The Bee Line

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

SPRING 1996

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

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT THE ANNUAL SPRING MEETING AND SALE, BUT DIDN'T KNOW WHO TO ASK

The Western Cascade Fruit Society's 16th Annual Spring Meeting and Rootstock Sale (the 2nd Annual Fruiting Plant Sale) held March 2 in Puyallup at the United Methodist Church brought 347 (at least that is the number who signed in) attendees, (although there was $371.17 in donations at the door!) of whom 118 were WCFS members. (I know of at least six other members who didn't register, how many more could there be that I don't remember?) These back yard orchardists came from as far north as Langley, B.C., as far east as Yakima, from Battle Ground to the south and Aberdeen to the west; and 72 points in between. Some of those who came the farthest, from the north and east, were not WCFS members! Two new members joined, and several since then.

The annual meeting was very well attended-it was great seeing all of you there. President, **Joe Zeppa**, kept the meeting interesting and lively, detailing the past year's progress and successes. EVERY CHAPTER WAS REPRESENTED not only by your presence, but with your help. And many AT LARGE members were there, helping along with the rest. Any comments you would like to submit to improve the Spring Sale, or any changes you would like to see, would be welcomed by the board. Direct them to president Joe Zeppa, or send them with your dues to the treasurer, or better yet, write a letter to the Editor, to be published in the next issue of The Bee Line.

The Board extends a heartfelt **THANK YOU** to each and every one who volunteered, many of you as you arrived offered your services. There are too many to name and I don't know all of you, but you were wonderful.

Three names had been submitted to the Board of Directors as candidates for Life Memberships to be presented at the Annual Spring Meeting. The three were so deserving the Board approved of each one:

Dick Tilbury, outgoing board member and recipient of the Life Membership-with his wife, **Marilyn**- in 1992 presented **Orel Vallen** with these comments: Orel is a long time member of the Society and during that time has demonstrated exceptional dedication and service to the organization. He served as vice president from March 1992 til March 1995. Since then to the present time he has served as a member of the board. He has been chairman of the Fall Fruit Show (FFS), set up/take down committee and chairman of the FFS fruit ID committee for a number of years. Currently he is chairman of the FFS and Spring Event site selection committee. He has fulfilled those duties in an exemplary manner.

Orel in his old Dodge with the ladders on top and the trunk full of pruning equipment and apple maggot traps, coming to help, has been a frequent sight for many of us over the years. He has always been generous of his time and labor in helping others with their fruit tree pruning. As an example he spent a couple of days last year supervising the pruning of some old, neglected fruit trees at Martha Washington Park in southeast Seattle, all in the name of support to the community from WCFS.

Two years ago he single handedly set up a baited trap program to combat the invasion of apple maggot flies in King County. He worked with WSU Extension, Washington State Department of Agriculture and suppliers to develop a yellow panel trap coated with a mixture of brush-on Tangle Trap and a bait of ammonium acetate. He has manufactured dozens of these traps and hung them in apple trees all over the county where owners are agreeable and serviced the traps on a periodic basis to count captured flies and replenish the baited sticky coating. He provides tallies of location and number of flies captured to WSU Extension. In addition he has staffed an educational booth at the FFS to inform the general public about the apple maggot threat.

Larry Barello, outgoing Board member and treasurer of North Olympic Fruit Club presented **Chuck Parkman**, also a member of North Olympic Fruit Club, citing his years of service to WCFS in office as Treasurer 1990 to 1993, and President-taking this office when no one else would do it-1993 to 1995. His hours of helping at Fall Fruit Shows and Spring Sales, of securing speakers for these events and arranging for commercial exhibitors. Taking 100s of rootstock and scion wood, grafting, planting, digging up and bringing to the next year's sale, and in addition, taking the time to rate the success of different grafting tools, and writing an article for The Bee Line with the results of the grafts. (Editors note: And his unfailing support in sending articles of interest to use in the Bee Line.)

Paul Vander Hoek, past WCFS Board member, presented **Lyle Knudson**, a member of Seattle Tree Fruit Society, with these remarks: Lyle has been a member of WCFS since 1986. He has served on the WCFS board for two terms, from 1989 to 1995. As a board member, he has served on the Nominating Committee, has been chairman of the Fall Fruit Show, as well as serving on other FFS committees. His orchard on Marrowstone Island has been available for various chapter's field trips, and best of all, Lyle is always ready with a good story. (At which point Lyle treated us to a good story.)

(Ed's. Note: Unfortunately, I didn't get all the statements made in the presentation of Chuck and Lyle as Life Members, and the presenters didn't keep their notes.)

