gardeners providing the bodies. Club members and MGs worked in the kitchen preparing, baking and serving 52 apple pies, under the supervision of Sandy Moore. Other displays included Mason bees and blocks, Master Gardener bulletins (also for sale), WCFS bulletins, the Bee Club had hives, tools and clothing and sold honey. There were good comments on the WCFS display boards. Plans for a show next year will try to tie it in with a local tour of farms.

■ **CHAPTER PRESIDENTS** ■
■ **SEND INFORMATION ABOUT YOUR CHAPTER** ■
■ **ACTIVITIES AND IT WILL BE PUBLISHED** ■

ATTENTION! ATTENTION! GOOD FRUIT GROWER SUBSCRIPTION

Renewals and/or new subscriptions for this publication are due April 1, 1999 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

THE KEY TO MAKING A GOOD FRUIT OR VEGETABLE WINE

by Blaine P. Friedlander, Jr.

Cornell University

from The Great Lakes Fruit Growers News, November 1998

In the past, wine made from New York state fruit, like straw-berries, apples, cherries and peaches, and vegetables, like rhubarb, has been considered the ugly step-child of winemaking. That was then.

This is now. Thanks to new Cornell University research, full, robust-flavor fruit or vegetable wines could be available on a wider basis. Robert Kime, food science pilot plant manager at Cornell's New York State Agricultural Experiment Station, believes he has found the alcohol-content threshold that separates fine fruit wine from cheap, inferior wine—what the British call "plonk."

"It's a fine line," says Kime, explaining that when winemakers, commercial and domestic, allow the fruit-fermentation process to exceed an alcohol content of 10.5%, the wine's flavor can be ruined. Kime, who has worked with a number of wineries in the New York Finger Lakes region, notes that winemakers invariably sacrifice flavor by making fruit wine with the same alcohol content as wine made from grapes.

In the United States, New York state is second only to California in wine production. But customers often find it difficult to buy fruit wines from New York wine producers.

Grape wine can have an alcohol content as high as 11 or 12% and still be excellent. However, Kime says, alcohol is a solvent that can react with and dissolve flavor com-

pounds in other fruits and vegetables when it reaches levels of 11% or higher.

"Higher alcohol content vaporizes the flavors, and they escape through the bubbler overnight," he says.

To prevent fruit wine from becoming tasteless or cloying, Kime suggests stopping the fermentation cold. When the fermenting fruit or vegetables reach about 10.5% alcohol, he halts fermentation by refrigeration at 28°F

Walker's Juice Co., Forestville, N.Y., a supplier of specialty fruit juice to U.S. wine producers, offers cherry, peach and rhubarb juice, in addition to grape juice, to make wines. In 1998, the company processed about six tons of rhubarb, about 30 tons of peaches and nearly 40 tons of sour cherries, according to owner Richard Walker.

"Gradually, we're getting more cherry and peach juice available; the demand continues to expand," he says.

Kime says that up until recently, vinifera wines such as Riesling, Chardonnay and Pinot Noir were among the wines that most drinkers considered palatable. And yet, he says, New York is chock full of a variety variety of fruits suitable for making strawberry, blueberry, elderberry, gooseberry, blackberry, rhubarb, cherry, peach, plum, apricot and pear wines.

GEL KILLS BEE MITES

Beekeepers could soon have an alternative way to save their hives from varroa mites, pests that are becoming resistant to the standard control, Apistan (fluralinate). A new treatment—a gel containing formic acid—has been licensed to industry by the U.S. Department of Agriculture's Agricultural Research Service (ARS).

Apistan-resistant mites have been found in parts of the United States. ARS scientists at the Bee Research Laboratory in Beltsville, Maryland, developed the formic acid gel and have applied for a patent. In field tests, the formic acid gel killed up to 84% of varroa mites and 100% of tracheal mites, another bee pest.

The ARS has issued a license to Betterbee, Inc., of Greenwich, New York. The company must obtain approval from the U.S. Environmental Protection Agency (EPA) once it develops a product. The formic acid gel could be available to beekeepers next spring.

The gel formulation can ease the path to EPA registration because it reduces the risk of exposure to formic acid compared with the formic acid spray used in Europe. The spray is effective, but the highly toxic acid evaporates quickly. This puts bees and beekeepers at risk if spraying is done incorrectly. Also, the spray must be reapplied, unlike the gel.

The new treatment is composed of formic acid mixed with a food grade jelling agent and sealed in a small plastic bag. Beekeepers would simply slice open the bag and leave it in the hive. After the acid evaporates, it leaves a harmless residue that won't contaminate the hive or the honey.

Varroa mites cause economic losses not only to beekeepers but also to farmers who depend on honeybees to pollinate \$10 million worth of crops in the United States.

As published in Good Fruit Grower, December 1998

APPLE CIDER TASTING

An impromptu gathering to check on home hard cider making

By Jerry Hilson, Everett

In an attempt to continue promoting the making and enjoying of cider, a small group gathered at our place on September 20, 1998. The informal group of individuals had previously compared ideas and methods and were interested in spending some dedicated time on the subject. Those attending were Steve Jackson, Kristan Johnson, Bruce Dunlop, Alan Johnson, and John Ross. Represented were both cider makers and apple growers.

Background

While there continues to be a wide spread interest/success in the making of sweet cider, the ability to produce a good hard cider seems to be too complicated and allusive to many people. Possibly because of the time/effort involved, or maybe even just a slight fear of not understanding the complete fermentation business--many people seem to shy away from the home production of hard cider. (Hard cider is typically around 5% alcohol and is the result of a simple fermentation of sweet cider/juice.) It is true that hard cider requires more work and patience than freshly pressed cider, and that understanding the nuances of which apples/yeasts/methods may ferment into a better hard cider are sometimes perplexing. None the less-- experimenting 'is the fun of learning more about something that has been part of our colonial and world history.

Often conventional wisdom says that good hard cider is a product of mixing different apple varieties together and fermenting that juice. This will allow those apples with different characteristics of sweetness, tannins, acids, etc. to blend together during fermentation and even during the aging process after bottling (if impatience or thirst do not decide the appropriate quality). Further, certain 'special' cider apples are needed to help this mix of apples produce the best of ciders. This then is where the 'recipe' becomes more interesting and the chef will want to have some feedback such as at a tasting get together.

Methods

A little about two of the cider making theories that were discussed during the 'tasting'.

1. In order to know more about the 'taste' of each of the different cider apples one cider maker made a separate fermentation of many different apples. These were sampled in the context of four basic characteristics that cider apples are grouped--sweets, bittersweets, sharps, and bittersharps. It was recognized that generally a single apple does not produce the best cider.

2. Another method of natural cider that was evaluated was fermented at low temperature in refrigerators. This fermentation using a Champagne type yeast was slow, taking 7-8 months to complete. Then a boiled apple juice/syrup was added to each bottle during bottling and allowed to further ferment for a 'sparkling' champagne type cider. This seemed to improve even further after a year in the bottle.

Conclusions/Comments

Some fresh apples were on hand and squeezed in our press--part of the new blending for the '98 ciders. These 'September' apples will be of interest in cider making as most of our past attempts have been with later apples. Whether definitive results will be judged next year is a guess at this point--much like most of the cataloging and tasting that has occurred with our past batches of cider. The general cider making process is quite simple, but the variables are infinite. Trying to consider the effects of sugar content, tannins, acids, temperature, time, yeast (both natural and added), 1st and 2d fermentation, desired taste, etc, etc, will probably keep us at the learning table for a long time.

The group seemed to agree that the idea of gathering and comparing was worth the effort. Each of us learned more about how we wanted to continue this year with our experimenting. Also of note was the support/leadership by WSU at Mt Vernon, and the recognition of their significant contribution in the quest for more cider making knowledge.

Ed's Note: Jerry Hilson is a WCFS member at large. Many thanks for his thoughtfulness in providing this article. Jerry may be reached by phone at home 425-347-4217, work 206-682-6666 ext 276 or 1-800-926-6996 ext 276, or e-mail: cidrah@aol.com.

Space available for free-
send an article.

FOR THE CIDER AFICIONADOS
THE FOLLOWING ARTICLES WERE SUBMITTED BY CHUCK PARKMAN

About Cider Space

This Web site is intended to be a place where people who enjoy Cider can exchange information. We are trying to create a site which will cater to a wide variety of interests.

We would like this page to be as inclusive as possible. We would love to get information from countries not already covered by this page. We know that cider is a traditional drink in many countries, so send in your reports!

if you have any comments, corrections or would like to make a posting, page or link please contact Morgan or Cézanne Miller at: Cider Space

"Evelyn, I checked out this web site for hard cider and was amazed at the volume of information available. All

Chuck Parkman sent this saying, "I found this outfit on the Cider Space website. WCFS Members may want to sign up for this no charge service."

From: Cider Digest <cider@raven.talisman.com>

To: new-cider@talisman.com

Subject: Welcome

Date: Saturday, December 05, 1998 10:30 PM

[This is a canned message.]

