1-24-97

The Bee Line

NEWSLETTER OF
WESTERN CASCADE FRUIT SOCIETY
A NON-PROFIT EDUCATIONAL ORGANIZATION

WINTER 1997

ApplesPearsFigsGrapesKiwiCherriesNectarinesPeachesPlumsBlackberriesRaspberriesStrawberriesBlueberriesCurrantsHuckleberriesGooseberriesNuts

COMING SOON TO SERVE YOU

WESTERN CASCADE FRUIT SOCIETY
ANNUAL SPRING MEETING
AND
ROOTSTOCK-SCIONWOOD-FRUITING PLANT SALE
SATURDAY, MARCH 1, 1997

at

United Methodist Church
1919 Pioneer Avenue SW
Puyallup, Washington

LOTS OF FREE PARKING

SEE PAGES 2 TO 4

DATES TO REMEMBER

February 5-9	NW Flower & Garden Show at the Seattle Convention Center--WCFS will be there
February 15	Peninsula Fruit Club Grafting Show--Details on page 7
March 8	WWTFRF/Mt Vernon Research Station Open House--Schedule page 11

WESTERN CASCADE FRUIT SOCIETY
17TH ANNUAL SPRING MEETING
ROOTSTOCK, SCIONWOOD
FRUITING PLANT SALE

SATURDAY MARCH 1, 1997
AT
UNITED METHODIST CHURCH
1919 Pioneer Ave SW
Puyallup

9:00 a.m.	Registration-Free coffee and donuts
9:30 a.m.	17th Annual Meeting: State of the Society president's report; Treasurer's report; Life Membership award; Election of Directors; Drawing for 3 one year memberships
10:00 a.m.	Gary Moulton: Basic Pruning and Training Concepts; all your questions answered
11:00 a.m.	Orel Vallen: Apple Maggot; All the latest and questions answered
12:00 noon	Lunch Break: Bring your own
1:00 p.m.	T.K. Panni: Grape Culture in the Puget Sound Area
2:00 p.m.	Mary Robson on Tips for Successful Back Yard Orchards
3:30 p.m.	Board of Directors Meeting--all members welcome

10:00 a.m. to 3:00 p.m.
ROOTSTOCK, SCIONWOOD AND FRUITING PLANT SALES
GRAFTING INSTRUCTION & WORKSHOP

LOCATION OF ABOVE EVENTS WILL BE POSTED AT REGISTRATION TABLE

DIRECTIONS TO UNITED METHODIST CHURCH

Southbound I-5: Exit on 72nd/74th St--you will go under 74th, U turn onto Tacoma Mall Blvd, then turn right onto 74th St which becomes 72nd St after you cross over the freeway. Continue about 3 miles -at Canyon Rd 72nd becomes Pioneer- continue east -turn left on 19th and left into parking lot.

OR take exit 142B at Federal Way, go west on Hwy 18 a short distance, then turn left on Hwy 161 and continue (it becomes Meridian St E in Puyallup), turn right (west) on Pioneer Ave SW , church is on right about 5 blocks

Northbound I-5: Take exit 127 in south Tacoma area, go east on Hwy 512. Exit 512 at Meridian, Hwy 161, turn left (north); at Pioneer turn left church is about 5 blocks on right.

Southbound Hwy 167: take Hwy 512 to Puyallup; exit at Pioneer, go west-cross Meridian, church is on right about 5 blocks.

ANNUAL MEETING AND SPRING SALE 1997

WHAT'S NEW

If you have grown more trees than you need you may sell them at the Spring Sale. The Board voted to try this for one year to see if it would work, and some of you could at least recover some of your costs. If it is successful, we may go into other fruiting plants next year. The following procedure needs to be followed:

Register with the Treasurer by February 15
Maximum 25 trees per member
Trees must be potted or if bare root, sealed
Each tree identified as to variety, rootstock, scion
Each tree priced to include sales tax

Grower stays with trees, keeps record of sales, collects money, cleans up at end of day, takes home unsold trees

Grower reports sales to a cashier, pays 10% commission to WCFS

There will be a room set aside to store your purchases or pre-orders while you attend the lectures.

The site will be more user friendly as the locations of some of the events has been changed, and there will be better signage for directions to these events

SAVE YOUR SCION WOOD

Bill Davis, in charge of scion wood sales, says it is not too early to start thinking about saving your scionwood for the sale. The scion wood will be sold for 50 cents each (you wont find that price anywhere else!) to help support our research fund. All members are requested to save scions of their favorite varieties that do well in your area and any rare or unusual varieties. Bill would appreciate knowing what will be coming in, call or send your list of varieties 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 9 buds in length from **healthy** trees of a **known** variety. Please, no patented varieties as we do not want to be in violation of the law. It is very important to label **each one** accurately, Masking tape works well, **print** legibly, (spelling and neatness count!), and specify fruit if it isn't apple: Frost Peach, Comice Pear.

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

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

Call Bill if you have any questions: 771-8978 after 5 pm or mail to: 21102 Summit Lane, Edmonds 98026

CAN YOU HELP HERE?

On the day before the sale, Friday February 28 from noon til ?-can you be there?

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

1-Come early to help set up
2-As a helper in small fruits rootstock, scionwood
3-As a cashier-need two more
4-Demonstrate grafting techniques
5-At registration, membership, education tables

Call Orel Vallen 772-2119 or Evelyn 282-6191

LIFE MEMBERSHIP

Is there someone you know who has given outstanding service to WCFS? For many years WCFS has recognized outstanding contributors to the organization with a "Life Membership". The bestowal of a Life Membership honors those who have given of time and talent. Although recipients no longer are required to pay dues, many of those so honored continue to give; financially with contributions and dues, and with their time and talent.

In 1996 Chuck Parkman, Orel Vallen and Paul Vander Hoek were honored. If you would like to nominate someone, please prepare a short resume of the nominee's volunteer service to WCFS that are above and beyond the norm, to be read on the floor at the general meeting, and provide the information to the newsletter editor for publication in the next newsletter if your nomination is accepted.

NOMINATING COMMITTEE REPORT

The Nominating Committee presents five names for Board Directors: Sally Musseter, Harry Kirchner, Ben VanDeren, Lyle McKnight and Dick Tripp. Officers Joe Zeppa, Chuck Holland and Evelyn Troughton agreed to serve another year.

EDUCATION TABLE

If you don't have one in your library, there are still nine copies of Fruit, Berry and Nut Inventory and six copies of The Book of Apples available. They will be on the table with the educational material. Don't miss this last chance to own one.

Other material available include Ten Best Apples, Educational Opportunities for Back Yard Orchardists, Antique Apples in Our Area, Disease and Insect Control, and many more to answer your needs.

Pomona's Harvest will also be available for scanning, in case you missed it at the Fall Fruit Show, and you may order it at this time. This will be your last opportunity to acquire this beautiful book at this price, **and** signed and inscribed by the author if you wish.

Review and order form on page 22 for your convenience.

PLANTS AVAILABLE AT WCFS SPRING SALE

STRAWBERRIES
Shuksan
Totem
Rainier
Puget Reliance (if available)

RASPBERRIES
Amity
Tulameen
Summit

BLACKBERRIES
Chester

BLUEBERRIES
Bluecrop Dixie
Bluejay Duke
Blueray Jersey

SASKATOON
Timm
Success

PRICES ON BERRIES WILL BE THE SAME AS LAST YEAR OR COMPARABLE.

ROOTSTOCK

P22	1/4"	20%	Apple	EM 26	1/4"	45%	Apple
Bud 9	1/4"	25%	Apple	EM 111	1/4"	75%	Apple
M9-337	1/4"	35%	Apple	St. Julian A	1/4"	Plum, Peach , Apricot	
Mark	1/4	40%	Apple	OHxF333	1/4"	Pear	
				Pyrus Calleryana	1/4"	Pear	

NOTES:
1) In the above list, the fraction is rootstock diameter, the percentage is that of standard apple seedling rootstock.
2) Bud 9 is gaining ground as a commercial rootstock.

Order Early! Place your order by February 15 to receive the special price (see order form), the best selection-some varieties are limited. Note that there are only 50 EM 26 this year. All rootstock not sold through pre-orders will be available to the public on March 1. The earlier your order is received the easier it is for Steve to plan his for volunteers to help him put the orders together.

Return the order form with your check **payable to WCFS** to: Steve Jackson 2330 229th Ave NE, Redmond, WA 98053

	Pre-Order Price	March 1 Price
EM 26, EM 111, 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 $1.85 ea
OHxF 333	$2.00 ea/10 or more $1.75 ea	$2.25 ea/10 or more $2.15 ea
P22, Bud 9	$2.50 ea/10 or more $2.00 ea	$2.75 ea/10 or more $2.65 ea

TYPE	NO.	COST ea	10/more ea	TOTAL	TYPE	NO.	COST ea	10/more ea	TOTAL
EM 26		$ 1.50	$ 1.25		OHxF 333		$ 2.00	$ 1.75	
EM 111		$ 1.50	$ 1.25		P-22		$ 2.50	$ 2.25	
St Julian A		$ 1.50	$ 1.25		Bud 9		$ 2.50	$ 2.25	
P. Calleryana		$ 1.50	$ 1.25					SUB TOTAL	
Mark 1/4		$ 1.75	$ 1.50					8.2% WSST	
M9-337		$ 1.75	$ 1.50						
		$ 1.75	$ 1.50						
								TOTAL	

NAME (print)_____PHONE_____

ADDRESS_____CITY_____ZIP_____

IL PRESIDENTE'S MESSAGE

1996 was another good year for WCFS. The Spring event in March and the Fall Fruit Show in October were very well received by the public. What makes these events successful are the many WCFS members who help plan and work these events. I want to take this opportunity to thank all those people and encourage more members to participate. Because of the active participation of its members, WCFS ia a very healthy organization providing an important educational service to our community.

In order to continue to be successful, we must be constantly improving **what** services we provide as well as improving **how** we provide these services. You can help us in this endeavor by suggesting ideas to improve WCFS to any WCFS board member. One way of doing this is by coming to the board meetings with your ideas. Members are always encouraged to attend these meetings. Call any board member for dates, times and locations of meetings.

A few people have suggested that we provide displays and/or activities at both events [Spring Meeting and Fall Fruit Show] that appeal to children and young adults. We need some help on how to do this. Please let us know if you have any specific displays or activities you think might work. We are also looking for someone to coordinate these activities.

Please continue to support our Society. Best wishes for 1997.

Joe Zeppa

THANK YOU THANK YOU THANK YOU

ATTENTION: to those who helped me set-up and take-down at the Fall Fruit Show; I'd like to say thanks to all of you personally, but resist in mentioning any names as I am sure I would forget someone.

A special thanks to the people who were responsible for putting up and taking down the traffic signs each day.

If there were records to be broken I believe you must have bettered the previous best, especially the set-up Friday evening.

Again, I say thanks, you were a good team.

Orel Vallen, Set-up/Take-down Chairman

And to our Home Orchard Society friends from Oregon who so ably identified fruit at the 1996 Fall Fruit Show: Wayne Huffstutter, Loren Mills, Morris X. Smith, and John Walker.

We had help from the BC Fruit Testers Association too, with Valle Lunzman and Jim Walton, one day each.

Thank you all.

And to those who helped at the tasting table, the membership table, education table, raffle table and selling tickets at the door. To those who displayed the fruits of your harvest, contracted the speakers, and contacted the commercial exhibitors, you are the heart of what made this event a success.

Thank you all.

IN MEMORIA

Our deepest sympathy to Ron Schaevitz, president of Piper Orchard Chapter, on the loss of his wife, Lee, December 22, 1996 from cancer.

Stu Shumway, a charter member of South Puget Sound Chapter passed away January 6, 1997. Our deepest sympathy to Frances.