The Treasurer's report for 1995:

WCFS FINANCIAL STATEMENT
January 1, 1995 through December 31, 1995

	Seafirst Savings	Seafirst Checking		
January 1, 1995 Balance	$ 5,085.02	$ 3,854.49		$ 8,939.51
INCOME				
Dues		$ 4,104.00		
Less Chapter		(1,318.00)	2,786.00	
Contributions		343.00	343.00	
Spring Sale		6,178.07	6,178.07	
Fall Fruit Show		3,115.31	3,115.31	
Group Purchases		1,659.70	1,659.70	
Bank Interest	114.35	82.75	197.10	
	$ 5,199.37	$ 18,019.32		14,279.18
				$ 23,218.69
EXPENSES				
Spring Meeting		$ 176.37		
Spring Sale		3,590.87		
Fall Fruit Show		2,025.46		
Newsletter		1,696.60		
Display Material		985.41		
Northwest Flower Show		142.17		
Office		455.51		
Group Purchases		1,338.58		
Insurance		469.00		
Printing		238.66		11,118.63
		$11,118.63		12,139.48
Less Contribution to WWTFRF		1,722.00		
Less Sales Tax for 1994 sales		293.46		2,015.46
Ending Bank Balance	$ 5199.37	$ 4885.23		$ 10,084.60

Can't give you a report on how we did at the Spring Sale as there is still one invoice yet to be received and paid.

See page 20 for answers to The Spring Fruit Quiz originally published in Fruit News, the Magazine of the Friends of Brogdale. (Haven't received the solutions to the Autumn quiz.

BITS AND PIECES

NEW ADDRESS for Treasurer/Editor. Some of you know that I recently moved (see new address and phone number on page26.) I have also changed my name, taking the maiden name of my maternal grandmother. I shall henceforth be known as Evelyn Troughton, so we can all become accustomed to it together!!! Please send your correspondence, etc. to the new address. Hopefully, the post office will be able to handle the name change, they seem to be having trouble from time to time with the change of address! Eventually, I do get all the mail, just slightly delayed. I also have a FAX number, 206 283-1944, so if it is convenient for you to send information for the newsletter, or other inquiries or information, please do so.

IF YOU LOVE OLD GARDEN BOOKS Calendula Horticulture Books has recently relocated from the east coast to Chehalis. They carry about 2,000 modestly priced antiquarian books, pamphlets and agricultural research bulletins on general gardening, landscape architecture, flowers, **fruit**, vegetables, botany and related subjects. They currently (in January when their press release was received) have approximately 100 items dealing with fruit, fruit culture and fruit diseases. They can be contacted at: 160 SW Alfred St, Chehalis, WA 98532 (3/4 mile from exit 77-I 5) or by calling (360) 740-1874.

APPLES ON DISKETTE The Washington Apple Commission has introduced a new marketing tool for use by its distributors. The Commission has introduced a new computer diskette containing information on every apple variety grown in Washington and cost/price information. It will be distributed by Jean Ashby, new director of foodservice marketing for the Washington Apple Commission. [Ed's. note: I don't know if this diskette is available to just "anyone". Does anyone out there know? Let us hear from you.]

FOR THE FLOWER LOVERS AMONGST US VanDusen Botanical Gardens in Vancouver, B.C. is having their 3rd Annual Flower & Garden Show May 31, June 1 and 2. Over 200 exhibitors will create their magic and vie for awards. Features of this show include over 120 beautiful garden displays by commercial exhibitors, GardenWorks Demonstration Series, Gardens West Horticultural Pavilion, The Artists Village, Garden Craft Pavilion, The Hanging Basket and Weyerhaeuser Container competitions and the World's largest hanging basket by Mandeville Gardens, Entertainment Stage, Free Parking with shuttle service AND OF COURSE VanDusen Botanical Garden Exhibits. Call 604 257-8671 or fax 604 263-1777 for further information--group rates are available. Cost Adult $6 US, Member/Group $4.50 US, Senior/Student $3 US Children free. Advance ticket deadline is May 13, 1996. [Does anyone want to organize a group? I do have a registration form and bus parking registration form.]

B.C. FRUIT TESTERS ASSOCIATION "Fresh From the Cider Press" editor, Barbara Chernick writes in the Summer 1995 edition: For some years now we've been able to keep raccoons out of our fruit trees, by tying those 2' x 4' sheets of fiberglass around the trunks just as the fruit starts to ripen. I've learned the hard way, however, that it's essential to take the ladder from under the trees at dusk! However, it was fun washing our resident 'coon out of the plum tree this year with the garden hose. The animal rights people can rest assured he got down safely, and is now trying to raid the garbage cans.

BAG IT? Genuine Kobayashi double apple bags from Japan are available at Seattle Tree Fruit Society monthly meetings in lots of 50 bags for $5.50. This includes excellent instructions in ENGLISH by Dr. Norton. Bags should be in place by about June 1 to protect fruit from apple maggot. To order by mail, make check payable to STFS for $8.50 for 50 bags or $14.00 for 100 bags and send to STFS, 4916 52nd Ave S, Seattle 98118.

NEW: REFLECTIVE MULCH Japanese growers are using aluminized plastic mulch to reflect light back onto apples, persimmons and grapes. It is supposed to hasten ripening, improve color and increase fruit size. It is laid down a month before harvest, then taken up. It can be reused 3 or more additional seasons. Colorup™ is 64" wide and would cost about 27 cents/lineal foot including tax. A 100 foot length weighs about 3.5 pounds. This stuff comes on a humongous roll so there would have to be enough interest from members before ordering. If you would like to try 50 or 100 feet (or more), leave your name, phone number and length of mulch desired on the answering machine at 206 723-9009 (Seattle). We will let you know if there is enough interest to warrant an order.