Thanks for joining us on the Cider Digest. Your first issue of the Digest should arrive soon. Digests appear when there is enough material submitted--usually every few days, although there are occasional lulls of a week or more with no submissions.

Here's a bit of background on the Cider Digest:

The Cider Digest is an electronic forum for cider-makers and cider-lovers to discuss all aspects of cider: sources/types of apples/juice, recipes, ingredients, techniques, even history. Most of the day-to-day discussion tends to be about making cider. [This is what folks in the US call "hard cider"--that is to say fermented, alcoholic cider.] Discussion of perry is also welcome.

A typical issue of the cider Digest is around 200 lines of text. As of October, 1997, 700 issues have appeared. There are currently over 500 subscribers. Distribution is worldwide.

Brief commercial announcements of material relevant to cider are welcome, but advertising and off-topic articles will be summarily rejected. The list of subscribers is used only for e-mailing the digest; it is never made available to the outside world.

The digest is a free, strictly volunteer, non-commercial effort by/for cider folks. It was started in August, 1991 and handled for the first 500+ issues by Jay Hersh.

Cider Digest cider-request@talisman.com
Dick Dunn, Digest Janitor Boulder County, Colorado
USA

The following memo was sent with this comment, "I didn't include the survey because it would only help if you were going to put out a newsletter before the December 22 date that Gary set as the deadline for return of survey and I don't think you will put out a new one before then."

TO: Hard Cider Interest Group

FROM: Gary Moulton

DATE: November 30, 1998

SUBJECT: Proposed Cider Event

For some years WSU - Mount Vernon has been conducting a limited trial of apple varieties suited for hard cider production, with shoestring level funding. A point of decision has now arrived with respect to the cider apple project, whether to keep the existing block or remove it. The decision rests largely on whether there is any interest on the part of hard cider enthusiasts in maintaining this plot for evaluation of varietal characteristics and culture, as a source of propagating wood, and for evaluation of the final product by cider makers.

One possible method by which a loosely organized group with interest in maintaining the research plots at Mount Vernon could contribute funds is through membership in the Western Washington Tree Fruit Research Foundation. This is a non-profit organization of home orchardists, nursery growers, commercial growers, and others interested in supporting tree fruit research in western Washington. If people in the cider interest group become members, they will be able to earmark their membership contributions within WWTFRF specifically to support the cider apple research plot. they would also receive the members' quarterly newsletter which lists activities such as field days, and could serve as an organizational framework for keeping the cider group in touch with events of interest to them.

Enclosed is a survey sheet outlining a proposed cider meeting in March or April of 1999. We would like everyone to bring their ideas for the program at the organizing stage. Anyone who would like to contribute by giving a talk, participating in a panel, etc. should note that as well. Please return the questionnaires by December 22 to WSU-Mount Vernon, 16650 State Route 536, Mount Vernon, WA 98273.

Ed's. note: Those WCFS members interested in this meeting should contact Gary at the above address. I'm sure he would welcome your interest.

LIFE'S LITTLE COINCIDENCES

by Dick Tilbury

It's strange how little things in life can sometimes relate to each other. I'm sure everyone experiences them. I will report on one that we just experienced.

Back in August 1994 we attended the North American Fruit Explorers (NAFEX) Conference at the University of Massachusetts (UMass) at Amherst, MA and reported on it in the Fall 1994 Bee Line. This was the first year of our exposure to the apple maggot fly (AMF) infestation and we were all ears when a UMass entomologist gave a lecture to NAFEX attendees on AMF and later showed us some of his AMF traps in the UMass research orchards.

This was the first time we became aware of Dr. Ronald Prokopy, professor of entomology and his research. At this same meeting we met Karen Hauschild, UMass extension educator, tree fruits, and toured her stone fruit research orchard. To help keep informed of Dr. Prokopy's AMF research we subsequently subscribed to Karen's monthly tree fruit newsletter and also the UMass quarterly Fruit Notes.

Readers of the Bee Line will recognize some of Dr. Prokopy's research, as we have forwarded all pertinent AMF data to our editor, Evelyn, for publication. Now for some of life's little coincidences.

Ray Elder, past WCFS treasurer, attended the big Entomological Society of America/American Phytopathology Association joint meeting in Las Vegas this past November. Ray attended to get the latest on bee research and let us read his meeting program. The program mentioned that this year's Founder's Memorial Award had been given to Dr. Prokopy. His background of pragmatism combined with basic research has served him well in learning about AMF.

We just received the November 1998 issue of the UMass Tree Fruit Program newsletter and find that the Editor, Karen Hauschild, also attended the big Entomological Society meeting in Las Vegas. Here's what she had to say about it:

"I just returned from the joint meeting of the Entomological Society of American and the American Phytopathology Association. From the "bug" point of view, the major foci for this meeting were - alternatives to chemical controls; Food Quality Protection Act (FQPA) and its effect on all aspects of food production; genetic engineering of pests and host plants.

There seem to be mixed messages regarding FQPA. Some were saying that it still could be disastrous, others that it could be much less serious. The consensus, however, was that the EPA has lots and lots of work to do to implement these new regulations; and the backlog of registration requests is getting longer and longer. The bottom line from where I sit is that you, as growers, should seriously consider 1) **maximizing your ability to**

rely on non-chemical controls wherever possible; 2) **alternating pesticide materials** as needed (to delay resistance); 3) **using as little chemical as possible** to achieve pest management - for example, spray alternate row middles, use border row sprays, use lower rates of materials as appropriate; and 4) ensuring that your **spray equipment is calibrated** - at least annually, if not more frequently. These four suggestions should help you better cope with the loss of currently recommended pesticides, if that should happen.

Karen also included the following University report (Rutgers is part of the PRI (Purdue, Rutgers, Univ. of Illinois) group that has brought us so many of the new disease resistant apple cultivars.

New Apple Cultivars Evaluated in the NE-183 - from "Plant and Pest Advisory" Rutgers CES, New Brunswick, NJ; J. Compton and W. Cowgill, authors and researchers (10.13.98)

" This planting consists of 26 apple cultivar scion/rootstock combinations established as a uniform test orchard. What makes this trial unique is its replication across the United States and Canada. The trial is designed to evaluate new and upcoming apple cultivars from around the world for their adaptation to the northeast. Intensive plantings throughout the country expose these cultivars to a wide range of climatic and soil conditions in a short period of time, as well as varying degrees of insect and disease pressures. Several of these test plantings were established just to measure insect and disease susceptibility. The Snyder Farm (NJ) planting is primarily a horticultural characteristic trial designed to evaluate these apple cultivars for their horticultural potential in the apple marketplace in New Jersey."

"Minimum inputs are utilized in the maintenance of this trial. The tree is allowed to form its natural structure. The cultivars were established on M9 and Mark rootstocks so that early production was achieved. Growth characteristics and extensive data collection on fruit quality are measured annually. This was the second year that cultivars from the block fruited at the Snyder Farm site, and the crop load proved to be variable. With the early spring and a moderate to light bloom, no chemical thinning was warranted. Even so, only a limited number of cultivars carried a full crop."

"The light crop produced excessively large fruit on some of the varieties this year. Gingergold, Honeycrisp and Fortune (NY 429), all produced fruit that was 4" or larger in diameter and weighed in excess of one pound. With this excessively large fruit, calcium disorders such as flesh corking were evident. No foliar calcium was applied this season in order to determine the susceptibility of these cultivars to calcium disorders."

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"Suncrisp (NJ 55) has extremely high eating quality but was lightly cropped this year. Suncrisp produces a very manageable tree but fruit load management may need to be observed carefully in assessing this variety. Other cultivars that produce a nice tree with good quality fruit are: Braeburn and Arlet. Arlet is a Golden Delicious x Idared cross that comes in about a week after most strains of Gala."

"Topping the fruit quality assessment again this year were Cameo and Sunrise. Sunrise is an early season apple that is harvested around the middle of August. It produces a large round shaped fruit with a brilliant red over color. Sunrise is a weak but precocious tree on M9~ rootstocks. Cameo (formerly Carousel) is a tree with a more vigorous, but spreading, growth habit. The fruit is large with a light red appearance that is round to slightly conic in shape. Many people compare Cameo to the original strains of Red Delicious for eating quality. When picked at the optimum time, Cameo will produce a firm fruit that will hold in conventional storage for three months. Even with a reduced spray program, and minimal corrections for nutrient deficiencies, both Cameo and Sunrise were of superior quality again this year."

"Fruit harvest began in this block on July 20th with Pristine, and will wrap up in another three weeks with the harvest of the other disease-resistant cultivar in this block, Goldrush. The evaluation of both tree and fruit is revealing interesting differences about some of these cultivars and their growth habits in our region as compared to other areas of North America. This variability can be assessed with the cultivar Creston. Creston is a high quality variety that was developed in British Columbia, Canada. Creston grows well in the northwest but we are finding that the soil and climatic conditions of our region may limit its potential in our area."