POMONA'S HARVEST

We have 15 orders for Pomona's Harvest by Fred Janson, reviewed in the Fall 1996 issue of The Bee Line on page 19. Fred has agreed to honor the price he quoted for 25 books. Those listed below need to let me know if you want your copy signed and/or with an inscription:

Chuck Parkman*	Larry Barello
Chuck Holland*	David Battey
Walt Lyon*	Julia Kissel
Doris Leavens*	Louise Luce
Frank Lacey	Joan Christ
Burnt Ridge Orchards	

*Please send check with your information.

I will place the order as soon as I hear from all of you. There is still time to order the book if you wish.

Well, the postal service is at it again. I am afraid that It will soon be necessary to have nine digit zips for the bulk rate. Once a year we have to confirm that all the addresses have been checked. It would be of great help if you would include all nine digits when you renew your membership. I will work at updating the mailing list as the new info comes in.

In March the forwarding order I placed with the post office when I moved will expire, which means it will be returned to you if it is first class, trashed otherwise. Please make sure you use my NEW name and NEW address for any correspondence. Its listed in every issue of The Bee Line. I'm still getting mail forwarded and it takes two or three extra days to reach me.

And remember: if your address label has the renewal date highlighted in **RED**, it is your last newsletter, we're gonna miss you; in **YELLOW**, your membership dues are delinquent, let us hear from you soon; in **GREEN** your dues are payable before the next newsletter.

NEW! NEW! NEW!

To the right is the new logo approved by your Board, a cherry within a peach within an apple. The need to represent as many varieties of fruit grown by members was the goal, without being too busy.

The Board also discussed having tee shirts or sweat shirts and hats with this logo applied. The design has been taken to a screen print shop and we hope to have samples and prices at the spring meeting. Of course, the prices will be most attractive, and so will the shirts!

Western Cascade Fruit Society

ALL ABOUT THE 1996 FALL FRUIT SHOW

WELL, ALMOST ALL—you really had to be there to know ALL. There were 704 paid admissions, plus children, up from 1995 attendance. (Four more is UP, wouldn't you say?)

However, the profits were UP—$218.00. The increase is due to the snack bar, commercial exhibitors, cider press raffle ticket sales, and pamphlet sales.

The inventory of fruit displayed (many thanks to Dave Battey for his time and effort) is on the following pages, so I wont go into that.

While the number of fruit displayed was down and the number of apples presented for tasting was not what we have had in the past—1996 was not a grower friendly year for us weatherwise—we all had a good time. The lectures were well attended and the topics well rerceived. The speakers were excellent. Nothing but the best from WCFS!

A detailed financial report will be presented at the annual spring meeting- - - -see you there.

NOTICE THE CHANGES ON THE MEMBERSHIP RENEWAL PAGE? WE WANT YOUR INPUT.

APPLE MAGGOT FREE APPLES WEST OF THE CASCADES

by Orel Vallen

I read an article in the May 1986 issue of the American Fruit Grower. The author was George B. MacCollom, Professor of Entomology, University of Vermont. The first two lines were "Is an apple maggot fly trap-out strategy now possible? This may sound like a pipe dream, but with available traps, now it is a real possibility." This started me thinking about bait trapping the AM flies for the backyard orchardist, which is what most people are on the west side of the Cascades. The first year I trapped sort of convinced me the BYO's would be able to have very few fresh fruits to eat the way the AMs were spreading. So why not try the bait panels for 3 or 4 years to see what happened. We cannot ever hope to completely eliminate them, as we have too many things they love to dine on such as hawthorn, cotoneaster, rose hips and pyracanthas; but possibly we could eliminate them in our back yards to have some good fruit to eat.

The theory of having no AM came to pass this fall. Two families reported the good news, neither one had an AM. One family was east of 1st Ave S vicinity 200th St, and across from Normandy Park where there are lots of AM. They went to dwarfing trees, using 3 or 4 wires to train them onto, which anchors them in the ground, I believe, better than the stakes as you can train the limbs by tying in two or three locations. They kept the weeds out about 16" on each side of the tree. All they used was the yellow bait panels, plastic envelopes, brush on Tanglefoot (1 quart tin cans) and the scent. The trees were 2 Liberty and 1 Chehalis. The traps should be renewed every other week, June until October 10th The apples have to be picked up daily and destroyed, either by putting them in the garbage disposal, cooking them to 160 degrees, then they are safe for the compost. The apple maggots ride the apple down and immediately go into the ground, pupate and 30 to 40 days they will be up and attacking your fruit crop again.

The other party was just south of Arbor Heights and a little north of Normandy Park. Their trees were staked and taller than the trellised ones. The varieties were Red Gravenstein, Sweet Sixteen and Melrose. Rootstock size was unknown by poth parties.

I would recommend anyone wanting to put in fruit trees to go to dwarfing rootstock. There are several varieties, you should study them and pick the one that suits your soil. Have the variety grafted or budded onto it. Some of the proven rootstocks are" P22, P2, Bud 9, EMLA 27. If you are going to stake them plant the stake first; personally I prefer a three wire trellis, with your irrigation line on the bottom wire about 16" above the ground. Plant your trees 5 to 6 feet apart, in full sun with the row going north and south.

Watching the progress of these AM, especially the speed they went up the Columbia river, on both sides, I think they like to stay by water. Also, we have more food for their survival here on the west side of the Cascades than the east side does.

NEWS FROM THE CHAPTERS

NORTH OLYMPIC FRUIT CLUB

Results of the 1996 October Taste Test are in! First reporting winners of the categories of Texture, Looks and Flavor.

TEXTURE	LOOKS	FLAVOR
1-Candy Stripe Gravenstein	Candy Stripe Gravenstein	Candy Stripe Gravenstein
2-Freedom & Gala	Red Gravenstein & Winesap	Red Gravenstein
3-Chehalis & Norda (Alaskan)	Royal Gala	Norda
4-Nova	Freedom	Chehalis
5-Goodland, Liberty Winesap	Nova	Freedom
6-Red Gravenstein	Chehalis	Liberty
7-Akane	Liberty & Norda	Gala & Goodland
8-Rambo	Summer Red	Akane, Hawaii, HoneyCrisp,Nova
9-Royal Gala	Hawaii	Royal Gala
10-Honey Crisp	Goodland	Rambo

FINALISTS FOR TOP TEN ARE:

1-Candy Stripe Gravenstein
2-Red Gravenstein
3-Freedom
4-Chehalis & Alaskan Norda
5-Liberty & Nova
6-Goodland
7-Gala
8-Royal Gala
9-Winesap
10-Akane

And here are the results of the November Taste Tests:

TEXTURE	LOOKS	FLAVOR
1-Macoun	Spigold	Pink Sugar
2-Spigold	*Erie's Delight	CornishGilliflower
3-Grimes Golden, Jonathan	Pink Sugar	Orleans Reinette
4-*Erie's Delight	Criterion	Enterprise, McIntosh, Grimes Golden
5-Pink Sugar	Sinta, Jonagold	Honey Crisp
6-Criterion	McIntosh	Sinta
7-Karminj de Sonnaville	Arlet	Macoun
8-Orleans Reinette	Grimes Golden	Karminj de Sonnaville
9-Honey Crisp	Tomkin King	Burgundy, Kid's Orange Red
10-Davies	Macoun	Criterion

FINALISTS FOR TOP TEN APPLES ARE

1-Pink Sugar
2-Grimes Golden
3-Macoun & Spigold
4-Jonagold
5-Sinta
6-*Erie's Delight
7-Criterion
8-Honey Crisp
9-McIntosh
10-Enterprise

*Indicates the apple identified as "Erie's Delight". Although there were 2 varieties on the table, the unidentified apples scored much higher in all categories and overall.

PENINSULA FRUIT CLUB

New officers for Peninsula Fruit Club for 1997 are:

President--Michael Shannon
Secretary--Kirsten Romtvedt
Treasurer--Mark Rimbault

Their annual Grafting Show will be held February 15, hours are Noon to 4:00 p.m. at the East Bremerton Library. For the fourth year Peninsula Chapter members will be going to two high schools to teach grafting. Peninsula provides 200 to 300 root stocks for these events.

Peninsula's Fall Fruit Show was canceled, 1996 was not a year for apples, reports Mike. They should know by June if they will have one in 1997.

Mike would like to know if any WCFS members would be interested in being guest speakers at their meetings. Peninsula F.C. is willing to pay transportation costs. Mike would like to build up the membership and interest. Contact Mike, address and phone number on page 26.

One last request-Mike says he has been growing 3 different Brown Russets for the past 5 or 6 years. Does anyone have the REAL Brown Russet? He'd like to hear from you.

TAHOMA CHAPTER

At the November, 1996 meeting, Joseph Knopf, Extension Agent, spoke on winter tree care. He emphasized that conditions are right for brown rot, and advised spraying.

The January 1997 meeting was on the fundamentals of grafting. In February assignments will be made for the WCFS Spring Meeting and Sale and the Puyallup Fair, with more on grafting and pruning.

SEATTLE TREE FRUIT SOCIETY

During the summer months there were field trips to members' orchards.

In early June, a "triple header" to Monte and Hildegard Hendrickson's, Mike Kearsly and Deana & Bill Dunnell's, (daughter and son-in-law of president Marlene Falkenbury, now living in the former home of long time WCFS members Richard and June Steegstra)-all in Seattle. June 29th to Ron and Lynn Pruett's on Whidbey Island, August 24th to John and Reda Parker in Port Ludlow.

At their December 7th meeting members shared "What Went Right and What Went Wrong" this year in our backyard orchards.

At the January 25th meeting members will vote on a by-law change, elect officers and then mark labels for plants for the Spring Sale.

Editor's note: I would like to hear from all the chapters on a regular basis to report your activities.

DO YOU KNOW YOUR APPLES?

Want to have some fun and test your knowledge? Some apples are chance seedlings, others are varieties from breeding programs. Do you know which is which?

The following list contains both. Sort them out and send your answers to The Bee Line editor by February 15. Those sending in ALL correct answers will be entered in a drawing at the Spring Meeting. Three names will be drawn to receive one year free membership in WCFS.

Almost everyone may enter; WCFS Board members are excluded, also those of you who subscribe to a certain publication, and I know who you are!! Oh yes, Bob Norton and WSU extension agents are excluded.

So, sharpen your pencils, put on your thinking caps and ready, get set, go.

Arlet
Braeburn
Cameo
Elstar
Empire
Fuji
Gala
Gala Supreme
Ginger Gold
Golden Delicious
Granny Smith
HoneyCrisp
Jonagold
Pink Lady
Red Delicious
Sansa
Senshu
Southern Snap
Sundowner
Sunrise

A BREEDING PROGRAM IN WASHINGTON STATE

Genetic engineering may be useful for improving existing fruit varieties, but new cultivars are still produced through conventional breeding. Single genes, for example those that confer insect and disease resistance, can be inserted into plants through biotechnology. Fruit characteristics such as flavor, texture, appearance and growth habit are controlled by multiple genes and so far cannot be manipulated in the same way.

At Washington State University the first breeding program was begun two years ago by Dr Bruce Barritt, research horticulturist, with a goal to produce new varieties that are not only better, but totally different from existing varieties. From that first year of 48 crosses using 20 parents, almost 19,000 seeds were collected; of those, 10,500 were sowed in the greenhouse then 9,300 transplanted to the field. About 6,000 were budded onto M.9 rootstocks.

Selecting good parents is important to a good breeding program. Parents Dr Barritt has used most often include Fuji, Gala, Cameo, Splendor, Pink Lady and Braeburn. Variety trials established by Dr Robert Norton at Mt Vernon have been a major source of material.

Although he has no preconceived idea of a variety he would like to produce, Dr Barritt says that Washington has been most successful with the red varieties. He states that particularly in the warm areas the reds color better. Storage life is also a consideration in producing varieties specifically for growers in Washington state.