BUG REMINDERS 1) A pheromone trap or two for CODLING MONTH should be in place at least by full bloom of your earliest blooming apple or pear. Hang high in the tree and check daily. Use the first catch of 2-3 moths to establish biofix and a min-max thermometer to determine degree days for proper spray timing. Getting two well timed sprays on this overwintering generation of moths really helps control this pest. Cooperative Extension offices have a bulletin explaining how to do this. 2) Have your APPLE MAGGOT traps ready to hang by May 15 (June 1 at the latest). Replace bait every two weeks and keep records of when and how many flies you caught. Apple maggot flies (AMF) were trapped by members as early as June 3 and as late as September 17 last year. One member trapped 278 AMF in just a few dwarf tree. For more information call Orel Vallen at 205 772-2119.

MORE BITS AND PIECES

AN APPLE A DAY—Ed Lewis, past WCFS president in 1982 and 1983, celebrated his 90th birthday on February 22. Ed and Barbara live in Bellevue, where he maintains fruit trees, osmia bees, and enthusiasm for living.

PUYALLUP SPRING FAIR is Thursday April 18 through Sunday April 21. WCFS will have a booth located in the Agriculture Building. If you haven't "Done the Puyallup" in the spring this the time to do "it".

WESTERN WASHINGTON TREE FRUIT RESEARCH FOUNDATION sponsored the Field Day at Mt. Vernon March 16. At their annual meeting, held at noon, the following funding proposals for research were approved:

1) **Evaluation of Disease Resistant Apple Cultivars.** Initiated in 1990, budget $4,00. WWTFRF is the only source of funding being sought for this project.
2) **Evaluation of Apple Cultivars for a Cool, Humid Climate.** Initiated in 1995, budget $4,400.
3) **Evaluation of Stone Fruit Cultivars for a Cool, Humid climate.** Initiated in 1985, budget from WWTFRF $2,650, half of the total funding, balance being sought from the WSNLA.
4) **Evaluation of Pear and Asian Pear Cultivars for a Cool, Humid Climate.** Year initiated, 1984, budget $4,150. Note that an additional support for the Bosc Pear plot was received from the Northwest Ag Research Foundation in 1995 and is expected again in 1996.
5) **Other related research projects that are funded from other sources.**
   A. Fertigation trials to improve quality of Jonagold apples.
   B. Trial of spray materials for control of scab and mildew in the Jonagold block.
   C. Crabapple variety and disease resistance trial.
   D. Evaluation of raspberry cultivars from WSU and BC cone with Dr. Pat Moore of WSU Puyallup.
   E. Blueberry variety trial for commercial growers done with Dr. Pat Moore.
   F. Landscape garden demonstration area including espalier, grape arbor, kiwi trellis, and greenhouse containing indoor citrus, grapes and figs.

Their Spring newsletter noted that a new project was launched to help WWTFRF raise money for the tree fruit research at Mt. Vernon. Volunteer harvesters came to the station on Thursdays during the apple season to pick fruit for sale at the Open House on Sept 30. Sales at the WCFS Fall Fruit Show October 28-29 brought in about $1,000. Many thanks were extended to Chuck Parkman and WCFS. On October 19 volunteers picked apples still left in the orchard for sale to processors, and in that one day, 15 bins were filled-a total of 7.5 tons, which resulted in receipts of $1,200. The terrific volunteers were: De Arbogast, Jerry Arbogast, Larry Baxter, Linda Eremita, Jesse Erickson, Susan Ferrill, Bill File, Signe Hendrickson, Harvey Hutchings, Paul Hoyme, Sandra McDowell, Milly Myers, Rod Myers, Sylvia Ramsey, Richard Tamura, Stuart Thompson and Linda Torgeson. (Ed's. note: I recognize several WCFS members in that list-congratulations.) Groups that have made significant contributions include WCFS, Seattle Tree Fruit Society, Master Gardeners and Home Orchard Society.