"It is our hope that future evaluations and observations such as the ones being conducted in this block will reveal the next potentially profitable apple cultivars for growers in New Jersey."

"The second trial of the NE-183 project has been budded for spring planting in 1999. Twenty seven plantings consisting of twenty four apple cultivars will be established

Dick also included the biography of Dr Prokopy, which is so interesting I am including it also.

RONALD J. PROKOPY BASIC AND APPLIED SCIENTIFIC CONTRIBUTIONS TO ENTOMOLOGY

Ronald Prokopy is a world renowned pioneer in the field of basic and applied insect behavior with a preeminent record of professional commitment and achievement. Early in Prokopy's career, John S. Kennedy, whom Prokopy honors *in memoriam*, instilled the view that to objectively understand an animal's behavior, it is necessary to undertake intensive and rigorous experimentally

based studies of the organization of an insect's behavior in time and space. Such studies not only require careful observation of all insect under natural or semi-natural conditions coupled with simple, yet exceptionally well designed experiments, but also call for an understanding of an insect's physiological state. This approach to understanding state-dependent behavior has been the hallmark of Prokopy's research over the years. Prokopy is famous for living in the apple orchard from sunup to sunset for weeks on end watching and learning from his insects. As several colleagues have remarked, he truly "has a feeling for the organism", a quality that provides special insight into their behavior and in Prokopy's ability to design and carry out simple yet elegant definitive experiments.

Ron Prokopy was born in 1935 in Danbury, Connecticut where he lived until leaving for Cornell University. After graduating in 1957 with a BS in Agriculture, followed by a two-year stint in the Army, he returned to Cornell where he received a Ph.D. in Entomology in 1964. Prokopy then spent four years with the Connecticut Agricultural Experiment Station in Newhaven. Here he developed a lasting interest in the behavior and ecology of fruit insects, and completed several seminal studies involving color and form preference in host recognition by the apple maggot, *Rhagoletis pomonella*. These studies not only provided insightful clues to color vision of these flies, but in true Prokopy fashion, this knowledge was immediately used to develop visual traps for assessing the population dynamics and managing the apple maggot fly.

Because he found the environment of the experiment station somewhat limiting, Prokopy decided to leave Connecticut in order to pursue his interests in fruit fly behavior and ecology, as well as to explore other cultures and political systems. In early 1968, he embarked on a seven-year Odyssey which took him first to England to visit John Kennedy. Kennedy, who was conducting innovative studies on visual orientation of insects to their host plants similar to those performed by Prokopy in Connecticut, inspired Prokopy to expand his experimental approach. It was the beginning of a long and fruitful friendship.

From England Prokopy continued on to Poland where, under the auspices of the Polish Academy of Science, he initiated behavior studies on the visual orientation of the European cherry fruit fly, *Rhagoletis cerasL*. The following year he shifted to the Swiss Federal Research Station in Wädenswil, located near Zurich, Switzerland. Here he continued his research on visual perception and ecology of the cherry fruit fly in collaboration with the highly regarded fruit fly specialist, Ernest Boiler. From 1970 to 1972 Prokopy joined Guy Bush's group in the Zoology Department at the University of Texas as a post-doctoral fellow. Together, Prokopy and Bush conducted extensive field and semi-field studies in Wisconsin for three summers on mate- and oviposition-site foraging

(Continued on page 14)

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behavior associated with sympatric host race formation and speciation in several *Rhagoletis* fruit fly species. During this productive period of research, Prokopy became aware of the importance of evolutionary thinking and the comparative approach to the study of behavior and ecology. In a series of studies, Prokopy and Bush established the organization of courtship and mating behavior, the use and importance of visual and chemical cues in host choice, and the use of oviposition deterring and male arrestant pheromones by the apple maggot fly. The postdoctoral fellowship was followed by an FAO-sponsored research stint in Greece, which focused on the study of visual orientation in the olive fruit fly behavior.

Prokopy then returned to his farm in Wisconsin where he worked for nearly two years as an independent scientist. He built his own laboratory, and carried out basic and applied research on apple maggot and cherry fruit fly behavior while managing a commercial apple orchard. This experience as an independent farmer gave Prokopy a perspective on the needs and problems of the farmer seldom available to those engaged in basic research. It intensified an already strong commitment to incorporate the results of his basic research into innovative pest management programs.

In the fall of 1975 Prokopy accepted a position as Associate Professor in the Entomology Department at the University of Massachusetts in Amherst where he has remained for the past 22 years. Soon after his arrival at the university, Prokopy began to make important contri-

butions to our understanding of how insects learn, and what they are capable of learning. In a series of detailed experiments on the apple maggot fly, he and his students demonstrated that host races of these flies differ in the ability to learn to prefer one host over another and that they learn more quickly at certain ages. Prokopy and his students have also carried out studies over the years on the behavior, ecology, and management of a wide variety of tree fruit pests, including apple maggot flies, plum curculios, plant bugs, sawflies, mites, leafminers, leafhoppers, and aphids. Prokopy, in fact, has always walked the path between the basic discipline of modern population ecology and behavior and the applied discipline of pest management. In his capacity as an extension entomologist, he is able to incorporate results from his studies into state-of-the-art pest management programs significantly reducing the use of pesticides. With his creative approach for blending applied and basic biology, Prokopy has served as a role model for many insect behavioral ecologists and applied entomologists. Over the years, he and his students have made major discoveries in their studies on fruit flies and other insects which have had an enormous impact on how we view processes as basic as speciation, learning, and vision in these animals. His 30 reviews articles and book chapters, more than 220 research papers in refereed journals, and some 140 grower-oriented applied research articles in trade-oriented periodicals represent an outstanding contribution to our knowledge of behavior, insect ecology, and pest management. Ron Prokopy is a superlative scientist who has advanced our knowledge of insect behavior and ecology and shown us how good science can improve the human condition.

PASSAGES

Grady Auvil, December 28, 1998, age 93

An innovative apple, peach and cherry grower, Grady lived and breathed fruit growing at Orondo, WA for over 70 years. He pioneered trellis growing of apple, use of dwarfing rootstock and introduced Granny Smith and Fuji apples and Rainier cherries to Central Washington. Grady believed in research and sharing his knowledge.

Barbara Lewis, January 7, 1999, age 89

Widow of Ed Lewis, past president and newsletter editor of Western Cascade Fruit Society. Ed died one year ago on January 9.

Loren Tukey, November 5, 1998, age 76

Renowned pomologist at Penn State for 41 years, pioneered the 4 wire trellis system for apples and use of growth regulators and chemical thinning. He travelled worldwide to share his knowledge. His brother, Harold Tukey, was first director of the UW's Center for Urban Horticulture in Seattle, and his father H. B. Tukey wrote the classic book, "Dwarfed Fruit Trees". Dr Tukey gave 3 lectures at our 1986 Spring Meeting, a pruning/training demo at Tom Berry's orchard. Many of his articles were published in our newsletter in 1987 and 1988.

BITS AND PIECES

Orel Vallen sends this information regarding paint for AM traps.

I have been unable to find a Fluorescent brush-on paint in ½ pints. The place I was getting it in Los Angeles has discontinued anything less than a quart. They still put it in aerosol cans, but that is too wasteful and messy, plus the tube would plug-up and dry, and I am afraid it would be useless, so little is required per year.

I am figuring on waiting until the new owners of Eagle Hardware take over in January and see what they will carry. I have checked Sherwin Williams and Moore Paints and they have nothing. The reason I would like Lowe Hardware to handle it is so it would be available on both sides of Puget Sound. When I can find something I am hoping Scott Conner and Cisco Morris will put the word out to the public.

Grafting 101

ORCHARD GRAFTING

This illustrated, step-by-step guide to a common graft shows you "how-to" perform this important orchard task

APPLE trees are grafted in many different ways and for many different reasons. In commercial orchards, grafting usually means top-working in order to change varieties or strains.

Grafting is not difficult. Anyone can graft a tree with some measure of success, and if they have sufficient time, it can be a lot of fun to try.

When watching professional grafters, one realizes that they are skilled artists who have practiced their craft and are able to perform it quickly and efficiently. An inexperienced grafter should not attempt to graft an entire orchard, but practicing on a few trees is a worthwhile experience.

Fundamentals Of Grafting

Successful grafting depends on two fundamental things. First, the scion and stock must be compatible, which is not much of a problem in apples but can be a problem in other tree fruit. Second, good contact of the cambium is needed on both the stock and scion. Other important factors in grafting are scion selection and storage, proper tools and materials, and attention to details during and after grafting.

COLLECT THESE SUPPLIES

Before grafting, be certain all necessary tools are on hand. The basic grafting tools include the following:

- A sharp knife, and a stone to keep it sharp
- A hammer
- Twenty-gauge 3/4-inch nails or a staple gun with 9/16-inch staples
- Grafting wax or a commercial grafting compound
- A brush to apply the wax
- Electrician's tape or masking tape
- A saw
- A pair of sharp bypass pruning shears

Selecting The Scion

Scion selection should be done by observing the wood source during the season prior to grafting and marking the desirable shoots. In late fall, after trees are dormant but before severe cold weather sets in, select upright shoots that are well hardened off and are between 1/4-inch and 3/8-inch in diameter.