Because of these specific requirements, Dr Barritt embarked on a program that will not produce commercial results for 15 years, at least. Fruit from the seedlings will be evaluated for several years and in the year 2002 will begin to select the most promising ones. These will be propagated and planted in trials in three areas and over the following years selections will be evaluated for tree health, productivity and fruit quality, both on the tree and out of storage. By the year 2009 some may be ready for grower trials, test marketing or release.

Until the 1970s, most of the major varieties of the world were chance seedlings. Since then an increasing number have come from breeding programs, by plant breeders in other apple producing areas, to suit their specific needs.

Information on Breeding Program from Good Fruit Grower Vol 46 #16

THE ALL-AMERICAN PAWPAW

by Desmond R. Layne, Ph.D.

Revival Efforts May Bear Much 'Fruit'

"Where, oh where, is dear little Nellie (Sallie, etc.)? 'Way down yonder in the pawpaw patch." this traditional American folk song and game may bring back fond memories for some of you. Fall hunting for pawpaws in the woods (and eating them!) is a cherished tradition for many rural families in the southeastern United States.

Pawpaws have a well established place in folklore and American history. The first reference to the paw-paw dates back to 1541 when followers of the Spanish explorer Hernando de Soto recorded finding Native Americans growing and eating pawpaws in the valley of the Mississippi. It has also been reported that the Native Americans used the bark of trees for making fishing nets. The fruits were said to have once saved Lewis and Clark from starvation.

John Lawson in his book *A New Voyage to Carolina* (1709) wrote in reference to the pawpaw that they are "as sweet, as any thing can well be. They made rare Puddings of this Fruit." John Filson, an early settler, promoter and developer of Kentucky said in his 1784 book *The Discovery, Settlement and present State of Kentucke*, "the pappa-tree does not grow to a great size, is a soft wood, bears a fine fruit much like a cucumber is shape and size, and tastes sweet."

Daniel Boone and Mark Twain were reported to have been pawpaw fans. John James Audubon painted the yellow-billed cuckoo on a native pawpaw tree (ca. 1827). During the famous Hatfield-McCoy feud along the Kentucky-West Virginia border, on Aug. 9, 1882, three sons of Randolph McCoy (clan leader) were tied to pawpaw bushes and executed by the rival Hatfield family. A number of American towns, townships, creeks and rivers were named after the pawpaw during the 19th century.

Origin and Botany

Some of you may still be asking, "What IS a pawpaw anyway?" Not to be confused with the tropical Papaya or papaw (*Carica papaya*), the pawpaw (*Asimina triloba* L. Dunal) is the largest edible fruit that is native to the United States. When fruits can be found in the wild (if the raccoons, opossums or foxes haven't taken them), they are typically on small trees in the forest understory near the river flood plain. These distinctive trees have a tropical appearance with large, dark green, droopy leaves and a smooth, grayish bark. Flowers, which typically open in early April in Kentucky, hang upside down and resemble a bell. They have dark maroon-colored petals and may be up to 2" across. Like apples, paw-paws require cross-pollination because they are self-incompatible. Therefore, you need two unrelated trees, or different varieties, in your yard to set fruit.

Fruits have an oblong shape, like a small potato, with green skin. They may appear singly or in clusters of up to nine fruit and they are borne on previous year's shoot growth. Fruit clusters resemble that of the tropical banana plant (*Musa sp.*). Ripe fruit aroma is very strong and the taste is a very sweet blend of banana, mango and pineapple flavors. The appearance and flavor of the fruit have led to the common name "Kentucky banana" or "poor man's banana."

Whether wild or cultivated, there is considerable variation among pawpaw trees for fruit size and flavor, skin and flesh color at ripeness, seed size and seed number. Fruits as large as almost two pounds have been reported, but typically they weigh a half-pound. In Kentucky, ripe fruit can be harvested from late August through mid-October.

Fruits have a short shelf-life. At room temperature, a tree-ripened fruit will spoil in three days but if refrigerated, it is good for three weeks. Some people freeze whole fruits. Fruits can be picked slightly green to extend the shelf-life. They respond to ethylene like other climatic fruits (e.g., apple, banana).

Although the pawpaw is not yet a commercially important native American fruit, others such as blueberry, cranberry and raspberry have come from the wild to occupy important niches in the commercial fruit market. An important task early in the domestication process is to identify truly superior clones or varieties that will have strong market appeal (good flavor, few/small seeds, appropriate size, color, shape, etc.).

Pawpaws are native to 25 states in the U.S. ranging from northern Florida to southern Ontario (Canada) and as far west as eastern Nebraska. They have been successfully grown outside their native range in parts of California, Oregon and Washington. are the only temperate member of the tropical Custard Apple or Annonaceae family. This means that they are the only member of this plant family (including such fruits as sweetsop, soursop, sugar apple, custard apple, cherimoya, atemoya) that survive in regions where there is a winter. There are eight other *Asimina* species that grow in the U.S. but these are limited to southern Georgia and Florida.

Public Interest

The affection pawpaw enthusiasts have for this historically neglected and uniquely American native fruit is quite remarkable. Several national organizations have had a long-standing interest in pawpaws including the North American Fruit Explorers, and the California Rare Fruit Growers.

In 1988, R. Neal Peterson founded The Pawpaw Foundation (PPF) (headquartered in Washington D.C.) as a nonprofit organization "dedicated to research and development of *Asimina triloba* as a new fruit crop for American farmers and consumers." Currently, PPF has almost 300 members. Under the leadership of Mr. Peterson, PPF has been active in collecting, evaluating and preserving germplasm, pawpaw breeding, fruit distribution, seed sales, interacting with research scientists, and educating the public. PPF receives hundreds of letters a year requesting information about

pawpaws. It also publishes a semi-annual newsletter "From the PawPaw Patch."

Here at KSU, I have received over 500 inquiries (phone calls, letters, e-mail) in the last six months from people across the U.S. seeking information about pawpaws, the availability of fruit, trees and seeds. Many of these inquiries include the sharing of wonderful reminiscences of this fruit. Others express great enthusiasm and excitement upon learning that someone is *finally* taking an academic interest in pawpaws. One recent caller wanted to know where he could get a semi-truck load of fruit to market in downtown Los Angeles!

Public interest has been fueled somewhat by recent press coverage in newspaper articles (The Wall Street Journal, USA Today, Baltimore Sun, Detroit Free Press, Lafayette Journal and Courier, Lexington Herald Leader, Frankfort State Journal, Windsor Star), popular magazine articles (American Horticulturist, Country America), and through a December 1995 interview on National Public Radio's "All Things Considered" daily evening program hosted by Noah Adams.

Whether curiosity, folklore, the exotic nature of the fruit and tree, or genuine commercial interest, pawpaws are beginning to gain considerable attention across the U.S. This national attention is a mixed blessing. On the one hand, it is great exposure to promote pawpaw's commercial development but on the other, we are at the infancy stage in terms of academic research and industry development (fruit production, processing, marketing, etc.) and we have only limited information for those who seek more. Scientifically based recommendations, which are a prerequisite for industry development, take many years of research to develop. We are in the early stages of developing these recommendations.

Economic Rationale

"Well, OK, pawpaws sound kind of interesting" you may think, "but if they grow in the wild already, why bother trying to develop them as a commercially important native plant?" The economic rationale for the commercial development of pawpaw is tied to the need, in certain areas of the country, to find new high-value crops to supplement or provide alternatives for old ones that are losing value.

Tobacco is one such example. Since 1976, the percentage of total world tobacco produced by the U.S. has dropped from 53 to 28%, largely due to increased production abroad. With the trend toward global free trade U.S. cigarette companies will likely be able to use even more foreign tobacco in their cigarettes. In addition, with the growing public concern about the impact of smoking on human health, it is likely current U.S. tobacco price support systems will become jeopardized. As a result, thousands of American small-farm families will be negatively affected. The development of alter-native agricultural enterprises that could help tobacco farmers to diversify and thereby enhance their continued, viability is a long-term, ongoing initiative at KSU. We believe that pawpaws have the potential to provide significant supplemental income for tobacco farmers and others over a 20-30 year period.

Commercial Potential

Pawpaws have excellent commercial potential for these reasons: 1) adaptation of trees to existing environment, 2) nutritional/cosmetic value of fruit, 3) natural compounds produced in the plant, 4) nursery wholesale and retail tree production, and 5) as a component in residential 'edible' landscapes and butterfly gardens.

Pawpaw is well-adapted to the 25 states to which it is native and where it already grows in the wild. It is hardy to zone 5 (-13°F) and requires a minimum of 400 hours annual chill units, 160 frost-free days, and 32" of annual precipitation with most falling during spring and summer. Pawpaw trees could be utilized for habitat restoration and biodiversification in parks, woodlots and forests.

Pawpaws are an excellent food source. They are high in vitamin C, potassium, magnesium, iron, copper, manganese and several essential amino acids. They also contain significant amounts of riboflavin, niacin, calcium, phosphorus and zinc. Pawpaws contain these nutrients in amounts that are generally about the same or greater than those found in bananas, apples or oranges. The intense tropical flavor and aroma my also be useful for developing processed food products, (e.g., blended fruit drinks, baby food, ice creams, sherbets, yogurts). I have one 1866 report of making a pawpaw brandy wherein "a bushel of the ripe fruit will yield two gallons of the spirits." The flesh purees easily and freezes nicely. Pawpaws easily substitute in equal part for banana in many dessert recipes. We are currently developing an extension bulletin on pawpaw nutrition and food uses including many pawpaw dessert recipes (pies, custards, cookies, cakes, breads, muffins, etc.) Aromas may be used commercially in cosmetics and skin products.

Pawpaw plants produce natural defense compounds (annonaceous acetogenins) in leaf, bark and twig tissues, that possess both highly anti-tumor and pesticidal properties. Current research by Dr. Jerry McLaughlin at Purdue University suggests that a potentially lucrative industry, based simply on production of plant biomass, could develop for production of anti-cancer drugs (pending food and Drug Administration approval) and natural (botanical) pesticides. The high level of natural defense compounds that exist in the tree make it highly resistant to insect/disease infestation. With proper management, organic commercial fruit production may be possible. Organically produced fruit would be very attractive to the pesticide-conscious consumer plus input costs (pesticides) for the grower and environmental impact would be significantly reduced if this becomes feasible.

Currently in the U.S., there are more than 40 commercial nurseries selling pawpaw trees. Seedling and grafted trees in the retail nursery trade are currently selling briskly for as much as $18.50 and $26.50 apiece respectively, versus $3-4 for a 2 year old grafted, apple tree. Standing orders are currently in excess of 40,000 trees in the wholesale market (Jim Gilbert, Northwoods

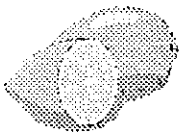
Nursery, Molalla, OR, personal communication). Although several nurseries sell bare-root seedlings, I encourage consumers to purchase container-grown trees since bare-root trees typically perform poorly and often die. If properly cared for (adequate light, water, fertilizer and weed control), a seedling tree should come into bearing in five to seven years. A seedling tree to which a named variety has been grafted will come into bearing in as few as three years.

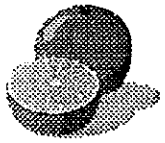
Pawpaws are ideally suited for the residential "edible" landscape because of their lush, tropical appearance, attractive conical growth form, size, fall color (yellow), and delicious fruit. In addition, *Adimina spp.* are suitable for butterfly gardens as they attract the zebra swallowtail (*Eurytides marcellus*) for whom they are the exclusive larval host plant. This insect is not an economic pest but regarded by most as a beautiful attraction.

Dr. Desmomd R. Layne is Principal Investigator-Horticulture and Curator-USDA National Clonal Germplasm Repository for Asimina spp., Kentucky State University (KSU) and Adjunct Assistant Professor of Horticulture, University of Kentucky.