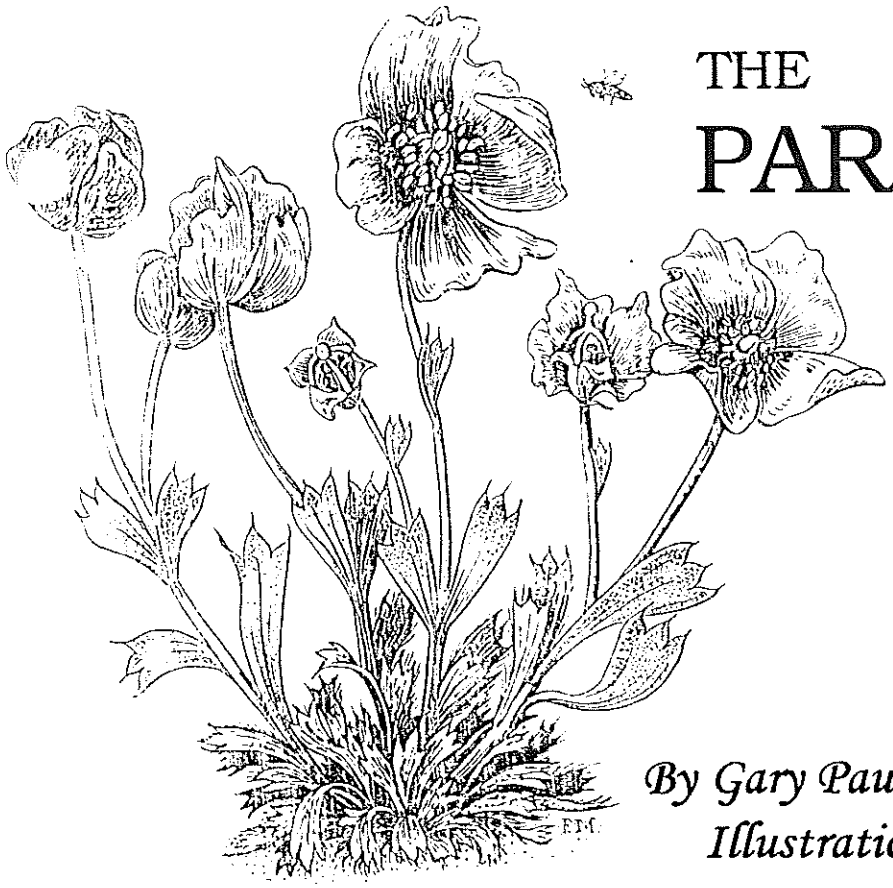
NEWS OF A NEW BOOK to be published in June, which sounds very interesting, has reached me just as we are about to go to press. I am making inquiries regarding a group purchase, so hope to have something good to tell you about it in the next issue of The Bee Line.

And Linda Gately of the North Olympic Fruit Club shares this with us: (following some very nice remarks about The Bee Line) . . . ."I usually learn something new on every page and make copies of articles for others. My daughter who is now 13 grafted her own Pink Pearl tree in 1989. She read the story about the pink apples and Etter. She wants a pink orchard now." Isn't it wonderful that the young folk are interested in growing fruits and grafting.

Your editor apologizes for being so late with this edition, (as I ready this for the printer on the morning that the "crew" is coming to fold, tape and affix labels). Moving and the other parts of my life—part time job, other volunteer projects, have taken my time. I should be right on time next edition!

If you call, or send a FAX and hear a strange sounding message (usually for reservations for a fund raiser) that is my other volunteer project, with the Seattle Opera Guild. Since I do have a computer, I am frequently asked to be the reservation chair for fund raising events. It's great fun, and I do get to talk to a lot of nice people (when I'm home to answer the phone!) There is a fund raiser in August that will have a different outgoing message on my answering device, probably starting in May, so just leave a message if I don't answer the ring.

Thanks to all of you who have sent articles for the newsletter. If they aren't in this edition, they will probably be in the next one, or one that I feel is more timely. Looks as if I have finally filled this page. On to the printer!



THE PARABLE OF THE POPPY & THE BEE

Why Should We Save Those Spineless Critters?

By Gary Paul Nabhan

Illustrations by Paul Mirocha

We wandered around for several hours in the desert heat, up and down faint trails on gypsum-laced bluffs, before we saw "it." At times, I worried we might not see "it" at all. /The landscape looked barren, torn up by years of off-road-vehicle racing and livestock overgrazing. Few flowers, insects or even lizards were active during the early-summer dry spell in this valley near the Nevada-Utah border.

The "it" that brought me to the Virgin River basin was a rare wildflower, the dwarf bearclaw poppy. Although federally protected as an endangered species, it had suffered from a five-year drought during which nearly every elderly bearclaw died off, and only a few new seedlings emerged to replace them.

Steve Buchmann, my colleague, yelled for me to come over to the bluff where he knelt a few hundred yards away. I did just that. "I haven't found any yet," he said, sighing and gazing down at a patch of feathery blue-gray poppies. "Yes, you have," I replied. "That's *Arctomecon humilis* right at your feet."

"The bees, I mean—I haven't yet seen any native bees," he said. "I've seen several open flowers, but none of the new species of native bee that my colleagues have been working with here in the Virgin. You know, *Perdita meconis*."

Both of us had come to see "it," but "it" had a blossom in my mind, while "it" had wings in Buchmann's. Unfortunately, "it" has blossoms far too often: Most people never see native bees gathering nectar and pollen from flowers, let alone realize the vital part insects play in the sexual reproduction of flowering plants—rare and common alike.

As a case in point, the National Zoo in Washington, D.C., recently found that most of its visitors considered pollen to be an allergenic "dust" rather than knowing of its critical role as sperm in flowering-plant reproduction. Furthermore, more of them associated bees with stings, pain, allergies or alarming buzzing noises than with pollination—the transfer of pollen to the flower's female parts, leading to the fertilization and development of seeds.

Even scientific experts overlook these small pollinators: Where I live in the United States/Mexico borderlands, biologists have yet to identify the pollinators and seed dispersers for 14 of the 16 federally protected plants in the area, and hardly know how declines in these creatures affect plant populations.