The scion pieces can be bundled and buried in soil or

sawdust on the shady side of a building or other structure deep enough to avoid freezing and stay cold well into the growing season.

When To Graft

Grafting may be performed any time after severe cold weather is unlikely in the spring, until well into June. However, results are best when grafting is done as soon as the bark will slip, usually in late March to mid-April.

Preparing To Graft

Clear away or mow brush and debris prior to grafting, both to provide a safe area for you to work in and to prevent the scion pieces from being broken out later by handling or mowing the old top.

Measuring For The Cut

The tree should be cut 30" to 36" from the ground, and a nurse limb should be allowed to remain. Be certain that there is a smooth section of the stump 4 to 8" below the cut.

Beginner's Grafting Technique

The bark graft is the easiest technique to master. This graft is not always the most suitable, and the union is weak for the first couple of years, but more contact is established between the scion and stock than with any other technique.

Step 1: To prepare the stock for this graft, saw off 4 to 6" of the stock to remove dried-out wood (Figure 1). This cut should be at a slight angle to allow water to drain off.

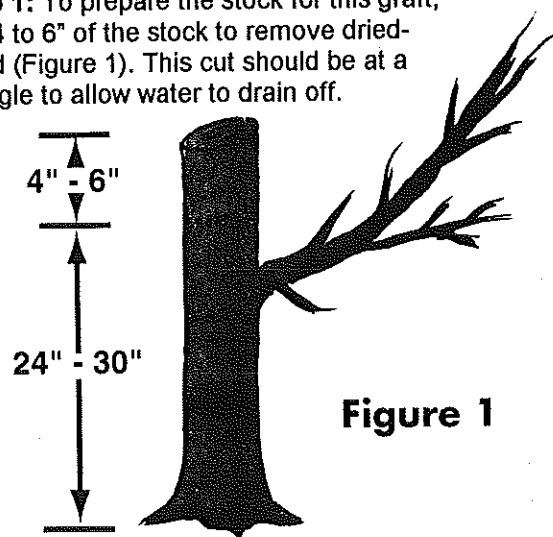


Figure 1

(Continued on page 16)

If the angle is more than 5°, wrapping the graft later will be difficult. Trees grafted on an angle stock are less likely to have wood rot later in the life of the tree.

Step 2: Trim the rough edge of the cut (Figure 2). This will ensure that the bark is tight and will help keep the air out when the graft is sealed.

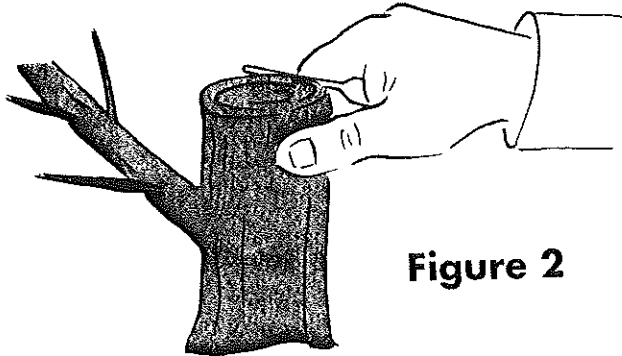


Figure 2

Step 3: Inspect the scion wood. Cut off dried ends and small or dehydrated tips.

Cut a piece of scion wood about 5" long with the pruning shears. This should be 2" plus three buds. Hold the scion with the top away from you. With the knife, begin just above a bud about 2" from the bottom and make a single, long, smooth cut through the scion ending at the bottom (Figure 3).

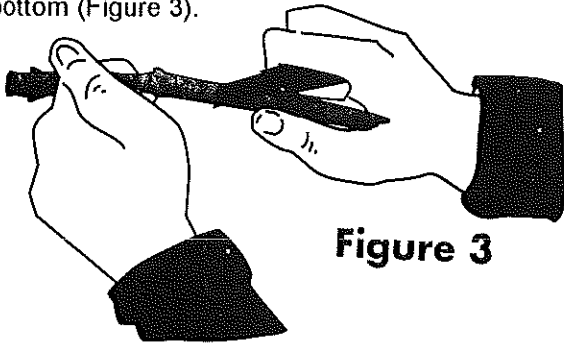


Figure 3

This can be accomplished by whittling away on the scion until the final cut is achieved, but it is difficult to make a smooth surface this way, and contact with the stock will not be as good.

Step 4: Check the quality of the cut by placing it alongside the knife blade. If there are gaps, the scion should be recut (Figure 4). Most grafters prefer to make a small back cut 3/16 inch to 1/4-inch long on the opposite side of the scion.

Step 5: The scion is now ready to be inserted into the stock. This is where the job can go wrong. The cambium layers of the scion and stock must be in contact if the graft is going to work.

Make a vertical cut through the bark of the stock and rotate the upper end of the blade in both directions until the bark peels cleanly away from the sapwood and exposes the cambium layer (Figure 5).

If the bark is very thick and stiff, lift only one side of the bark away. It will be easier to seal later.

Next, insert the scion into the slit on the stock with the long cut toward the sapwood and slide it down until the top of the cut is 1/4-inch below the top of the stock (Figure 6).

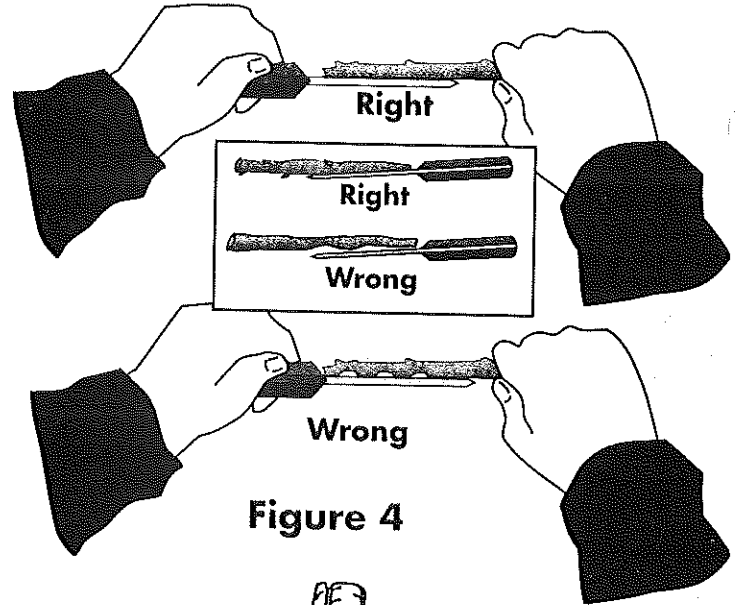


Figure 4

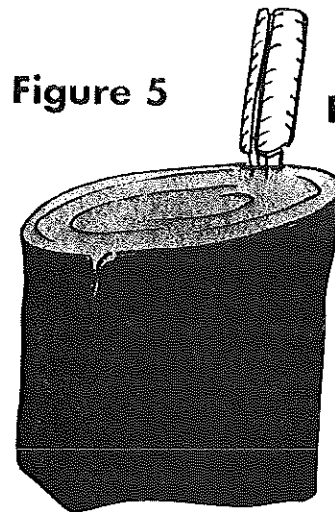
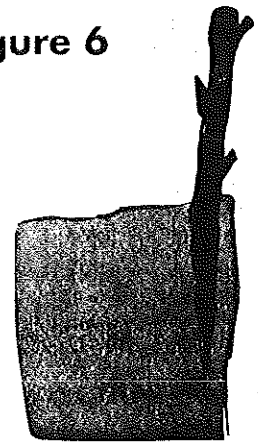


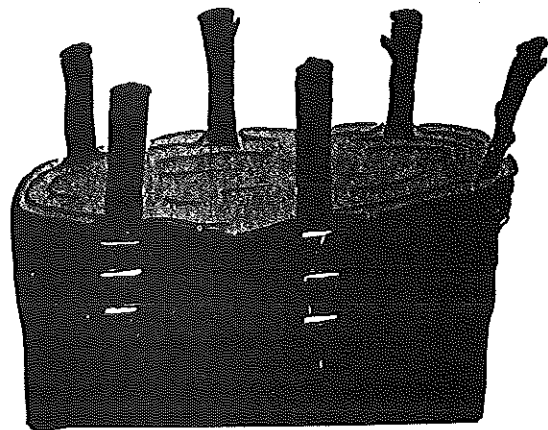
Figure 5

Figure 6



Repeat this process until there are scions spaced 2 to 3 inches apart all around the stock (Figure 7).

Figure 7



Step 6: Nail or staple the scion in place. Be careful not to split the scion. If staples are used, they should straddle the scion. Bind the graft with tape for extra support.