For more information: Consult my Pawpaw Fact Sheet on the WWW that can be accessed at the following url address:
http://newcrop.hort.purdue.edu/hort/newcrops/Crops/CropFactSheets/pawpaw.html

The above article was printed in Fruit Gardener May/June 1996, a publication of California Rare Fruit Growers, Inc.





SUBTROPICAL FRUIT INTEREST GROUP

by Chuck Parkman

Several years ago I posted an article in the newsletter asking for names of those who would be interested in a sub-tropical interest group in the Western Cascade Fruit Society. I received only 2 or 3 responses, so did not proceed further at that time.

Recently I became acquainted with Paul Moore, who has retired here in Sequim. He was in charge of Agricultural Research at the University of California, Riverside Station, prior to retiring. His research included citrus fruit and other sub-tropical fruit research.

He has expressed an interest in a sub-tropical fruit interest group within Western Cascade Fruit Society. His experience and knowledge of citrus and other sub-tropical fruit would be very helpful for those with green houses and an interest in growing these fruits.

Anyone interested in this interest group please contact me at P.O. Box 128, Carlsborg, WA 98324

If an adequate number of people respond, we can meet and determine what action to take.

MOUNT VERNON OPEN HOUSE AND FIELD DAY SCHEDULE SATURDAY MARCH 8, 1997

Western Washington Tree Fruit Research Foundation in cooperation with Mount Vernon Research Unit has announced the following schedule:

8:30- 9:00 a.m. Registration

9:00-10:00 a.m. BUILDING A - Auditorium:
Grafting Techniques & Aftercare
Joe Biringer
BUILDING B - Vehicle Barn:
Practicle Orchard Pruning
Brooke Peterson

10:00-11:00 a.m. IN FIELD
Pruning Demonstration & Practice
Brooke Peterson
Grafting, Hands-on Demo & Practice
BUILDING A
Winter and Post Bloom Sprays
Mary Robson
BUILDING B
Fruit Varieties for the Home Garden
James "Ciscoe" Morris

11:00-12:30 LUNCH (on your own)
WWTFRF Annual Members Meeting

12:30- 1:30 p.m. BUILDING A
Grafting Techniques & Aftercare
Joe Biringer
BUILDING B - Vehicle Barn:
Practicle Orchard Pruning
Brooke Peterson

1:30-2:30 p.m. IN FIELD
Pruning Demonstration & Practice
Brooke Peterson
Grafting, Hands-on Demo & Practice
BUILDING A
Winter and Post Bloom Sprays
Mary Robson
BUILDING B
Fruit Varieties for the Home Garden
James "Ciscoe" Morris

IN ADDITION

Scionwood and Rootstock Sales
Membership in WWTFRF Information
Master Gardeners: Information & Publications
WCFS: Information & Membership Applications
Commercial Displays - Catalogs
Garden and Orchard Supplies

The Field Day is free to WWTFRF members. A $10.00 contribution for non members is requested to help defray costs.

WWTFRF is dedicated to faising funds for research in tree fruit varieties for western Washington.

WSDA/WSU POLLINATION CONFERENCE

by Ray Elder

On November 14, 1996, Washington State Department of Agriculture and Washington State University sponsored a Pollination Conference in Ellensburg. Joe Zeppa, WCFS president asked Ray Elder to attend in his behalf. The following is Ray's report.

Reportedly, this conference, with a broad spectrum of participants, is the first of its kind in any state in the country. A good sign!

I was fortunate to be invited to the conference, both by Jim Bach (Washington State Department of Agriculture) and Joe Zeppa of WCFS. A short summary of the meeting is as follows.

The introduction pointed out many facts and statistics concerning the honeybee and its mite problem. Many of us wouldn't be surprised, for instance, that the honey bee, as a pollinator, is some 143 times more valuable than as a honey producer.

What research that has been done has been spotty and rather 'hit and miss'. Dr. John Brown (WSU Chair) recently took over that position and about the first task he was assigned was to cut the research budget by 15%! That pretty much pointed out a major problem (again)—tighter and tighter budgets.

The problems of inadequate/poor pollination were pointed out, such as stunted and lop-sided apples, fewer fruit, etc.

The Verroa and Thoracic mites were first discovered about 1912 on the Isle of Wight and gradually worked their way pretty much throughout the world.

The aggressive Verroa mite multiplies quickly and weakens the bee colony to the point where the bees either die or try to escape the massacre and thus spreads the mite to other colonies. The mite attaches itself to the bee or larvae and literally sucks out its life.

The Thoracic mite, which is particularly bad, gets in the throat of the bee, weakening it to the point where it is susceptible to any number of diseases or problems.

Stress, such as poor weather, lack of food, etc. further weakens the queen and her colony and a vicious cycle starts. As the colony dies off the growers hasten to replace them with inferior mass-produced (sugar fed) queens from the south (California and Florida), which are genetically weak—not enough pheromones and too much inbreeding—and thus a weak colony, much more susceptible to mite infestation.

And so the cycle goes. The queens last only three or four weeks—not long enough to build up the strength of the colony. A weak colony soon succumbs.

Pesticides used indiscriminately were discussed, but education is gradually helping that situation with registered complaints dropping to only six or seven in the state in 1995 and 1996 while it was very high in 1992.

It was also pointed out that leaf cutter and alkalai bees have problems of their own, and alkalai bees had disappeared from the Columbia Basin years ago.

It was good to hear, however, that the Orchard Mason bee and bumble bees or most of the native pollinating bees for that matter, were not in danger of attack by either the Verroa or Thoracic mites! Good news indeed!

It is thought that many bee growers are only surviving by controlling cash flow and depreciation —not an economically sound business to be in right now.

Many participants think that the problems will be solved more by the bee keepers than by governmental departments. In Europe the bee keepers have the mites but state that it is a 'non-problem' as they have experimented with genetic diversity and cross-breeding to the point where they can 'live with' the problem.

A special cross-bred bee has been developed in southeast Italy and some are being imported to the USA but under strict quarantine for at least six months.

Although the meeting was intended to designate committees with specified tasks like "who will do what when" the meeting unfortunately degenerated into considerable bickering between fruit growers and bee keepers.

The very meat of the problem seems to be more and closer cooperation between the bee keepers and growers.

One grower stood up and stated, "I'm not interested in bee keepers!" How could anything be more inter-dependent?!

Hopefully, this meeting, like many others, will be the seed that sprouts into a tree of mutual cooperation and shared research—for without it our very lives could be threatened.

Ray Elder is a long time member of WCFS, a past treasurer, and has a keen interest in bee culture.

DEXTER CIDER MILL APPLE COOKBOOK

A BOOK REVIEW

by Chuck Parkman

I am a sucker for apple cookbooks. I have six or eight laying around while I search for an appetizing recipe in vain. When I opened the Dexter Cider Mill Cookbook I found one on the first page. The book is written by people who know apples and cider and how to use them in cooking.

The book includes sections on beverages, breads, side dishes, main dishes and desserts. Descriptions of many of today's most popular apple varieties are scattered throughout the book. History of the Dexter Cider Mill, which started operations in 1886 is included. The cider making process is described in narrative and in photographs.

I recommend the book to those who favor apples in their food and drink

Chuck sends the following information from a clipping: Katherine Merkel Koziski recently received first place for best cookbook for the Dexter Cider Mill Cookbook in the Mid America Publishers Association Book Awards '96.

"The Dexter Cider Mill Apple cookbook was selected from a record number of exceptional books submitted this year" says Chris Roerden, president of MAPA.

This is the fourth recognition this cookbook has received. It is endorsed by the Michigan Apple Committee and has been awarded the outstanding accomplishment award from the Writers Digest 1995 National Self-Publishing contest and several of its recipes will be re-published in the Best of The Best of Michigan due out late October.

The cookbook has over 90 pages of recipes accompanied by full-color photographs of all recipes and the cider-making process. To obtain a copy of this cookbook send $16.95 plus $3.00 postage and handling to: Great American Publishing, P.O. Box 128, Sparta, MI 49345

URBAN YARD WASTE BENEFITS ORCHARD

California Agriculture - University of California - September/October 1995

Composted waste from urban yards may have reduced brown rot disease in a San Joaquin Valley peach research plot. The plot treated with composted lawn clippings, tree prunings and leaves, showed no incidence of brown rot disease two harvests in a row in 1994.

Brown rot affected 20 to 24% of fruit in adjacent research plots treated with traditional composts and fertilizers at typical levels. Also in 1994, unamended (control) peach trees had three times more disease than the trees amended with composted urban waste, according to plant pathologist Themis Michailides.

In a postharvest evaluation of the 1994 first harvest, peaches from compost-amended trees had 0% brown rot and the unamended control had 2.5%. However, 24% of the fruit in the neighboring conventional plot had brown rot. In the second harvest, the compost-amended fruit had 0% brown rot, the unamended had 5%, and the fruit from the conventional plot had 20% brown rot. Michailides, who is based at Kearney Ag Center in Parlier, doesn't know why "green waste" appears to reduce brown rot, but he has a theory.

"We found millions of yeast spores on the fruit surfaces in plots treated with urban compost," Michailides says. "The more yeast we had on the fruit, the less brown rot developed."

The green waste compost may carry the harmless yeast into the orchard or may alter the fruit surface to encourage the yeast to grow, he says. Its presence also may block development of brown rot.

WSU's MOUNT VERNON UNIT PLANS EXPANSION

by S. Sanger--Good Fruit Grower December 1996

Dr. Wilbur C. Anderson, manager and horticulturist at Washington State University's Mount Vernon Research and Extension Unit, says his operation, with strong community support in the Skagit County area, is aiming for an expanded research program.

One emphasis is the development of new cash crops. "We are taking a look at the Jonagold program as a bright point of a small industry that has great potential," Anderson said. Another possibility is chicory, a root crop which can be processed and used as a sweetener and fat substitute.

"We are trying to revitalize the unit through the expansion of programs, and, hopefully, we will build a new facility here. Our vision includes a new administration building and a merger with the Skagit County Extension Service now located in downtown Mount Vernon. Right now, we are finishing up the idea, and community leaders will be going to Washington State University to see if the College of Agriculture will buy into our vision."

An important reason for the search for new cash crops, such as apples and pears, is that farmland preservation is a priority consideration for Anderson and others in the urban-threatened area. Higher value crops are essential, Anderson said, if farmland preservation is to succeed.

"We need a bigger base agriculturally and economically. There's no way to preserve farmland if there is no economic opportunity."

TREE CONDITION, NOT VARIETY, LINKED TO WINTER DAMAGE

By Geraldine Warner--excerpts from Good Fruit Grower, July 1996

Although many Fuji trees were damaged in Washington State's deep freeze last winter, injury seems to be linked more to tree age and vigor, and soil type, than to any particular variety or rootstock.

Dr. Guy Witney, Washington State Cooperative Extension tree fruit agent for north central Washington, said although there are many reports of Fuji and Gala being damaged, it may be because of their age. Most damaged trees seem to be between four and seven years old, and those two varieties were widely planted in Washington between 1989 and 1992.

Tom Auvil, head of field services for the cooperative Trout-Blue Chelan, however, believes site and condition of the trees were the most significant factors. Trees planted in very sandy soils, or slow growing or poor performing trees, fared worst.

In situations where varieties could be compared, Fuji and Red Delicious were probably hit the hardest, Granny Smith and Gala next, and Golden Delicious and Braeburn seem to have tolerated the cold best, Auvil said. In side-by-side comparisons of rootstocks, Malling 9 and M.26 were hit hard, and M.7 and M.106 seemed to be more winter hardy. Where Budagovsky 9 was planted alongside M.9, the Bud 9 has shown more cold tolerance than M.9. But there are always exceptions.