There are perhaps 50 to 100 insect pollinators on this planet for every bird or mammal known to move pollen from one flower to the next. And yet, few insect pollinators other than showy butterflies are currently protected by federal law, not so much because they face no threats as because we know so little about them as floral visitors.

THE DWARF BEARCLAW POPPY HAS been known by botanists for more than a century, but the small, poppy-loving *Perdita meconis* was described by scientists only in the past few years. Fortunately, the bee is finally receiving the attention it deserves. Entomologists Terry Griswold and Vince Tepedino at Utah State University in Logan, Utah, have collected *Perdita meconis* from the area in which Buchmann and I stood and from California's Kelso Dunes, 200 miles to the west. In each of these localities, the bee pollinates only one kind of plant: a prickly poppy in the Kelso Dunes and the endangered bearclaw poppy here in the Virgin.

As Buchmann and I stood in the poppy patch, he pointed out a feral honey bee that approached a dwarf bearclaw poppy, then buzzed away to a flowering buckwheat plant nearby. The wild honey bee and a widespread solitary bee species can also serve as pollinators for the poppies. Even though these poppy plants are not exclusively dependent on *Perdita meconis* for producing their fruit and seeds, we noticed that the number of black seeds within each fruit among the poppies we encountered was still rather low. Despite the presence of other bees, the poppies were not filling all of their fruits with seed.

Scientists once believed that the only plants threatened by low pollination rates were ones that had a single insect partner to move their pollen around. Nature documentaries on television often focus on such "monogamous" relationships as those between the yucca and its yucca moth, or the fig and its fig wasp.

Yet we know now that monogamous partnerships are not the only ones vulnerable in our changing world. The majority of flowering plant species suffer low seed set when pollinators are scarce—even if they have a wide variety of pollinators. As all pollinators in a habitat become scarce, they will collectively make fewer visits to a rare plant population, resulting in fewer seeds. Reciprocally, as a patch of plants becomes too small to provide pollinators with sufficient rewards, the remaining pollinators go elsewhere.

In the case of the bearclaw poppy, its habitat is already protected, but its most allegiant pollinator is not. When I later called on Vince Tepedino in Logan to ask him about the vulnerability of the poppy-loving bee, his answer was immediate: "This bee should perhaps be listed as an endangered species just as the poppy is, since it is known from so few places." Fewer localities, in fact, than the poppy itself.

It is unlikely that Tepedino's concerns for protecting the bee will be heeded in the near future. At the time that he spoke with me, there was a moratorium on listing any more species as federally endangered. Given the current anti-environmentalist climate in some states, the mere thought of championing "some spineless little critter" like a bee would give some politicians a headache.

Rare insect species have become fall guys for the anti-environmental movement, which has argued the government should only concern itself with bona fide "wildlife"—in other words, game animals—and let plants or bugs take care of themselves. During the 1995 debates about the Endangered Species Act reauthorization, lobbyists kept quoting a segment of the recent book *Noah's Choice* that pitted a poorly known beetle against a highway project that would have provided rural dwellers with better access to a hospital. The take-home message was that the survival of beetles and other creepy-crawlies in their habitats could not possibly benefit humans; "bugs" only get in the way of our endeavors. And yet conserving insect pollinators and their relationships with plants can only be accomplished through conserving habitats. This is an obvious case where "zoos just wont do."

AS BUCHMANN AND I DROVE BACK from the Virgin basin toward St. George, Utah, I naively asked him a question that many pollination ecologists have been asked: "If an endangered plant can be pollinated by introduced honey bees just as effectively as by native bees, why not move a few hives into each rare plant's habitat and solve the problem that way?"

"Gary," he groaned, feigning shock, "you should know better than to fall for quick fixes! A mobile bee hive for every rare plant might have been a reliable stopgap solution a few years ago," Steve explained, "but today, honey bees are dropping like flies. Over the long haul, it's never wise to put all your eggs—or pollen grains—in one basket. By investing exclusively in honey bee pollination, you're making things risky both for the rare plants and for the native bees that have co-evolved with them. . ."
As a research scientist with the U.S. Department of Agriculture's Carl Hayden Bee Research Center, Buchmann could recite at a moment's notice the myriad grim statistics regarding U.S. honey bee declines. Since 1900, nearly a quarter of the managed honey bee colonies in the United States have been lost to diseases, parasitic mites, pesticide poisonings or infestations by competing Africanized bees. In one area of the Southwest, 85 percent of all feral bee hives in rock outcrops, caves and tree trunks have succumbed to mites over the past five years.

There are now far fewer honey bees in North America than at any time since before World War II, and less than half the managed colonies than were present during the peak of U.S. honey production in 1947. More than two thirds of the

remaining hives are infested with exotic pests and diseases that are not easily controlled. And aggressive Africanized bees, which first arrived in the United States in 1990, have now spread to 85 counties, causing many beekeepers to abandon their businesses for fear of lawsuits by their neighbors.