(Continued on page 17)

(Continued from page 16)

Step 7: Finally, apply wax or grafting compound to the grafted area to ensure all the exposed surfaces are covered. The center of the stock can be lightly covered, but the scion unions need to be wellcovered.

Follow-Up Work Is Vital

The graft is done, but the job is not complete. There are still several steps that need to be taken to prevent problems. The following day, return to inspect the grafts. If there are gaps in the seal, the grafts should be touched up.

A low-acrylic latex paint should be applied to the trunks to prevent sunburn. Adding copper to the paint will help prevent some diseases, and a sprout inhibitor will reduce the work of removing suckers from the original

stock. Do not apply this to the scion, as it might slow growth or kill the scion.

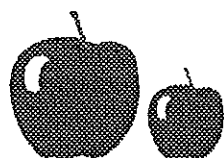
Supporting The Graft

A support system is a requirement. The graft union is weak, and the scion will be vigorous. A support system will prevent the grafts from blowing out.

Prune Frequently The First Season

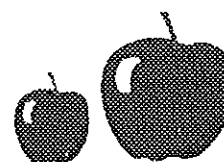
Pruning during the first season will need to be done frequently. Light pruning or pinching will help shape the new tree and avoid a renovative pruning project later.

Your grafts will be very vulnerable during the first year. Make frequent trips back to your grafting project to inspect for pest, disease, or environmental problems.



APPLES AND ANTHRACNOSE

By David Eddy Western Editor
Fruit Grower
November 1998



Klaus Berger vividly recalls the first signs of anthracnose in his apple orchards. Four years ago he had planted some trees from Holland in his orchards at The Apple Farm, located in Yarrow, BC, about six miles north of the U.S. border.

"We noticed the lesions within the first year," he says. "We tried to cut it out as much as we possibly could. We couldn't control it."

He tried spraying various chemicals, painting tile lesions, splashing on industrial-strength bleach—he even tried a blow torch, but nothing worked. His advice for other apple growers struggling with anthracnose? "Cut it out and burn it," he says. "If it's within the first two years, get rid of the trees."

Disease Not To Be Ignored

Anthrachnose is the No. 1 problem for orchardists in the coastal northwest of the U.S. and Canada, says Jim Rahe, a professor at Simon Fraser University in Vancouver, BC. And it's getting more severe. "No one's been able to bring it under control," he says. "It's affected almost every attempt to start an orchard in the past 10 years."

Rahe says the disease, which is caused by a fungus known as *Peizicula malicorticis* in that part of North America, is particularly insidious because it usually takes a year after infection to show up. By then, it's good night. "Once it gets established, it's probably too late to anything," he says.

Rahe knows first-hand how deadly anthracnose can be. He planted in 1979 that later turned out to be infected. "I didn't pay enough attention to it, even though I am a plant pathologist," he says. "I went to Indonesia for two years, and when I came back, the orchard was a total loss."

Anthrachnose On The Move

Anthrachnose is not currently considered a problem in large inland commercial orchards, but that may change, says Rahe. It may be caused by the same organism that causes Bull's Eye Rot in storage.

"It could have long-term implications in the dry valley producing areas," he says. "We're seeing a lot more cankers showing up in the interior valleys. I don't know that it's to any great extent, but I don't know anyone who's closing their eyes to it."

Joseph Hoffman certainly isn't. The Skagit County, WA, grower says anthracnose is potentially a huge problem. He's seen orchards that have been ravaged in neighboring Whatcom County as well as in British Columbia. "There are some orchards that are literally being taken over by this disease," he says. "And the trees just die—whole orchards have to be removed."

Hoffman's using fungicides and copper sprays, though he concedes that some growers don't think they work. But while the sprays don't kill the fungus that causes the disease once it's established, he feels they can prevent its establishment and growth. "You need to vigorously protect your trees," he says. "You can't wait to spray."

FAR FROM HOME, YET HAPPY

About the same time as I read Brian Self's plea for information about scab and mildew incidence on apples grown in the wetter regions, a letter arrived out of the blue from a total stranger on a Monday morning post-marked Germany. Its import was that he would be arriving at Brogdale on Wednesday and could I possibly meet him there? No time to ring for further information, he was already on his way, so we went with some curiosity to Brogdale and spent a very pleasant and informative day.

He turned out to be a collector of the old varieties of fruit that had evolved over the centuries in his area - the Alte Land, near Hamburg. He already had some 700 apples, 80 pears and 40 plums and cherries. These were growing in his "Living Museum" and the aim was to seek grafts and sponsorship from local authorities, to support this work and arrange educational visits from the public.

The area has grown fruit since the 13th century, but which has very different conditions from our main apple growing area. It was once a swamp soil composed mainly of heavy clay, a flood basin of the river Elbe. In the 1200s Dutch settlers had moved in, dug drainage ditches and built dykes to protect from the river. Its northerly location, on the same latitude as Hull, together with a moderate maritime climate, with cool and often rainy summers, does not appear to be ideal for apple growing, yet orchards were planted and varieties evolved over the centuries that flourished there. By the 1920s, the area had become a major fruit growing one, shipping most of its produce across the Elbe to the great city of Hamburg opposite.

Now one would expect such a region would be an ideal one for scab and canker incidence, yet most of these old varieties proved immune. But in the 1950s public taste turned away from traditional varieties to new ones like Golden Delicious, Jonagold, Gloster and Elstar. So the growers had to grow these new varieties to survive and the old ones were grubbed. They succeeded in growing the new ones, but very frequent fungicidal sprayings were necessary for a clean skin finish. But now the public have started to question the use of chemical sprays! So what should the growers do now, wait for the promised well flavoured scab resistant apples which all breeding stations are working on, or try to persuade the public to go back to the old traditional varieties?

Our friend had no difficulty in answering that, he grows some of the better old varieties commercially and finds a ready sale in the weekly street markets.

But why was I being told all this?

Last year, the newsletter of our Belgian sister society, the NBS, asked readers to write in with their "Top Ten" apple varieties. I had replied, mentioning our English varieties such as Ashmead's Kernel and Baker's Delicious, but, rather tongue in cheek, had mentioned an old German late winter variety, Finkenwerder Prince, of which I am very fond. Now my German friend had read that reply and was curious to know how this little known

apple, reckoned only to be growable in its specialised microclimate, was to be found in an English garden, as it is also his favourite variety.

The answer is, of course, with difficulty in Surrey. I grow it on the north wall of a small garden building, with rain from the roof giving the tree the copious watering it needs. In this terrible scab year, with unrecognisable black Golden Delicious, Finkenwerder Prince has a huge crop of beautifully clean apples, no fungicidal sprays having been applied. Far from home, yet happy.

Brogdale has it in the Collection and its fruits also look happy this year, no doubt enjoying the rainy summer. But I have often thought that it might grow well in those cooler wetter regions of the UK. It is a heavy regular cropper and provided it is not picked until mature, which with me can be as late as early November, will develop its quite unique flavour in the New Year and with careful storage last until March or April.

No doubt Brian's survey will bring to light many other examples of local apples with both good flavour and scab resistance, thriving in the most difficult situations.

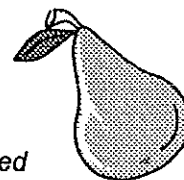
Howard Stringer

Howard Stringer gardens near Guildford in Surrey

This article appeared in the Autumn 1998 issue of Fruit News, The Magazine of the Friends of Brogdale.

PEAR HONEY

About 5 cups



3 pounds ripe pears

1 (8¼-oz) can crushed pineapple, undrained

About 6 tablespoons lemon juice, divided

3 ½ cups sugar

Optional: 1 teaspoon ground cinnamon, ½ teaspoon ground nutmeg, ¼ teaspoon ground allspice

1. Wash, peel and core the pears. Chop finely, almost to a puree, by hand or in a food processor. Combine in a large, nonreactive saucepan with the pineapple, 4 Tbsp. lemon juice, sugar and spices if using. Put over medium-low heat and stir until the sugar has dissolved.

2. Bring to a boil, then reduce heat to medium and cook at a high simmer about 25 minutes, stirring often, until very thick. Stir in the remaining 2 Tbsp. lemon juice and continue cooking at a simmer 5 minutes.

3. Ladle into hot 1/2-pint canning jars, leaving ½-inch headspace. Adjust lids and process in a boiling water bath canner 15 minutes. (Or cool the pear honey, ladle into freezer containers, cover and freeze.)

Note: To bake the pear honey, bring the mixture to a boil on top of the stove, then pour into a large, shallow, ovenproof pan, such as a 9-by-13-by-2-inch baking dish. Bake in a preheated 250-degree oven 4 to 5 hours or until very thick, stirring every 30 minutes.

STUDY SHOWS APPLES PLAY KEY DIETARY ROLE AS AN ANTIOXIDANT

From The Great Lakes Fruit Growers News
January 1999



Can an apple a day really keep the doctor away?

Chang Y. Lee of Cornell University's Department of Food Science and Technology thinks so and believes he knows why.