In an orchard at Twenty-five Mile Creek, Jonagold and Gala trees on M.9 were badly damaged, and some had to be removed. The orchard is on a steep hillside, and injury is worse near the top. Usually, cold damage is associated with cold, low-lying areas. The theory is that the trees at the top of the slopes did not acclimate as well to the cold.

"It appears that weak trees, very low vigor trees, are more susceptible to winter injury, regardless of rootstock or variety, and it appears we need to take precautions on very light soils that the trees aren't dry going into the winter," Auvil said. "But even that's somewhat of a question, because with the amount of rain we had in November and October, we should not have been really dry."

Tom Kunkel with Stemilt Growers, Inc., Wenatchee, who covers the Chelan and Okanogan areas, said the damage he has seen has been mainly on low-vigor Fujis on poor soils. In one 25 acre block,, about five to six years old, 20% of the trees are likely to die.

Kunkel says that other than making sure the soil is not dry going into the winter, there is not much growers can do to protect themselves against such winter damage in future. "There's different opinions on how effective painting the trucks white might be, and whether you would save more trees by doing that," he said.

Angie Sabo, an orchardist in East Wenatchee, lost 98% of the trees in a mixed block of eight-year-old Red and golden Delicious, and just a few Fuji trees in a low spot. The trunks were split, which she thinks may be due to the sun warming them up during the day while night temperatures were as low as -20°F.

Jim Kelly, horticulturist with Chief Wenatchee in the Tri-Cities area, said he links the damage more to condition and location than variety or age.

"I do believe there's more to it than just tree age. I believe the way the trees went into dormancy has more of an impact on the way I'm seeing damage than anything else. If the trees were in a colder location, it doesn't seem to make a lot of difference on tree age."

The later the crop was harvested, the more damage there appears to be, he said, and this could be linked to a cold spell in November, when temperatures in the Tri-Cities area dropped in the range of 18 to 24 degrees Fahrenheit.

"What happened was we were hanging fruit on the tree, and some of them didn't gel many days to be relieved of the crop before the hard frost hit last fall," he said. "Some of those blocks were still hanging fruit."

Typically, while the tree still has a crop, its carbohydrates go into the fruit, and only after harvest do they get stored in reserves for the following year. "There are no non-risk situations to plant orchards in, and we have to accept some risk and manage aroune it," Kelly said.

Winter damage on Jonagold

OIL IN THE DORMANT PERIOD

by Phil VanBuskirk

"Oil used in the dormant period provides more effective use of pesticides for seasonal control of pear psylla."

Horticultural sprays hve been used effectively to suppress orchard pests for over 100 years. The oils we use today in the dormant and delayed dormant periods, while more highly refined than the oils used 30 to 40 years ago, sitll provide an imprtant contribution to seasonal suppression of pear psylla, scale, and European red mites.

Oils have provided growers with a unique tool in their battle against orchard pest. Why? Because no target pest species has ever developed resistance to oils. This is unique when you consider that Perthane, Pydrin Asana, and Baythroid have been lost for pear psylla control in most of Oregon and Washington just in the past 10 to 15 years due to the development of resistance. Resistance to Baythroid occurred before it had a full label.

New pesticides are becoming available for use at a much slower rate and a much higher cost, so we must use the materials we have wisely and effectively.

This brings us back to our statement: "Oil used in the dormant period provides more effective use of pesticides for seasonal control of pear psylla." How does this work?

Even before the first pear psylla was discovered in the state of Oregon in 1946, researchers in New York had discovered that oil sprays when used in the dormant/delayed dormant period not only suppressed pear psylla adults by about 50%, but also delayed egg laying for three to five weeks. This was also found to be true in 1975-76 by researchers in Medford and Hood River, Oregon.

So, how can we use this information to make our delayed dormant pear psylla sprays more effective and to aid in resistance management?

Pear psylla overwinter as adults, with a large percentage of the population dispersing from the orchard to surrounding vegetation starting in October and ending in late November. These individuals will spend December and most of January on other hosts, such as apple and peach, requiring only water to survive. However, for pear psylla to successfully develop, their eggs must be laid on pear.

The return of the pear psylla to the orchard begins in mid to late January and may extend into March, depending on the geographic location. Mating then occurs, and egg laying begins.

Although the migration back to pear may take six to eight weeks depending on the weather, orchardists can apply four gallons of horticultural spray oil in no less than 200 gallons of water per acre after the psylla begin to return but prior to egg laying. This treatment not only delays egg laying but also delays the need for application of synthetic chemicals until the delayed dormant period (when bud scales begin to swell), when a higher percentage of the psylla population is present.

Timing

There are two techniques used with some success in guiding growers to time the dormant oil applicaiton correctly. The first is to dissect overwintering females and examine egg development. When 15 to 20% of the overwintering females collected contain mature eggs, egg laying is about to begin. A mature egg is one that has changed from translucent to yellow in color.

The second method of estimating correct dormant spray timing involves accumulating daily maximum temperatures from the first of January and applying the dormant spray when 250 pear psylla degree-days have been reached, which should coincide with the stars of pear psylla egg laying. Pear psylla degree-days are obtained by taking the maximum daily temperatures, and subtracting 43. The daily totals are then added until 250 is reached.

Aproperly timed dormant oil application will:

1) Result in about a 50% reduction of adults that are in the orchard at the time of application.

2) Delay adult psylla egg laying for three to five weeks.

30 Increase the efffectiveness of sprays applied at delayed dormant for control of pear psylla.

The bottom line to the orchardist is that by using oil in the formant period to delay pear psylla egg laying, the delayed dormant spray can be timed to maximize suppression of overwintering pear psylla before the folia season begins.

If you would like more information on prebloom oil sprays and their use, write to: Phil VanBuskirk, Southern Oregon Research and Extension Center, 599 Hanley Road, Medford, OR 97502-1251; telephone (541) 772-5165 or e-mail vanbuskp@oes.orst.edu.

Phil VanBuskirk is an Area Extension Agent/applied Research Scientist at Southern Oregon Research and Extension Center, Medford, Oregon. The above article was featured in Good Fruit Grower, January 1, 1997 in the column "Practicle Grower"

NEWS BRIEF

Fruit growers in ten states have been surveyed on use of pesticides and commercial fertilizers on fruit crops. The information gathered by the National Agricultural Statistics Service will be used to make state and national estimates of their use on 28 different crops. The results will help the U.S. Dept of Agriculture assess the risks and benefits of pesticide use.

Previous surveys show that, in general, growers use pesticides at rates that are significantly lower than manufacturers recommended levels. Without this information, the U.S Environmental Protection Agency and others are forced to assume that maximum rates are used on all acreage.

JONAGOLD IS CHOICE FOR WESTERN WASHINGTON

by S. L. Sanger God Fruit Grower - December 1996

During a fall open house and field day at Washington State University's research and extension unit near Mount Vernon, subjects ranged from ornamental crab apples to hard cider production, but two presentations, which focused on apples, zeroed in on critical questions: best varieties, harvest timing, and storage.

A panel of Western Cascade Fruit Society members and Gary Moulton, the research unit's tree fruit specialist, talked about the best fruit varieties, mostly apples, for western Washington. As panel moderator T.K. Panni of Bellevue, a society board member, said, the best teacher is observation.

Panni recalled his first taste of a standard Jonagold. "I thought I had died and gone to heaven," he said. He also likes Liberty, because it is disease-resistant and easy for a beginning orchardist to grow.

Chuck Parkman, who has a small orchard near Sequim, said, after some false starts, he had good luck with Gravenstein and Idared. However, after a few years, these trees, on Malling 26 rootstock, were too vigorous in his fertile soil. He went to varieties on M.9, including Spartan, Melrose, Jonagold, and Elstar. For eating, Parkman said Jonagold and Elstar were the best.

Parkman said dwarfing rootstock, such as M.9, resulted in scab-free apples and trees which required much less work than an orchard on a nondwarfing rootstock. Spraying is much easier on small trees, and no ladders are needed at harvest.

Panelist, Steve Jackson, who has trees both near Everett and at his Redmond home, recommended Akane, which he said was underrated.

"It's a productive variety and fungus-resistant, an excellent quality in moist, western Washington." He liked Washington Strawberry, which is similar to Gravenstein, and Elstar.

"Elstar's great. It's productive and easy to grow," Jackson said. "Ariet's good, and Jonagold you must have. Idared's productive. Spartan is disease-resistant, and one of my favorites in Jonathan, which is productive and multipurpose."

Years ago, Moulton said, people planted Red Delicious and Rome, and they were disappointing in western Washington because of scab, mildew, and other problems. Disease-resistant varieties were introduced, but they tended "to taste awful."

That's changed, he said, and he mentioned some examples, including Jonamac, Spartan, Cortland, Empire, Melrose, and "of course, Jonagold." Braeburn, he said, is a late variety but does well in western Washington.

Dr. Eugene Kupferman, Washington State University (WSU) Cooperative Extension horticulturist and postharvest specialist at WSU's Tree Fruit Research and Extension Center in Wenatchee, spoke on fruit storage problems and solutions. He led off with a primer on requirements for beginning an apple orchard.

One emphasis was choosing the right variety and the best planting location. Light is critical, because sunlight drives quality. A dwarfing rootstock, the most dwarfing available, was another recommendation. In western Washington, apple trees will grow like weeds in the organic, high nitrogen soil, conditions that tend to result in poor quality apples, he said.

"You want to grow fruit, not trees. There's enough logging here already."

He recommended a WSU Cooperative Extension bulletin by Dr. Robert Norton, "Apple Cultivars for Puget Sound" (EB 1436). The bulletin lists appropriate varieties, as well as bloom dates, scab and mildew susceptibility, and harvest dates.

"It's not what's done after harvest that results in edible apples, it's what's done before harvest that ensures high quality fruit," he said. Late-maturing apples generally store better and longer. He suggested oils during the delayed dormant period and calcium applications to reduce postharvest decay.

For harvest timing, which Kupferman described as a difficult art, he suggested growers use pressure gauges, if they are prepared to spend about $150. Other, cheaper ways to decide when to harvest include the starch iodine test, where a dilute solution of iodine is sprayed on apple flesh. Starch turns blue-black. A very immature apple or pear has starch all the way to core. Perfectly edible fruit has no starch, and no storage potential. What's needed for storage is something in-between.

Or a grower can try to determine maturity by cutting an apple horizontally through the seed cavity. If the cavity is closed tightly and seeds are light in color, the fruit is immature. Greenish flesh indicates immaturity; if it is yellow, it is too late. All these tests for maturity may take several seasons of trial and error before the grower gets the hang of what's ready to harvest and what isn't, Kupferman said.

He urged growers to try to store only the best fruit. "No scab, no orphans, no bruised fruit. any marking may indicate fungal disease, and it will infect other fruit." A fungicide spray about two weeks before harvest will reduce decay, and an application of a nutrient spray, Nutraphos 24, will help cut down on storage decay.

If the harvest is wet, Kupferman suggested bathing apples in a dilute liquid chlorine bleach solution. One half cup per 20 gallons of water will kill fungal spores on the skin, he said.

A temperature of 32 to 34°F is ideal for most apples. A few, such as Spartan and McIntosh, will suffer cold damage as 32°F, so these should be kept at 36°F.

The open house and field day was cosponsored by WSU and the Western Washington Tree Fruit Research Foundation. This group was formed in 1991 to help Mount Vernon unit finance its tree fruit research after WSU budget cuts threatened several programs.

WILLAMETTE VALLEY ORCHARDISTS TEST SOME PEACHY NEW VARIETIES

From the Capital Press -- September 13, 1996

CORVALLIS, OR—When it comes to growing peaches, Oregon is way behind the times, according to one veteran —as well as Veteran — grower near here.

He and a few other orchardists in the Willamette Valley are out to do something about it. "Here we are in 1996, growing varieties such as improved Elberta, which was introduced in 1907," said Harry Lagerstedt, who with his wife, Carol, owns and operates the Peach Place on Highway 34.