Should honey bees continue to disappear from the southern half of the United States, wild pollinators will have to take up the slack in pollinating other crops and wildflowers. Already, dozens of native bee species pollinate as many flowers of alfalfa, cranberries, blueberries and sunflowers as the introduced European honey bee works. Experts estimate that within a few years pollinators other than managed honey bees will need to provide $4-billion to $6-billion of annual crop pollination services to America's farmers.

Ironically, many of the native bees that pollinate our food crops also are vulnerable. They are similar to the poppy-loving bee in one important factor: They are finicky about what flowers they visit, what types of pollen they eat and where they nest. In fact, almost all pollinators have nesting and hibernation requirements that scientists have not yet learned to simulate or artificially duplicate. Their habitats must also be kept pesticide-free, for most native bees are smaller and just a sensitive to chemical poisoning as honey bees are.

While researching our forthcoming book, *The Forgotten Pollinators*, Buchmann and I learned that more than 60 kinds of bird and mammal pollinators of plants are known to be endangered, but that no one has any idea how many insect pollinators are vulnerable to extinction.

Yet giving exclusive attention to the extinction of species may divert us from recognizing other kinds of losses. As ecologist Dan Janzen once warned, "What escapes the eye . . . is a much more insidious kind of extinction [than the 'mere' extinction of species]: the extinction of ecological interactions."

Last summer, the Arizona-Sonora Desert Museum convened a task force of 25 conservation-minded scientists and educators to consider what can be done about the extinction of plant/pollinator interactions. Authorities from the Xerces Society, Bat Conservation International, the Sonoran Arthropod Studies Institute, the U.S. Department of agriculture and numerous universities drew up a 10-point plan for a national pollination services policy. They suggested that such extinctions will be averted only by setting aside sizeable tracts of pesticide-free habitat, and by restoring the "nectar corridors" of flowering plants required by migratory pollinators such as monarch butterflies.

Such pollinator conservation measures will not merely help bearclaw poppies in Utah; they will also aid Hawaiian silversword plants, the evening primrose of California's Antioch dunes, the night-blooming cacti of the Arizona-Mexico border and a peculiar wild primrose languishing without seeds in the suburbs of Tokyo, Japan.

A bearclaw poppy population was recently heralded in headlines across the West for being the only known source of three previously undescribed chemicals of medicinal value. Are tomorrow's drugs and medicines dependent on today's free pollination services being provided by little critters such as poppy-loving bees?

I can't be sure, but I have a hunch: We ought not to think that a "quick fix" like a mobile honey bee hive can replace what has been an unbroken chain of visits by poppy-loving bees to bearclaw poppies over millennia. "Don't try to fix what ain't been broken" makes good sense in the natural world.

Spineless or not, native pollinators have consistently provided our croplands and wildlands with the kind of support that has kept our country fruitful. Let us remember them every time we smell a poppy, or take a bite into a delicious, red apple or munch on almonds. Let us now praise the not-so-famous pollinators, and honor our collective debt to them.

Gary Paul Nabhan is director of science at the Arizona-Sonora Desert Museum. His ninth book, The Forgotten Pollinators, co-authored with Steve Buchmann and illustrated by Paul Mirocha, is due out from Island Press this spring.

The above article was published in Nature Conservatory, March/April 1996 issue. It was submitted to The Bee Line by Robert Bower of Four B's Farm, a WCFS member from Olympia. Many thanks for your thoughtfulness.

NEWS FROM THE CHAPTERS

NORTH OLYMPIC FRUIT CLUB has elected as their officers for the coming year: President, Bill Rosenberg, Vice president, Eric Simpson; Secretary, Rita Spalding; Treasurer, Larry Barello. In March, says president, Bill Rosenberg, they had a scionwood exchange-"tons of wood" he added. They had a very successful orchard tour in October to Paul Gautchi's orchard. No irrigation is used, just a mulch of about 18"-of wood chips-and the trees do very well. they also visited Lyle Knudson's orchard on Marrowstone Island.

NEW PRESIDENT FOR PENINSULA FRUIT CLUB IS GEORGE BOGGESS. On February 10 they had a grafting show which had a good turn out, George tells us. Peninsula Fruit Club meets on the first Thursday of each month at 7:00 p.m. (new time) in the WSU Extension Office, Port Orchard.

"The winter of 1941-1942, we had nine inches of snow here. It was more than we'd had in the previous five years combined. Still, it wasn't too bad. The next year was nasty! We had a hard freeze, and it froze all the radiators in the Navy Yard City school (I was a student there). There was water in all the aisles, and the kids skated up and down on it.

Then it started snowing, nice, light, fluffy snow. We had between three-four feet of snow before it was done, and there was only one snow plow in all of Kitsap County. Some places, around Seabeck, I heard they had five feet!

We didn't hhave bus service or oil delivery for two weeks. Us kids had to go get oil on a sled, that was our jobk to go down and get the heationg oil. The Army drove their big trucks up and down the roads, and that's how people got around - walking in the tracks.

The day after it snowed, it was a nice sunny day and the snow settled down to about a foot and a half, but it was heavy. Us kids had a ball, but the adults had hell."

George Boggess is president of the Peninsula Fruit Club, so weather is vitally importnat to him. He has three children, eight grandchildren and three great grandchildren, so far.