In a paper delivered at last summer's annual meeting of the Institute of Food Technologists, Lee described the antioxidant activities of apples and other ways in which they contribute to the diet.

A group of naturally-occurring chemical components - known phytochemicals, polyphenols or flavonoids - have antioxidant activity. Antioxidants work against super-charged molecules called "free radicals," which damage many body tissues. Damage from free radicals can be a factor in certain cancers, heart disease, stroke, senility and other conditions.

Research shows that flavonoids in foods such as tea, onions and red wine may reduce the risk of coronary disease in elderly men. The major antioxidant component in apples are polyphenols. In particular, the skin of apples contains effective polyphenols known as quercetin glycosides and phloretin glycosides.

The nutritional benefits of antioxidants in foods such as apples depends on how many of these nutrients are in a given food, but also how much of that food is consumed by individuals.

"Regardless of the concentration of bioactive compounds, the contribution of the bioactivity in our diet will be negligible if the consumption of these foods is low," said Lee.

Many Americans are allowing the apple to provide its antioxidant benefits, eating 19.3 pounds per capita of fresh fruit and 47 pounds total. Lee's study measured the antioxidant activity in various apple cultivars and evaluated the importance of apple antioxidant activity in the diet relative to other fruits and vegetables.

Twenty-four cultivars were studied, and exhibited a wide range of antioxidant activity. They can be divided into three groups - high (more than 60% antioxidant activity), medium (40%-60%) and low (below 40%).

Groupings of cultivars and their antioxidant activity percentages are:

High:

Fuji 98.3

Pioneer McIntosh 76

Liberty 72.5

Jonathan, 72

Spartan 81.5

Red Delicious 75.7

Granny Smith 72.1

Northern Spy 61.5

Medium:

Cox Orange Pippin 58.9

NY 674 51.9

Idared 50.9

Gala 47.7

Crispin 40.9

Rome Spuree 57.2

Freedom 51.2

Red Cort, 49.4

Rhode Island Greening 44.6

Low:

RubINETTE 34.5

Jonamac 19.4

Empire, Golden Delicious, Gingergold, less than 10

Jonagold 24.2

How do apples compare with other common fruits and vegetables in antioxidant activity? The average antioxidant activity of all the apple varieties studied was 65%. Grapes, pears, and peaches have higher antioxidant activity than apples, bananas are similar while oranges and grapefruits have lower activity. Among vegetables, garlic, broccoli and tomatoes had higher activity than apples while spinach, carrots, onions and green poppe, had lesser activity.

Since the exact, daily antioxidant dietary requirement is not yet known, Lee is reluctant to draw any conclusions on the data.

"However, strong evidence as shown here is that apples contain important antioxidants...and exhibit significantly high antioxidant activity," said Lee. "Therefore, in order to maximize apple antioxidant activity, consumption of apples with skins is highly desirable."

And walk among long dappled grass,
And pluck till time and times are done
The silver apples of the moon,
And golden apples of the sun.

William Butler Yeats

THE SWEET SOUND OF SILENCE: ABSENCE OF BIRDS IN BERRIES

By Marvin Pitts
Cornell University



Birds are among the most serious pests of blueberries, cherries, certain grape varieties and even apples in some locations.

A nationwide survey of blueberry growers in 1989 found that 10% of the crop was lost to birds, costing growers \$8.5 million. Many growers experience losses of 30% annually. Grape growers reported a \$4.4 million loss to birds in 1972. Netting is effective, but expensive.

Paul Curtis, Department of Natural Resources, and I have examined a number of approaches to bird deterrence over the years. These have included strobe lights (don't work), magnets (don't work), methyl anthranilate sprays (works for three days), sprayable netting (expensive), and audio scare devices (often effective, but noisy).

One of the approaches that we tried was to spray the bushes with a syrupy sugar solution just as the berries were turning blue. The sugar-sprayed planting received little bird damage, whereas a planting 100 yards away experienced about a 40% loss to birds. We counted two or three birds per hour visiting the sprayed planting, but an average of 70 birds per hour visiting the unsprayed planting. In subsequent trials in growers' fields, the table sugar seemed to keep the birds out. I have received calls from Pennsylvania and Virginia claiming that the sugar worked in cherries and other berries as well.

Fruits contain three main sugars: sucrose, glucose and fructose. Glucose and fructose contain a single ring of six carbon atoms called a monosaccharide. Sucrose (table sugar) derived from beets and cane contains two rings and is called a disaccharide. Interestingly, bird dispersed fruits generally contain low amounts of the disaccharide sucrose, but lots of the monosaccharides. Why? Avian physiologists have found that certain bird species lack the enzymes necessary to digest disaccharides. When these birds are force-fed sucrose, they get indigestion and produce low levels of sucrose. Humans can digest both types of sugars so we are oblivious to the chemical structure of the sugars in our foods - they all taste sweet to us.

We decided to spray blueberries with the disaccharide sucrose to see if it would deter birds from feeding on the fruit. We dissolved as much sugar as we could in hot water, then added a spreader-sticker. We could dissolve about 10 pounds of sugar in a gallon of water, and this made nearly two gallons of syrup. We also examined four spreader stickers and found that some of them

marked the fruit, so we used one (manufactured by Olympic) that left no mark.

As the berries were turning blue, we sprayed out the sugar solution at the rate of 40 gallons/ acre. We tagged Berkeley fruit clusters in this planting, and in an adjacent planting, and every few days determined how many berries were missing and presumed eaten. After heavy rains, we reapplied the sugar. For two weeks we were successful in keeping fruit loss to less than 10%, whereas the fruit loss in the unsprayed planting was about 30%. After three weeks losses in the unsprayed planting were 40%. We decided not to reapply the sugar after a rain at the end of this three week period. In a few days, feeding in the planting increased, suggesting that the sugar was indeed providing a deterrent.

It is unclear if the sucrose was acting as a taste deterrent or if the birds simply found the sticky bushes discomforting, and fed elsewhere. Regardless, the table sugar solution kept bird activity low, and was particularly effective for those species that feed in the tops of bushes. Ground feeders (e.g. sparrows, finches) were less bothered by the sugar. We did not observe an increase in fungi or rodent damage in the sprayed planting. In grower trials, some reported an increase in yellow jackets where the sugar was sprayed, but the well-fed yellow jackets are not particularly aggressive.

We do not know if birds will ignore the sugar if an entire field is treated and no alternative foods are available. Large-scale grower trials are needed to determine this. We do not know if a less concentrated sugar solution will provide deterrence. What we do know is that we spent \$160 on sugar (four applications) and reduced bird damage by 50%. Sugar could prove to be an effective, cheap and safe alternative to Mesuroi.

This article appeared in The Great Lakes Fruit Growers News, September 1998



WESTERN CASCADE FRUIT SOCIETY'S 1998 FALL FRUIT SHOW IN RETROSPECT

Three hundred and ten people signed in at the two day Fall Fruit Show held October 17 and 18 at Tukwila Community Center, although donations at the door show 413 attendees. Of these 310, **225 were not WCFS members.**

These folks came from near and far: Seattle, Tacoma, Puyallup, Monroe, Renton, Vashon, Issaquah, Kent, Enumclaw, Redmond, Burien, Toronto, Kirkland, Granite Falls, SeaTac, Mercer Island, Bellevue, Preston, Everett, Des Moines, Spanaway, Darrington, Milton, Edmonds, Sumner, Lynnwood, Vancouver (WA), Port Angeles, Covington, Auburn, Shoreline, Eatonville, Tenino Sedro Wooley, Ketchikan, Aberdeen, Roy, Gold Bar, Wauna, Poulsbo, Federal Way, Jean (Nevada).

They heard about us on the radio; read about us in the newspapers; from Master Gardeners, friends and relatives; at the Puyallup Fair, horticulture classes, Evergreen Fair; saw our signs on the street; had our brochure; the Internet; and Eagle Hardware.

WCFS members, you were missed.

While the Fall Fruit Show did not have receipts in excess of expenses, we must look at it as the project of the educational organization we were chartered to be, hopeful for excess revenues to further research at Mount Vernon and Puyallup.

We were able to introduce many first time attendees to the joy and rewards of home orcharding, and offer more educational lectures, exhibits and fruit tasting to those who came back to increase their knowledge.

We won't be able to make as large a contribution this year as in past years, so perhaps some of you members who weren't able to make it to the show will make contributions as you renew your memberships. All individual contributions are sent with the WCFS contribution, and your name is listed. **YOU** do make a difference.

Hope to see you at the Annual Spring Meeting.

WORDS FROM THOSE WHO WERE THERE

The fruit tasting feature at the WCFS Fall Fruit Show was popular with individuals of all ages. Some people came with an interest in one or two specific varieties. Others wanted to get a taste of as many apples as their bodies could tolerate.

Those that came to nibble as well as those that came to graze were all welcomed. It is my hope that each of them left with a better understanding of the wide assortment of tastes and textures found in the many different apples now available.