While Elbertas and others, such as Red Haven, Veterans and Suncrest, have proven their worth over the years, they really are antiques when you consider all the new cultivars now in production, said Lagerstedt. "We've probably overlooked some real good bets during the last 30 to 50 years."

That's why Lagerstedt and four other valley growers got together to form a small test group to evaluate promising cultivars bred elsewhere but grown under diverse Willamette Valley conditions.

Lagerstedt said that one of the goals of the project is to find earlier-and later-ripening varieties to expand the season. The group also wants to replace yellow skinned varieties with red produced in the same season and to discover varieties with more resistance to disease and insects.

Called the Peach Variety Group, the four other growers are: Randy Bays, Banks; Roger Detering, Harrisburg; Stuart Olson, Salem and Dave Weil, Dundee.

About seven years ago, the group conducted a survey to determine which older, local, less common varieties might perform well here. The study turned up three varieties: Finicum's Red, Dixie Gem and Flavorcrest.

The growers also went north to the Harrow Stone Fruit Breeding Station in Ontario, Canada, to look for promising selections in its breeding program. In the spring of 1991, four Harrow Station varieties—Harrow Diamond, Harrow Beauty, Harcrest and Brighton—were selected for introduction to the Willamette Valley.

With a few exceptions, five finished trees of each variety were planted by each of the growers. Since then other varieties, old and new, have been added each year, including some developed by university experiment stations in New Jersey and Michigan.

Despite a disastrous year of bad weather in 1995, when most of the crop in the southern valley was destroyed, several varieties have shown promise.

"It's all still preliminary, but some of the varieties that are shaking out really well are Newhaven (a Michigan-developed variety) and Ernie's Choice," Lagerstedt said.

Candor, an early-ripening variety that Lagerstedt planted in 1991 before the other growers, also is doing well. Ready to pick in early July, Candor is a red peach that sizes fairly well and doesn't have a lot of split pits, a fault found in most early varieties, Lagerstedt said.

Grower Randy Bay said that some of the varieties in the test that have worked out best are older varieties grown in other parts of the country. O Henry and Newhaven are two of the old timer front runners, he said.

"Newhaven is a peach that's been around awhile, only to us (in Oregon) it's new. It's got a good flavor; only thing the timing is not quite right. It comes in at the same time as Suncrest."

Bay said that some varieties that are growing well in other parts of the valley don't perform the same in Banks.

Stuart Olson, who grows close to 25 acres of traditional variety peaches just east of Salem, said there are more than 15 varieties in the testing program. It's a little too early to tell which ones will prove worthy in Oregon soils, he said.

Echoing what the other growers said, Olson said Newhaven produced a good crop for him this season, and last. "That's the variety that stands out for me in the last couple of years."

Olson said the five growers in the Peach Variety Group program try to get together once or twice a year to compare notes. Once enough reliable data is available, results of the testing will be made available to other interested growers.

In addition to peaches, the group is also looking at nectarines. "Some of the white-fleshed varieties look good," said Olson.

DON'T FORGET TO SEND IN YOUR ANSWERS TO THE APPLE QUIZ TO QUALIFY FOR A YEAR OF FREE MEMBERSHIP

NEW 'FLAMIN FURY' PEACH INTRODUCED

from The Great Lakes Fruit Growers News - November 1996

There's a new peach on the market that could be confused with a famous spy.

Peach breeder Paul Friday of Coloma, Michigan recently introduced Flamin Fury 24-007 and expects it to be a big hit with growers.

"This new peach has such an incredible ability to size that the only reason to thin it is to keep from breaking the tree down," he said. "Unthinned the peaches are two-and-half inches to over three inches in diameter resulting in tremendous yields per acre."

The new peach has 70% red color over yellow and ripens about three days before Cresthaven.

Friday said he was going to retire from the peach breeding business until he found PF24-007.

"Breeding new varieties is a long and tedious process and I'm very pleased with the Flamin Fury series so I was going to stop making crosses," he said. "The exceptional size of 24-007 and its good shipping abilities has compelled me into developing fruit of comparable size for all seasons. From now on every cross I make will have 24-007 as one of the parents."

Friday said he is planting 20 acres of PF24-007 on his 150 acre peach farm in the next three years, replacing old and outdated varieties. He anticipates yields per acre f the very large fruit will stress his ability to harvest and pack them all. The PF24-007 should be available from nurseries in the spring of 1998.

This newest peach is just one of Friday's Flamin Fury series of high-color peaches with varieties that are numbered in sequential order of ripening throughout the season. He has five patents in the series including PF1, PF12A, PF15A, PF17 and PF23 and has four patents pending on PF5B, PF24-007, PF25 and PF27A. A tenth will be applied for on PF7.

The Flamin Fury peaches have been planted in large numbers the last few years. There were no significant plantings of the variety in 1991, but by 1994 42,000 of the trees were in the ground. This made Flamin Fury the fifth most planted fresh variety in 1994 with 5.4% of the 795,000 fresh-variety peach trees planted in Michigan.

Over 100,000 have been planted in Michigan in the last two years. That would mean that Flamin Fury is currently the second most planted fresh-market peach in the state making up 20% of the state's plantings. Red Haven is number one but rapidly declining in popularity according to the 1994 peach census.

The demand to plant continues to be great and nurseries are lagging behind on some Flamin Fury orders by two years.

"In today's market large red peaches with good shipping quality from the West have made it mandatory that Michigan growers be able to deliver that quality of peach every day of the season to keep our customers happy and profitable if they are to remain interested in Michigan peaches throughout the entire season," Friday said. "We also believe our peaches have much better flavor than the stuff shipped in from the wicked west. I hope what I've developed will keep buyers interested and make growers lots of money.

Editor's note: I don't know about Flamin Fury having better flavor than the peaches we grow here in the "wicked west". Has anyone tasted one? Does anyone know about this variety? Sounds as if they are fearful of what we have here in the "wicked west"!!!

'LAZY' PEACH ROOTSTOCK FROM CHINA PERFORMS WELL

from The Great Lakes Fruit Growers News--October 1996

They say the early bird gets the worm, but a lazy rootstock from China got almost all the peaches - at least this year in a research test by the University of Kentucky College of Agriculture.

"This was a devastating year for peaches in Kentucky," said Jerry Brown, UK Extension horticulturist. "The freezes earlier this year pretty much wiped out most of the peaches throughout the state."

It was a good year to study the effects of the freezes on a special research project Brown is involved with to study different rootstocks for peaches. He is studying 12 different rootstocks on which Red Haven peach trees are grafted as part of a 19-state regional cooperative project.

Red Haven peaches on 11 of those rootstocks showed the effects of the severe freezes. An inspection in July showed them to average from one-third peach to about five peaches per tree.

But one, a rootstock from China called Ta Tao 5, had almost 21 peaches per tree - a phenomenal output considering this year's adverse weather conditions.

Why was this rootstock so much more effective than all the others? "We believe it was because this stock causes about a five-day delay in blooming," Brown said. "The others all bloomed on schedule and caught the full force of the freezes. All had the same Red Haven grafts so the later blooming date is about the only difference."

Brown's study at UK's research and education center in Princeton tested 10 different trees for each of the 12 two-year-old rootstocks. The experiment will continue for about eight years.

"We're excited about these results," Brown said. "But it's too early to draw any firm conclusions. The Chinese rootstock, as well as the other 11, are being evaluated now by horticulturists, entomologists and plant pathologists to determine insect susceptibility, disease resistance and desirable horticultural characteristics.

NEW TECHNOLOGY

BIOENGINEERING CAN IMPROVE BUT NOT INVENT

Genetic engineering will not replace conventional fruit breeding, but will be another tool for fruit breeders to use, says Dr. Jay Norelli, plant pathologist at Cornell University, New York.

The objective of a conventional breeding program is to produce new cultivars. However, there may be a need to modify an existing cultivar of commercial importance to overcome some defect, and that's where genetic engineering comes in.

For example, the Malling 9 and 26 apple rootstocks are excellent rootstocks, except for their susceptibility to fireblight. Through biotechnology, fireblight resistance can be introduced without changing other attributes of the rootstocks, something that would be impossible through conventional breeding

Norelli said that although the process of transforming a variety through genetic engineering is very complex, evaluating the results is much simpler than in a conventional breeding program. When evaluating a fireblight-resistant M.26 rootstock, for example, all that is required is to compare it to the parent M.26 to show that it is the same horticulturally but that it has improved fireblight resistance. "That's much simpler than evaluating a completely new rootstock," he said.

Jialong Yao and Sue Muggleston, with the Horticulture and Food Research Institute of New Zealand, Ltd., observed in an article in the industry publication *The Orchardist* that the collaboration of apple breeders should lead to novel apple cultivars and help New Zealand maintain its position as a world leader in producing new and pesticide-free apple varieties.

STEPS IN APPLE TRANSFORMATION

1--Identify useful genes;
2--Isolate or synthesize the gene of interest;
3--Transfer gene and an antibiotic resistance gene into the bacterium that will carry it into the plant;
4--Use the bacterium to infect plant cells and transfer the gene;
5--Regenerate plants on an antibiotic medium, so that only transformed cells (containing the gene of interest and the antibiotic resistance gene) will grow;
6--Determine gene stability and evaluate new plants;
7--Release as new cultivars in plant breeding programs.

THE STEPS IN CONVENTIONAL BREEDING

Year 1-Make crosses of promising parents and collect hybrid seed from fruit;
Year 2-Grow seedlings in greenhouse. Transplant seedlings to nursery. Bud seedlings onto dwarfing rootstocks;
Year 3-Grow trees in nursery;
Year 4-Plant trees in research plot;
Year 5-Grow trees in research plot;
Year 6-Fruiting begins;
Year 7-Begin fruit and tree evaluation;
Year 8-Fruit and tree evaluation;
Year 9-Make selections for propagation;
Year 10-Grow budded selections in nursery;
Year 11-Establish trials of promising selections at several sites;
Year 12-Fruiting of selections begins;
Year 13-Evaluate tree health, productivity and fruit quality;
Year 14-Evaluation continues;
Year 15-Evaluation continues;
Year 16-Possibly—Grower trials; —Sensory evaluation and market analysis; —Large scale handling/storage trials; —Release and naming.

BIOENGINEERED FRUIT TREES WON'T BE AVAILABLE SOON

Although bioengineered tomatoes are on the market, it will be some time before genetically engineered pest and disease resistant fruit trees get there.

In California, they are working on producing apple trees resistant to codling moth by incorporating a gene of the bacterium *Bacillus thuringiensis* which produces a protein that damages the gut of the insect when ingested.

The method most often used to insert genes into fruit trees involves the crown gall bacterium *Agrobacterium tumefaciens.* The way it infects plants is by injecting some of its DNA into the DNA of the host plant's cells, and scientists saw the opportunity to use the bacterium as a vehicle to insert other, desirable genes into the host plant.

Although this works, it is not a very precise process as the bacterium does not control where the new gene is inserted in the DNA strand, nor how many times it is inserted. An introduced gene may not function, or it might be inserted in a place where it interferes with a necessary function or trait of the tree.

When a gene is successfully incorporated into cells of the host plant, scientists then face the difficulty of regenerating the cells into a plant that has the same characteristics as the original plant. And this, according to Dr. Don Elfving, superintendent at WSU's Tree Fruit Research and Extension Center in Wenatchee, is what will delay the commercial availability of transformed tree fruit. Since most commercial apple varieties are selections of original cultivars, and many are chimeras, (which means they are composed of tissues of differing genetic composition) they are not genetically uniform and thus are effected differently.

He likens the process to starting with a pile of bricks of two different colors arranged in a particular way, taking the pile apart, and having a blind person put it together again. "How likely are you to have the same pattern of colors of bricks?"