The above quote was published in the North Kitsap Herald's column THE VOICE OF EXPERIENCE on March 2, 1996.

SEATTLE TREE FRUIT SOCIETY Chapter at their March 30 meeting had Mary Robson, WSU Extension Agent for King and Pierce Counties, speaking and presenting slides about Spraying for the Home Orchardist. Solubor, a commercial boron supplement, which is available in large quantities only, so STFS purchased one unit and sold portions to members that were more practical.

SOUTH PUGET SOUND CHAPTER new co-president is Timothy Driver, with Susan Barrett continuing from last year, elected at their January 20, 1996 meeting. Also reelected were Larry Mowrer, secretary and Robert L. Smith, treasurer. They will have a scion exchange in April, a Beekeeper talk on honey bees and pollination-date to be announced- and hopefully a talk on organic gardening, that date also to be announced. South Puget Sound Chapter meets the third Saturday of each month at 10:00 a.m. in the Horticultural Building of the South Puget Sound Community college in Olympia

TAHOMA CHAPTER newly elected president is Ed Jones. Tahoma Chapter meets the first Thursday each month at 7:00 p.m. at the United Methodist Church, Puyallup. In April Orel Vallen spoke to the 35 attendees about apple maggot and codling moth. Their May meeting will have Mary Robson, WSU Extension Agent, speaking on gardening, and there will be a plant sale. You are invited to drop in for any of the meetings.

OUR MEMBERS WRITE

For a couple of years I have been interested in trying my hand at apple breeding. I was wondering if anyone else might be interested in joining me on this project. The usual methods now are to grow thousands of seedlings so the theoretical chances of getting a "good" variety are low. (Not that I let that discourage me, remember Cox's Orange Pippin, grown from the seed of one apple!) but the chances of having a fun and interesting time are very good.

I would like to try for a scab immune, long keeping Cox type. I am planning to try Fiesta x Enterprise. My biggest problem right now is that though I will have a few blooms on Fiesta, I just planted Enterprise this spring. Does anyone have one or both of these apples who would like to help out? I was thinking that if I could make the crosses this year in two years I could have seedlings ready to pass out to anyone who was interested in growing them to fruiting.

I also need information. How closely can the trees be spaced? What methods are best to encourage early fruiting? If anyone has advise or would like to be involved please contact me.

Kim Siebert, 5505 87th Ave NE Everett, WA 98205 phone 206-334-0387

PLAN NOW FOR SUMMER PRUNING

By Dan Stevens Fruit Grower, May 1995

Pruning this month may improve quality and reduce dormant pruning

Your Fujis are out of control: all vigor, no fruit. Vertical suckerwood abounds. And it's late May, too early to summer prune. Maybe not. When you "can't read a newspaper in the orchard at noon," summer pruning in late spring could be the answer, says Washington State grower Rick Maib, who oversees several orchards located in the central Columbia basin. Unsheathing the shears in late May instead of August means better fruit set, better tree shape, and less dormant pruning on his Fujis.

Earlier the Better

Maib starts snipping two months earlier than normal, because the unwanted shoots are already out of control, mainly in Romes, Granny Smiths, and Fujis. His pruning schedule is dictated by the length of the shoots rather than the time of year. However, the end of May has corresponded with ideal shoot length.

At that time, the excessive vigor in the vertical suckerwood reaches about 6 to 8 inches. This suckerwood is what Maib goes after with the first cuts of the year The horizontal wood—or wood that's lying down and adding to the preferred shape of the tree—is left behind.

On 6 to 8 inch vertical shoots, Maib prunes halfway down, where the green color of the limb gives way to the red hue of the more mature wood. This cut leaves basal buds behind as well as three regular leaf buds. After the cut, a fruiting spur sets up behind it. The four inches of suckerwood that are left behind either grow back as suckerwood or produce lateral shoots that will later set fruit.

The cutting helps control vigor, improves color, enhances fruit set, and opens up the tree to light. Maib averages eight to ten cuts per tree, but sometimes as many as 40 or 50 are needed. "It's kind of like weeds," he says, "You take out what you don't want there." All in all, perhaps one out of every five cuts made will respond by bearing fruit.

The cost of early summer pruning is largely offset by less dormant pruning. Come August, Maib will prune again if necessary, or perhaps even earlier if needed.

Too Late in August

If he waited until August to summer prune, the vertical suckerwood would span 3 feet. Maib feels that's too long. "The larger the caliper of a sucker, the more chance you'll have vigorous growth, and the less chance you'll have of setting fruit," he says. Conversely, the smaller the snip, the better chance you'll have of achieving dwarfing and fruit set.

Not only that, 6 to 8 inch wood is easier to work with. The smaller the suckerwood is, the less likely it will hang up in the tree and cause fruit damage during the pruning operation. "When we early summer prune, we're not removing a lot of tree mass. Therefore, we have less adverse affects," says Maib. "Even so, we're changing the hormonal composition of the tree with these smaller cuts."

There's risk anytime you prune, because you're wounding the tree, and that can affect fruit size. Cells that produce carbohydrates in the leaves are removed with pruning, and this affects the energy of the tree. Many apial tip cuts—or smaller cuts—will dwarf the tree much more than one big cut.