Many of the workers on the WCFS side of the tasting table kept a non-scientific survey of the most appreciated apples. It is not unexpected that the attendees discovered what home orchardists have known for years e.g. "ugly is often better".

We all understand that commercial apple merchandising and sales are based almost entirely upon appearance. Nicely shined and smooth skinned apples bring the highest revenues simply because they look like they would be good to eat. In our taste tests the pretty types did not fare nearly as well as those that might not have looked quite as appealing.

With a few varietal exceptions which I will outline below, the majority of the tasters preferred the slight bite of the russets over those more often considered "desert" quality fruits. I had the impression that this preference might have been due to the public's unfamiliarity with any but the more common apples as found in supermarkets. The statement that "I didn't know that an apple could taste this good" was a frequent comment.

The following is a list of the most popular apples as served at our tables:

Holstein: This was perhaps the favorite apple of all. The taste, texture, and *sugar* content seemed to please the largest number of people. This may be in part due to the nearly perfect ripeness of the Holsteins provided to us.

Stellar: Well liked, but not the overall favorite. Not at peak ripeness either.

Blue Pearmain: A nice crisp fruit that did well on texture as well as taste.

Belle de Boskoop: Not the prettiest and perhaps not quite ripe, but very popular.

Dulcet: This apple is an exception to the "ugly" rule. It is a visibly appealing fruit and also wonderful to eat. The most popular "delicious" type apple.

Florina: Widely liked.

Golden Russet: Very popular. One lady came back for so many slices that I just gave her a whole apple.

Winter Red: Not that popular, but a small bite got a big reaction. It demonstrated well the diversity of flavors in apples.

Red Canada: Some absolutely loved it..., some didn't.

Jonagold: You had to expect this one here. An old friend to many people. Still among the best of the commonly available varieties.

In conclusion I want to give a special thanks to everyone who worked so hard to make the Tasting Table a success. It might not have gone as well without the leadership and experience of those "tasty" veterans who did much of the work. Above all I owe my gratitude to Chuck Parkman. It is only by his generous donation of fruit that the Tasting Table even exists.

Don Stewart

AND MORE WORDS

I had a good time at this year's Fall Fruit Show despite the reduced number of varieties on the tasting table. (I am always looking for new apples that I can taste and compare with apples I already know, so the contents of the tasting table are very important for me.) I did miss the pears and quinces we've had in some previous years, and I hope that we'll see more of those in the future.

While the space was smaller than the gym in Edmonds, it was also more congenial and comfortable. (True, the gym was very open and had lots of space. I hope that the new facility can continue to provide us with sufficient room.)

One thing I would like to see next year is a more complete listing on the Society's Web page, with the location of the show, specific times, driving directions, and a contact e-mail address (and perhaps a phone number).

Jon Singer

This year's Fall Fruit Show was a welcome variation on an old theme. The new facility in Tukwila created a more intimate and more intense sensory experience. I was struck by the scent of fresh apples, pears and grapes immediately upon entering. The dazzling variety of colors and shapes fairly jumped off the tables. Greens, reds, oranges, russets all seemed more intense this year, possibly because we had a better growing season in 1998 than in 1997. The old Edmonds facility was so open and cavernous that the fruit displays seemed puny and faded. The more compact facility encouraged more discussion and close up inspection. I hope that we will continue to consider new venues to effectively present the fruits of our labors to the public.

David C. Snell

WELCOME to the thirteen new members who joined us at the Show. And **WELCOME** to those of you who have joined us before or since then. If you have any contribution to this newsletter it too is welcome. On page 27 there is a survey that we hope you will send in, either when you renew or if there is something special you would like to see here. From time to time the questions change, so please check it out, or add anything you think is missing.

AND LAST BUT NOT LEAST, I would like to add my thanks to those of you who stepped in when I could not be there. Especially to Marilyn and Dick Tilbury. I don't know what WCFS would do without them, much less what I would do.

Many thanks, also, for the reports on the Show.

Evelyn

I would like to thank all you great people who helped with the 1998 Fall Fruit Show with the set-up and tear-down.

I thought the show was a success except it was too crowded. We leased two rooms figuring we had enough room for the amount of display.

We must know what is required ahead of time. At this location it was 30 days prior to the show.

Orel Vallen
Set-up & Tear-down Chair

The Tukwila Community Center is a beautiful facility and it accommodated our show fairly well. Parking access was excellent, the lecture room worked out well although additional light blockage in the afternoon for slide shows would have been desirable. The banquet room provided an adequate though crowded display area. Some attendees enjoyed the more intimate environment but others felt the site was too crowded, especially compared with the spacious Edmonds Community College gym.

TK Panni should be commended for laying out a good floor plan for displays. It was a tight fit and he was faced with some testy moments during set up. Jude Davis cheerfully sold tickets both days, after commuting from north of Everett. George Moergeli staffed the membership table and made (self powered) PA announcements both days.

Jean McGhee ably sold raffle tickets and Marlene Falkenbury provided snack service both days. Don Stewart and his helpers handled apple tasting with aplomb though he had never been involved with that before. Joe Zeppa kept the speakers on time; all the speakers did a great job. Many others helped one or both days: many thanks to all who helped.

A shining apple was Gary Moulton's young daughter Briana who sold many kinds of apples from the Mt. Vernon station and drew our raffle tickets. The raffle winners included some of the vendors; the cider press was won by the Wilson Irrigation vendor.

The only disappointing aspect of the show was the small attendance. This could be attributed to any number of reasons, e.g., new location a bit hard to find, not enough publicity (though Ciscoe Miorris and Scott Conner kindly provided publicity on their radio garden shows), people less interested in edible landscaping.

Some past shows such as those at the UW Center for Urban Horticulture (CUH) had attendance of 1500. Maybe it's time to think about going back to CUH with its parking and football schedule problems.

Dick Tilbury

WESTERN CASCADE FRUIT SOCIETY — 1998 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 1998 show. There were 218 different varieties (including "sports") shown, which included 55 "new" varieties denoted by an asterisk (*) which identifies a variety that was not shown in 1997 (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 230 varieties (including "sports") shown in the 1997 show, including 66 varieties not shown in 1996. 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, including 80 varieties not shown in 1992. There were 333 varieties (including "sports") shown in the 1992 show, including 140 varieties not shown in 1991. There were 218 varieties (including "sports") shown in the 1991 show, including 47 varieties not shown in 1990.

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

1998 —

Jonagold (21)	Belle de Boskoop (6)	Hudson's Golden Gem (5)
Cox's Orange (12)	Gala (6)	Karmijn de Sonneville (5)
Gravenstein (8)	Spartan (6)	Mutsu (5)
Liberty (8)	Akane (5)	Newtown (5)
Melrose (8)	Empire (5)	Esopus Spitzenburg (5)

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)	McIntosh (6)	Tompkin's King (5)
Northern Spy (8)	Opalescent (6)	