NEW TECHNOLOGY
EPA TO TREAT BIOENGINEERED PLANTS AS PESTICIDES

A proposal by the U.S. Environmental Protection Agency (EPA) to classify bioengineered pest-resistant plants as "plant pesticides" has alarmed some scientists, who say it will discourage the development of alternatives to chemical pesticides. But a group of companies that are producing bioengineered crops supports the EPA's position.

Pesticides are regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947, which defines a pesticide as a substance or mixture of substances intended to control a pest. The EPA now says that genes introduced to plants to confer pest resistance fit that definition because they are substances or mixtures of substances made out of DNA, and are intended to control a pest.

For many years, conventional breeding has focused on producing crops with better pest or disease resistance, but such plants would be exempt from the proposed rule. It would apply only to those traits introduced through biotechnology.

Two years ago, when the EPA announced it proposed to regulate bioengineered pest-resistant plants as pesticides and invited public comment, a number of scientific societies independently opposed the proposal. This year, representatives from eleven societies got together to compile a report challenging the EPA's position and asking the agency to revise its policy before it is finalized.

Dr. James Cook, a plant pathologist with the U.S. Department of Agriculture's Agricultural Research Service in Pullman and a member of the National Academy of Sciences (NAS), was one of the authors of the report. The NAS has taken the position that the method by which the plant is modified has nothing to do with whether it is safe or not. Rather, the properties of the plant should determine its safety.

To regulate bioengineered plants as pesticides, the EPA will have to establish a tolerance and the registrants will have to submit toxicological data. Cook, who is also a member of the American Phytopathological Society, said toxic substances that genes produce are in such small volumes that they cannot be measured directly when extracted from the plant.

He said plants are being transformed for a number of reasons, such as to increase stress tolerance, delay maturity, or improve color, and it seems that those transformed to confer pest resistance will be singled out for regulation.

Scientists say the EPA proposal will:

—Erode public confidence in food safety by sending the message that all plants contain pesticides;

—Discourage development of pesticide-resistant crops and prolong the use of synthetic chemicals;

—Increase the cost of developing pest-resistant crops and increase government bureaucracy;

—Limit use of biotechnology for developing pest-resistant crops to those companies that can afford the increased costs of the regulation.

Cook said growers and commodity groups need to be aware of the implications, because the cost of registration will be passed on to growers in the form of higher prices for planting material, and the farmer either has to absorb that cost or pass it on to consumers, and higher prices for the product will reduce competitiveness in international markets.

He said it also has implications for university breeding programs, which will have to pay higher costs to have new varieties approved by the EPA. Each time a gene is put into another plant or variety, it would be considered a new formulation and would have to be approved by the EPA again.

"These are all reasons why the scientific community is rising up to object to this," he said. "We do not say that the plants that are produced through the new tools of biotechnology are without any risk. We would not say that about any plant. We would say that the procedures that have been in place to ensure the safety of plants produced by traditional methods can ensure the safety of plants developed by the new methods."

Cook said the scientific group has received nothing but an acknowledgment of its report from the EPA, and a group called the Biotechnology Industry Organization (BIO), which represents several companies that are developing transformed plants, has issued a rebuttal.

In their rebuttal, the BIO members point out that the data required for EPA registration would have to be generated in any event to assure product quality and safety. also, the EPA proposes exemptions for plant pesticides derived from closely related plants, plant pesticides that act primarily by affecting the plant, and proteins derived from plant viruses. All the bioengineered crops that have been commercialized so far have received exemptions from the requirement for a tolerance.

They contend the source of the genes does matter. If the gene comes from a pathogenic microorganism or results in production of a toxic substance, the environmental and food safety risks must be addressed.

There is also the issue of the effect on nontarget insects. For example, what if a plant that is toxic to pests also has a detrimental effect on honeybees?

Dr. Wally Ewart, vice-president for scientific affairs at the Northwest Horticultural Council, said there may be no scientific basis for treating a bioengineered pesticide resistant plant as a pesticide, but the fact that they will be regulated by the EPA could be important for consumer confidence until people become more comfortable with the idea.

The New Technology articles by Geraldine Warner appeared in the November 1996 edition of Good Fruit Grower

GROWER DESIGNS A RETIREE-READY ORCHARD

SNOWBIRDS FLY NORTH TO PICK WASHINGTON APPLES

by Dan Stephens--Fruit Grower November 1996

There is a waiting list to pick tree fruit at Tom Bollinger's Washington orchard. So enticing is the idea of harvesting Fujis on a crisp autumn morning that Bollinger has to turn pickers away.

But pity not these pickers, who by the way, carry no green cards. These well-pensioned wanderers drive $100,000 RVs, wear T-shirts that say "I'm spending my children's inheritance," and resemble a human version of Granny Smith.

Retirees harvest fruit at Bollingers 50-acre orchard. These snowbirds, some from as far away as South Carolina, flock to Canyon Crest in Quincy to join in the October ritual started by Bollinger 12 years ago.

The seniors experience the harvest, up close and personal, then travel south, just before winter, to warmer climates.

Call it a dude ranch with an orchardist's twist. Like a dude ranch, Bollinger could charge big bucks for the hands-on experience and neck-deep immersion into the horticultural culture. But he doesn't. In fact, he pays these pickers the going rate—$6 an hour or a per-bin rate. He also provides 18 full RV hookups for his pickers' luxury rigs. Each county-approved pad features a clear shot to the heavens for the satellite dishes protruding from each RV top.

The seniors pick during the day and pot-luck at night. And as the bags turn to bushels and the bushels to bins, these rookie pickers just drink it all in. "It fits into their itinerary," says Bollinger of the nomadic lifestyle. "And most say they've never felt better."

Form Follows Function

Meanwhile, for Bollinger, it's more than a nice, retiring, month-long social event. It's a way of life in the orchard as well. A few years ago, after more than a decade of employing seniors, he realized he would probably be doing so for another 12 years. Why not design the orchard around the pickers? Why not design a symbiotic system where form follows function?

He planted a new variety call Yataka Fuji, an apple that matures 10 days earlier. Then he designed a picker-friendly trellis system that's an offshoot of a simple support system he used with Concord grapes.

Now in their fifth leaf, the Yatakas are planted in double rows 4 feet apart, with 7 feet between trees inrow and 14-foot aisles. This adds up to about 700 trees an acre. On M.9 rootstock, Bollinger gets a controllable tree that's precocious and very fruitful, yet small enough to be picked by 70-somethings Glenn and Lois Bruce, who've picked fruit here for nine years.

"I've had walls of trees before. What I wanted was a pedestrian orchard," says Bollinger. "It was designed to be picked by these retirees. The only wire's at 6 feet. Everything's designed to walk under."

And it's a reasonable cost, about $2500 for the trellis.

At the end of each row stands a 6" treated post, 10 feet long, buried 3½ feet into the ground with no anchors. The "T" portion of the post is a 5'-long 2 x 4.

Each tree has a stake. The ¾-inch stake is 10 feet long, with 1 foot buried in the ground.

Using a popular Northwestern training system, Bollinger keeps limbs within a 3-foot radius from the central leader. The lower whorls contain the permanent scaffolds. From the lower whorls up, everything is temporary and will be pruned if it gets big. To control vigor, Bollinger bends the central leader at a permanent 45° angle, then ties it off, about four ties per stake.

"If you want early production in the second or third leaf, especially the third, you have to tie. M.9 wants to produce apples in the third leaf," he says.

There is one horticultural caveat: Bollinger's orchard sits on top of a hill where the wind's always from the northwest. Therefore the stake for each tree must hold the tree into the wind. The stake must be buried on the windward side of the tree.

Glenn Bruce appreciates the pains Bollinger's taken to make the orchard retiree-ready. Bruce's father homesteaded land in the Yakima Valley. And as a boy, Glenn picked apples using 25-foot ladders. "Miserable," recalls Glenn, yet here he is some 60-plus years later.

Breaking In The Troops

Come harvesttime, Bollinger breaks his crews in slowly. After all, this is a young man's game, and he knows the retirees aren't going to set any land-speed records for bushels picked.

"The first two or three days, we take it easy. Some of their muscles burn," he says. "Later our problem is to slow them down.

The crack troops hit the fields at daybreak, then work until 2 p.m. If it gets hot, they quit earlier. "It's a nice relaxed system," Bollinger says, adding that it probably wouldn't work in a larger orchard. "But here, it's the best of all worlds."

At Canyon Crest, efficiency takes a back seat to camaraderie, and friendship eclipses the bottom line.

That's fine for Glenn and Lois. The pair spent four decades and two careers worrying about bottom lines. At this point in their lives, they relish the communion that comes with the RV lifestyle.

"On Thursday night we go to town to the senior center," says Glenn. "Then another night we go to Zach's for Pizza, and kind of take over the place. Another night is ribs," On Saturday, the group pot-lucks around the RVs, just feet from the orchard. Around the campfire, these gypsies share stories of the harvest before heading south to another RV park.

"Build an RV park, and they will come," says Bollinger.

POMONA'S HARVEST

by H. Frederick Janson

Reviewed by Marilyn Tilbury

Who was Pomona? What exactly is pomology? When did people learn to graft fruit trees? What techniques did they use? Who started espaliers? What has been written through history about fruit trees?

Answers to the above questions and much, much more are found in a beautiful new book by Fred Janson, one of the founders of NAFEX (North American Fruit Explorers). Fred starts with Greek and Roman mythology and proceeds through the antiquarian European fruit literature. In seventeen chapters he organizes and gives context to this surviving literature.

One may read the book strictly for the knowledge of pomology that will be gained, or study the development of scientific observation, or be bemused by plagiarism in early writings (no copyrights here!), or learn the effects of war and immigration on pomology, or simply enjoy the many illustrations.

The book contains many reproductions of original title pages and engravings. A special treat is eight pages of reproductions of hand-colored plates from books published in the 1700 and 1800's.

The book is capped by a list of references and a bibliography. The bibliography is comprehensive and well-annotated, running some 100 pages. Only works covering a single species are omitted. Fred's book is a labor of love by a true scholar.

Note: In the fall of 1994 Dr. Robert Norton conducted an apple buffs tour of western Europe. Fred was one of the participants. We were busy but Fred managed to frequent used book stores and libraries all along our route. He also graciously supplied translation services for those of us who were linguistically impaired.

Timber Press offers this book for $59.95 plus $8.00 for shipping

Editor's note: Western Cascade Fruit Society members have been offered a special price with a minimum of 24 orders, prepaid. All copies will be individually signed by the author, and he will inscribe your name if you so wish. Our price is $42.25 which includes shipping to one address. This book will be on display on the education table at the Fall Fruit Show, where you may place your order or you may send in the order blank below. **Please add $2.00 for shipping to you.** Last chance to order at this price.

Please send _____ copy/copies of Pomona's Harvest at $44.25 each.

Total enclosed $_____ Inscribe: To_____

Checks payable to Western Cascade Fruit Society

Name _____

Address _____

City _____ State _____ Zip _____

Send order to: WCFS Treasurer
c/o Evelyn Troughton
2625 13th Ave W Unit 306
Seattle, WA 98119

Or you may order at Spring Meeting

WESTERN CASCADE FRUIT SOCIETY — 1996 FRUIT SHOW INVENTORY

Submitted by Dave Battey

The following list is an inventory of the number of "plates" of a specific apple variety displayed at our 1996 show. An asterisk (*) denotes a variety that was not shown in 1995 (It may very well have been shown in a previous year). **The low number (compared with recent years) of 216 varieties which includes 66 "new" varieties this year speaks to a challenging apple growing year in Western Washington.**

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. Note that if apples with four "plates" were counted, Alkemene, Ginger Gold, Karmijn de Sonneville, Kidd's Orange Red, Liberty, Northern Spy, and Spartan would also appear below.

There were 251 varieties (including "sports") shown in the 1995 show, including 52 varieties not shown in 1994. In 1994 there were 356 varieties (including "sports") including 125 varieties not shown in 1993. There were 276 varieties shown in 1993 included 80 varieties not shown in 1992. There were 333 varieties shown in 1992 included 140 varieties not shown in 1991. There were 218 varieties in the 1991 show, 47 of which were "new" varieties. There were 94 "new" varieties in 1990 and 75 "new" in 1989.

1996 — Varieties with five plates or more (including "sports"):

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

1995 — Varieties with five plates or more (including "sports"):

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

1994 — Varieties with five plates or more (including "sports"):

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

1993 — Varieties with five plates or more (including "sports"):

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

1992 — Varieties with five plates or more (including "sports"):

Gala (14)
Jonagold (13)
Melrose (12)
Gravenstein (11)
Macoun (10)
Spartan (10)
Ashmead's Kernel (9)
Hudson's Golden Gem (9)
Mutsu (9)
Elstar (8)
Tompkin's King (8)
Bramley (7)
Fuji (7)
Idared (7)
Akane (6)
Belle de Boskoop (6)
Brock (6)
Cortland (6)
Cox's Orange (6)
Golden Delicious (6)
Liberty (6)
Northern Spy (6)
Opalescent (6)
Ariet (5)
Black Gilliflower (5)
Calville Blanc (5)
Criterion (5)
Freyberg (5)
Golden Russet (5)
Jonamac (5)
New York 429 (5)
Pink Pearl (5)
Spencer (5)
Summerred (5)
Sweet Sixteen (5)
Winter Bannana (5)
Wolf River (5)

1996 WCFS FRUIT SHOW VARIETY LIST

NUMBER FOLLOWING VARIETY NAME IS NUMBER OF PLATES DISPLAYED
(*=NOT ON 1995 LIST)

APPLES

ACEY MAC 1
ADAMS PEARMAIN 1*
AKANE 3
AKIN 1
ALKAMENE 2
ALKAMENE (RED) 2
ARLET 3
AROMA 1
ASHMEAD'S KERNEL 1
BALDWIN 2
BELLE DE BOSKOOP 3
BELLE DE BOSKOOP (RED) 3
BEN DAVIS 1*
BLACK GILLIFLOWER 1
BLACKJON 1*
BLAXTAYMAN 1*
BLENHEIM ORANGE 2
BLUE PEARMAIN 1*
BOGO DE BOSKOOP 1*
BRAEBURN 2
BRAMLEY SEEDLING 2
BROCK 2
BUCKLEY GIANT 1
BURGUNDY 3
CALVILLE BLANC D'HIVER 2
CANADA RED 1
CARPENTIN 1*
CHEHALIS 1
CHESAPEAKE 1
CHESTNUT CRAB 2
COLORA YORK 1*
COLVIS SPICE 1*
COOP-25 1*
CORNISH GILLIFLOWER 1
CORTLAND 1*
COURT PENDU PLAT 2
COX, CHERRY 3
COX, KUMMER 1*
COX, CORALLO 1*
COX'S ORANGE PIPPIN 3
COX, QUEEN 3
COX (RED) 1
DALITER (ELSTAR SPORT) 1
DALIEST (ELSTAR SPORT) 1
DAVEY 1
DAVIES 1
DELBARD JUBILEE 1
DEMOCRAT 1
DUCHESS OF OLDENBURG 1*
DUKAT 1*
DULCET 1
EGREMONT RUSSET 1
ELLISON'S ORANGE 1*
ELMER 1
ELSTAR 5
EMERALD SPIRE (STARK) 1*
EMPIRE 3
ENTERPRISE (COOP30) 1
ESOPOS SPITZENBURG 1
ETTER'S GOLD 1
FALL WINE 1*
FAMEUSE 1*
FIELD SPY 1
FIESTA 3
FIRESIDE 1
FORTUNE SEEDLING #5 1*
FREEDOM 1*
FREYBERG 3
FUJI 1
FUJI (RED) 2
GALA 4
GALA (REGAL) 2
GALA (ROYAL) 3
GALA (SCARLET) 1
GENEVA EARLY 1
GEORGE CARPENTER 1*
GINGER GOLD 4
GLOSTER 1
GOLDEN DELICIOUS 1
GOLDEN NOBLE 1
GOLDEN NUGGET 1
GORMAN APPLE 1*
GOUDREINETTE (SEE BELLE DE BOSKOOP)
GRANNY SMITH 2
GRAVENSTEIN 2
GRAVENSTEIN (RED) 1
GREENSLEEVES 2
GRIMES GOLDEN 1*
GROVE 3
HARRY MASTER'S JERSEY 1
HATSUAKI 1
HAWAII 2
HENER-20 1
HIME KAMI 1*
HOLIDAY 1
HOLLY 1
HOLSTEIN 1
HONEYCRISP 3
HUBBARDSTON NONESUCH 1
HUDSON'S GOLDEN GEM 3
IDARED 1
INGRID MARIE 1*
JESTER 2
JONAFREE 1*
JONAGOLD 6
JONAGOLD (DECOSTER) 1
JONAGOLD (JONAGORED) 1
JONAGOLD (RUBINSTAR) 1*
JONAMAC 1
JONATHAN 1
JONATHAN (NURED) 1*
JONWIN 1
KANDIL SINAP 1*
KARMIJN DE SONNEVILLE 4
KEEPSAKE 1
KESWICK CODLIN 1
KIBBE SPY 1
KIDD'S ORANGE RED 4
KING (SEE TOMPKIN'S KING)
KING DAVID 1
KOGETSU 1*
LAXTON'S SUPERB 1
LIBERTY 4
LORD HINDLIP 1*
MACOUN 5
MCINTOSH 1
MCSHAY 1
MELROSE 6
MERTON DELIGHT 1
MERTON RUSSET 1
MICHINOKU 1
MORDEN-350 1
MUTSU 2
NEBUTA 1
NEWTOWN PIPPIN (SEE YELLOW NEWTOWN)
NEWTOWN SPITZENBURG 2
NEW YORK-315 1
NEW YORK-429 1
NEW YORK-543 1
NEW YORK-723 1
NEW YORK-44408-11 1
NEW YORK-61345-2 1*
NORTHERN SPY 1
NORTHERN SPY (HALL) 1
NORTHERN SPY (RED) 2*

NORFOLK ROYAL 1*
NORTHERN LIGHTS 1*
NOVAMAC 1
OHIO NONPAREIL 1
ONTARIO 1
OPALESCENT 2
OREI 1
ORENCO 1
ORLEANS REINETTE 2
OSWEGO 1*
PACIFIC PRIDE 1*
PALOUSE 2
PARK DALE BEAUTY 1*
PINK PEARL 1
PITMASTON PINEAPPLE 1*
PORTER 1
POUND SWEET 1*
PRIMA 1
PRIMEGOLD 1*
RAMBO 1*
REDCORT 1
REDFREE 1
REDMAX 1
RHODE ISLAND GREENING 1
ROSS NONPARIEL 1*
ROSU DE CLUG 1*
SALOME 1*
SANSA 1*
SAYAKA 1
SEKAI-ICHI 1
SHAMROCK 1*
SHENANDOAH 1*
SHINKO 1
SHINSEI 1*
SHIZUKA 1*
SIERRA BEAUTY 1
SINTA 1
SLIPPERY CIDER 1
SNOW (SEE FAMEUSE)
SPARTAN 4
SPENCER 1*
SPIGOLD 1
SPIJON 1*
STARK JUMBO 1*
STAYMAN WINESAP 1*
STEARNS 1
STELLAR (AA62) 1*
STURMER PIPPIN 1*
SUMMERRED 1
SUNRISE 1
SUNSET 1
SWAAR 2
SWEET COPPIN 1
SWEET SIXTEEN 5
TOMPKIN'S KING (RUSSET) 1
TRANSCENDENT CRAB 1
TSUGARU HOMEI 1
TSUGARU NATSUKA 1
TWENTY OUNCE 1*
TYDEMAN'S LATE ORANGE 1
VANDEVERE 1*
VIRGINIA GOLD 1
WESTFIELD SEEK-NO-FURTHER 1
WHITE WINTER PEARMAIN 1*
WICKSON (CRAB) 1
WILLIAM'S PRIDE 2
WINCHESTER 1*
WINTER BANNANA 1*
WINTERSTEIN 1*
WISMER'S DESSERT 1*
X-ELLENT 1*
YARLINGTON MILL 1*
YELLOW BELLFLOWER 2
YELLOW NEWTOWN 1
ZABERGAU REINETTE 1

PEARS

ANJOU 2
A-RI-RANG 1
BARTLETT 1
BARTLETT (RED) 1
BEAR CREEK BORDEAU 1*
BEURRE ALEXANDER LUCAS 1*
BOSC 2
CASCADE 1
CHOJURO 4
CLAPP FAVORITE 1
COLLETTE 1
COMICE 3
CONCORD 1
CONFERENCE 1
DELICIOUS 1*
DUMONT 1
ELDORADO 2
FLEMISH BEAUTY 1
HAMESE #1 1*
HIGHLAND 2
ICHIBAN-NASHI 1
MISHIRASU 1*
NITAKA 1*
ORCAS 2
PACKHAM'S TRIUMPH 1
RESCUE 2
ROOSEVELT 1
SECKEL 2
SENSATION (RED) 1*
SHINKO 2*
SHINSEIKI 2
SIERRA 1
SINGO 1
SIRRINE 1
SPALDING 1*
STARKRIMSON 1
TWENTIETH CENTURY (NIJISSEIKI) 1
YOINASHI 1
YONGI 1*

FIGS

KADOTA 1

PLUM

ANGELENO 1*

GRAPES

ALDEN 1*
CANDICE 1*
GOLDEN MUSCAT 1*
EINSET 1*
GLENORA 1*
HIMROD 1*
LAKEMONT 1*
RELIANCE 1*
SUFFOLK RED 1*

KIWI

ELMWOOD 1
HAYWARD 1
VINCENT 1*

NUTS

BACELONA FILBERT 1
CASCADE WALNUT 1
CHEPAKA WALNUT 1
DAVIDIANA FILBERT 1
FRANQUETTE WALNUT 1
SPURGEON WALNUT 1

QUINCE

ORANGE 1

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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.

NEXT NEWSLETTER APRIL

WE WANT TO HEAR FROM YOU

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

Do you like the 2 column format? Yes_____ No_____ Didn't notice_____ Doesn't matter_____

What would you like to read about? _____

What changes woul you make in The Bee Line? _____

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

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

What topics for speakers? _____

Is there a particular speaker you would like to have? No ___Yes___Name_____

How else can we help the home orchardist? _____

Why have you decided not to renew? _____

Any other comments? _____

_____

WESTERN CASCADE FRUIT SOCIETY MEMBERSHIP INFORMATION

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

Name(s) _____ (___) New (___)Renewal

Street Address _____

City, State, Zip _____

Phone _____ PLEASE SPECIFY ONE CATEGORY BELOW

Standard $10.00 (__) North Olympic $10.00 (__) Peninsula-Kitsap $10.00 (__)

Piper Orchard $10.00 (__) Seattle Tree Fruit $18.00 (__) Tahoma $10.00 (__) South Puget Sound $10.00 (__)

(__)ENCLOSED FIND $5.00 EXTRA FOR WESTERN WASHINGTON FRUIT RESEARCH

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

BOARD MEMBER FALL FRUIT SHOW PUBLICITY FIELD TRIPS SPRING MEETING SPEAKER COMMITTEE CHAIR ARRANGING FOR SPEAKERS 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 199?
YOU'LL FIND IT HERE!

WESTERN CASCADE FRUIT SOCIETY EDITOR
2625 13th Ave W. Unit 306
Seattle, WA 98119-2054

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