1998 WCFS FRUIT SHOW VARIETY LIST
NUMBER FOLLOWING VARIETY NAME IS NUMBER OF PLATES DISPLAYED

A P P L E S

ACEY MAC 1	EGREMONT RUSSET 3	JONAMAC 2
ADAMS PEARMAIN 2	EIN SHEMER 2*	JONATHAN 2
AKANE 5	ELLISON'S ORANGE 2	KANDIL SINAP 2
ALASKA 1	ELSTAR 4	KARMIJN DE SONNEVILLE 5
ALKAMENE 1	EMPIRE 4	KEEPSAKE 3
ALKAMENE (RED) 2	EMPIRE (THOME) 1	KESWICK CODLIN 2
ANNA 1*	ENTERPRISE (CO-OP-30) 2	KIDD'S ORANGE RED 2
ARLET (SWISS GOURMET) 2	FALL PIPPIN 2*	KING (SEE TOMPKIN'S KING)
AROMA 3	FALL WINE 2	KINGSTON BLACK 1
ASHMEAD'S KERNEL 4	FAMEUSE 2	LAXTON'S SUPERB 1*
BALDWIN 1*	FIESTA 2	LIBERTY 8
BELLE DE BOSKOOP 3	FIRESIDE 2	LOWLAND RASPBERRY 1*
BELLE DE BOSKOOP (RED) 3	FLORINA 1	LUBSK QUEEN 2*
BEN DAVIS 1	FORTUNE (NY429) 1	MACOUN 3
BENHAM 1*	FOXWHELP 1	MAIGOLD 3
BENI SHOGUN 1*	FREEDOM 3	MANTET 2
BERINGER-101 2*	FRUMBERG 3	MCINTOSH 1
BETTY V. 1*	FRUMOS DE VOINESTI 1*	MCINTOSH (PIONEER) 1*
BLACK OXFORD 1*	FUJI 3	MCINTOSH (MARSHALL) 1
BLENHEIM ORANGE 3	GALA 2	MARGIL 1*
BLUE PEARMAIN 2	GALA (RED) 2	MELBA 1*
BRAEBURN 2	GALA (ROYAL) 1	MELROSE 8
BRAMLEY SEEDLING 3	GALA (ULTRARED) 1*	MERTON DELIGHT 2
BREAKEY 1	GENEVA EARLY 2	MERTON RUSSETT 1*
BROCK 2	GINGER GOLD 3	MONARCH 2
BULMER'S NORMAN 1	GOLDEN DELICIOUS 3	MOTHER 1
BURGUNDY 3	GOLDEN NUGGET 1	MUTSU 5
CANADA RED 2	GOLDEN RUSSET 1	NEWTOWN PIPPIN (SEE YELLOW NEWTOWN)
CENTENNIAL (CRAB) 1*	GOLDEN SWEET 2	NEWTOWN SPITZENBURG 5
CHEHALIS 3	GOLDRUSH (CO-OP-38) 1*	NEW YORK-429 (SEE FORTUNE)
CHENANGO STRAWBERRY 1	GOUDREINETTE (SEE BELLE DE BOSKOOP)	NEW YORK-75413 1
CHESTNUT CRAB 3	GRANNY SMITH 2	NEW YORK 75413-30 1*
CHISEL JERSEY 1	GRAVENSTEIN 4	NITTANY 2
COLLAMAR 2	GRAVENSTEIN (RED) 4	NORTHERN SPY 3
CO-OP-25 2	GREENSLEEVES 1	NOVA EASYGROW 2
CO-OP-29 1*	GRIMES GOLDEN 1*	NUGGET 1
CO-OP 32 (SEE PRISTINE)	HARRY MASTER'S JERSEY 1	OLD GRANDDAD 1*
CO-OP-38 (SEE GOLDRUSH)	HAWAII 1	OPEL 2
CO-OP-39 2*	HAZEN 1*	OPALESCENT 4
CORTLAND 1*	HENER-20 2	ORIN 1*
COURT PENDU PLAT 1	HERFORDSHIRE	ORIOLE 2
COW JERSEY 1	REDSTREAK 1	ORLEANS REINETTE 2
COX, CHERRY 3	HIBERNAL 1	OSWEGO 2
COX, KUMMER 2	HOLIDAY 1*	PALOUSE 2
COX, CORVALLO 1	HOLSTEIN 4	PARK DALE BEAUTY 1
COX'S ORANGE PIPPIN 3	HONEYCRISP 3	PINK PEARL 2
COX, QUEEN 3	HUDSON'S GOLDEN GEM 5	PITMASTON PINE APPLE 2
DALITER (ELSTAR SPORT) 1	IDARED 3	PRIMA 4
DALIELT (ELSTAR SPORT) 1	INGRID MARIE 2	PRIMEGOLD 2
DAVIES 2	JEFFERIS 1*	PRISTINE (CO-OP 32) 1*
DEACON JONES 1	JESTER 2	QUINTE 2*
DEVONSHIRE QUARRENDEN 1*	JONAGOLD 10	RED BARON 2
DON HUGHES 1*	JONAGOLD (CRIMSON) 1*	REDCORT 1
DULCET 2	JONAGOLD (DECOSTER) 2*	REDDI 1*
DUTCH MIGNONNE 3	JONAGOLD (JONAGORED) 2	REDFREE 1*
EARLIGOLD 2*	JONAGOLD (KING) 2*	REDMAX 1
EDWARD VII 2	JONAGOLD (RED) 2	REIN DES POMMES 1
	JONAGOLD (RUBINSTAR) 2*	

RIBSTON PIPPIN 1
ROME (RED) 1*
ROUNDTREE SWEET 1*
ROXBURY RUSSET 1
RUBINETTE 1
SALOME 2*
SANDOW 1*
SEKAI-ICHI 2
SENSHU 2
SHIZUKA 4*
SINTA 2
SLIPPERY CIDER 2
SLOUGH SEEDLING 1
SMOKEHOUSE 1*
SNOW (SEE FAMEUSE)
SOMMERSET OF MAINE 1*
SPARTAN 6
SPIGOLD 2
SPOKANE BEAUTY 2
STEARNS 2
STELLAR (AA62) 2
SUGAR SWEET 1
SUMMERED 2
SUNRISE 3
SUNTAN 2
SWAAR 3*
SWEET SIXTEEN 3
TOLLMAN SWEET 1
TOMPKIN'S KING 2
TWENTY OUNCE 1
TYDEMAN'S LATE ORANGE 3
TYDEMAN'S RED 1
VASHON VIOLE 1*
VIKING 1
VIRGINIAGOLD 1
WASHINGTON
STRAWBERRY 1
WEALTHY 1*
WICKSON (CRAB) 2
WIJCIK (MCINTOSH) 1*
WILLIAMS 1
WILLIAM'S PRIDE 3
WILLIAM CRUMP 1*
WINTER BANANA 1
WINTER REDFLESH 2
WINTERSTEIN 3
WORCESTER PEARMAN 2
WOLF RIVER 4
WYNOOCHE 1*
YARLINGTON MILL 1
YELLOW BELLFLOWER 2
YELLOW DELICIOUS (SEE GOLDEN
DELICIOUS)
YELLOW NEWTOWN 3*
YORK IMPERIAL 1
ZABERGAU REINETTE 4

PEARS

ABBE FETAL 1
ANJOU 1
A-RI-RANG 1
BARTLETT 2
BARTLETT (RED) 1
BEAR CREEK GRAFT 1*
BENNET 1
BEURRE ALEXANDER LUCAS 1*
BOSC 3
BOSC BOURDEAU 1*
BOSC BRONZE BEAUTY 1
BOSC GOLDEN RUSSET 1
CHOJURO 3
COLLETTE 1
COMICE 4
CONCORD 1
CONFERENCE 1
DUMONT 1*
ELDORADO 2
HIGHLAND 1
HOGUI 1*
MISHIRASU 1
NITAKA 1*
PINEAPPLE 1*
SECKEL 3
SENSATION (RED) – SEE BARTLETT
SEURI 1*
SHINKO 1*
SHINSEIKI 4
SIERRA 3
SIRRINE 1
SPALDING 1*
SURECROP 1*
TWENTIETH CENTURY 3
(NIJISSEIKI)
VANDER HOECK 1*
WARREN 1*
YA LI 1
YOINASHI 1
YONGI 1

FIGS

KADOTA 1
LATTARULA 1*

KIWI

ACTINIDIA ARGUTA 3
ABBOTT 1*
CHICO 1*
ELMWOOD 2
HAYWARD 2*
SAANICHTON 12 1*
VINCENT 1

GRAPES

ALDEN 1*
BUFFALO 1*
CANADICE 2
CONCORD 1*
EINSET 2*
GLENORA 1*
GOLDEN MUSCAT 1*
INTERLAKEN 2*
LAKEMONT 1*
PETITE JEWEL 1*
RELIANCE 2*
ST. VALLIER 1*
SEIGERREBE 1*
VAN BUREN 1
VANESSA 1*
VENUS 1*

NUTS

BARCELONA FILBERT 1
BLACK WALNUT 1*
BUTTERNUT 1*
CASCADE WALNUT 1
CHEPAKA WALNUT 1
DAVIANA FILBERT 1
FRANQUETTE WALNUT 1*
HALLS HARDY ALMOND 1*
LEN'S SUPREME WALNUT 1

CHERIMOYA 1*

SAPOTE

NETTIE 1

JUJUBE

LANG 1*

PAW PAW 1*

PLUM

ANGELINA 1*
SATSUMA 1*

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1999

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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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SEND IN YOUR E-MAIL ADDRESS AND WE WILL START A FILE OF WCFS MEMBERS

NEXT NEWSLETTER APRIL 1999

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 would you let us know what you think. You may respond even though your membership is not due for renewal!

Are you interested in articles on vegetable or other gardening? No ___ Yes ___ What? _____

What would you like to read about? _____

Please be specific use a separate sheet if you need to

Do you prefer the Bee Line pages stapled or loose? _____

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

Location? _____

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

Location? _____

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 (how much?) or city lot? _____

Any other comments? _____

WESTERN CASCADE FRUIT SOCIETY MEMBERSHIP INFORMATION

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

Name(s) _____ () New
 () Renewal

Street Address _____

City, State, Zip(9 digit, please) _____

Phone _____ E-MAIL ADDRESS _____

_____ Member at Large	\$10.00	_____ Seattle Tree Fruit	\$18.00
_____ North Olympic	\$10.00	(includes monthly newsletter)	
_____ Peninsula-Kitsap	\$10.00	_____ Tahoma	\$10.00
_____ Piper Orchard	\$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

WINTER 1999
WEB SITES TO LOOK INTO

Western Cascade Fruit Society	http://www.wcfs.org
British Columbia Fruit Testers Association	http://www.islandnet.com/~bcfta/
California Rare Fruit Group	http://www.crfg.org/
Good Fruit Grower	http://www.goodfruit.com
Home Orchard Society	http://www.wvi.com/~dough/HOS/HOS1.html
North American Fruit Explorers	http://www.nafex.org

YOU'LL FIND INSIDE

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