Another risk is fire blight. The wound created on the tree by pruning makes it more susceptible to this disease. Additionally, the disease can be spread by the pruning shears if you cut into an infected limb and then snip another shoot.

Not For Everybody

Summer pruning isn't for every orchard. "You have to evaluate the reasons for doing it," says Maib. "You have to understand there are tradeoffs." For example, if your trees are settled and fruiting every year, and you harvest a crop of reasonable size and color, there's no reason to summer prune. But if you have a vigorous rootstock that wants to grow wood rather than bear fruit, it's a technique you may want to try.

Editor's note: From time to time an article has been printed in two columns. I was hoping I would hear from you with an opinion as to whether you think it is easier reading than the usual format of one column. Please let me know, so I can make this newsleter the kind you want. What do you think of this font size? Easier to read? Doesn't matter? If your are renewing your membership, add a note on the form, or just write anyway! I like hearing from you.

TREE FRUIT RESEARCH 1995

Washington State University Mount Vernon Washington
G. A. Moulton, J. King, and B. Gunderson

All of the following fruit research reports are summaries. The complete report lists each of the established varieties which have been tested for three or more years, those not fully evaluated and the varieties slated to be discarded. The reports are more than 25 pages long, too long to print in its entirety. If you are interested in seeing the entire reports, give Jacky King a call at the station at 360 424-6121. She will send it to you, the charge is $6.00 to cover the costs. If you have any input about the suggested discarded varieties or suggestions about new varieties that should be tested, please bring it to Gary or Jacky's attention.

APPLE RESEARCH 1995

In 1995 the weather at bloom time was relatively warm, with daily highs ranging from mid 50s to mid and upper 60s, and little or no precipitation. Sufficient bee activity was present for effective pollination, and fruit set in general was good. From May through September the weather was warm and dry for most of the season, so irrigation as well as fertigation were provided on a regular schedule. Despite a few rainy spells in late September and October, fruit continued to ripen well, and some late varieties remained on the tree until November with very good quality.

This year several young trees produced fruit in quantities sufficient for evaluation, and look quite promising as future possibilities. Two highly colored red sports of Jonagold, **Rubinstar** and **Jomured**, performed very well in terms of both appearance and flavor. **Rubinstar** carried a full crop of large fruit with allover blush red color. **Jomured** did not color as early as **Rubinstar**, but by harvest it had developed good color. Some trees in their first year of fruiting were also potentially interesting. **Beni No Mai**, an early red variety from Japan, set well and had large attractive fruit with sweet flavor. **Princess**, from France, is a medium sized apple with allover golden russet, and **Rubinette**, a Cox type, seemed to size well and had excellent flavor. We will be looking at all of these, and at the new selections from the BC and New York breeding programs, in the coming season.

In the mature orchards, we continue to see good effects of the irrigation/fertigation system. Most varieties were very productive, successfully carrying heavy crops of high quality fruit. **Sunrise** and **Aroma** again stood out among the early apples. Though color in **Sunrise** was not as red as in 1994, flavor remained very good. **Aroma** proved this year that it can carry a heavy load of fruit, and in fact seemed to improve in quality with somewhat smaller apples. **Fiesta** remains consistently excellent, and the fruit large, well colored, and high in flavor even when cropped very heavily. The **Gala Fulford** strain colors 7-10 days earlier than either **Royal** or **Scarlet Gala**, and its bright blush is very attractive. In 1995 we also planted **Galaxy** and **Ultrared Gala** strains for future comparison, but they are not yet fruiting. Several of the late apples were very good this year; **Braeburn**, **Enterprise** and **Florina** all did very well. **Fuji** trees were somewhat overloaded, and fruit quality did seem to be affected. **Orin**, a yellow apple from Japan, was better than usual this year, but it is marginal at best for our area.

DISEASE RESISTANT APPLE RESEARCH 1995

This planting of disease resistant apples was begun in 1990 with cultivars and selections representing the work of apple breeders in the United States and elsewhere. This is the most comprehensive single-site planting of disease resistant apples in the state, and provides an opportunity to observe the performance of these varieties in the disease-prone environment of western Washington. We have been fortunate in receiving the support of the Western Cascade Fruit Society and the Western Washington Tree Fruit Research Foundation to maintain this planting, collect relevant data on the different varieties and selections, and make the results available to interested persons.

In our current trial the most promising varieties are **Williams' Pride**, an early ripening dark red apple with very good flavor and firmness, though not suited for long keeping, and **Enterprise (Coop 30)**, late ripening, also dark red, very firm and of excellent quality especially after about a month in storage. Selections from the Geneva, NY breeding program that also look promising are **NY 73334-35, NY 7334-57, NY 65707-19,** and **NY 75414-1**. We are in contact with the research station there to see if any or all of these may be a future introduction.

PEAR RESEARCH 1995

The weather in 1995 began with unusually warm weather in late February, followed by a sharp freeze in the first days of March, then a return to above normal spring temperatures. At pear bloom time conditions were favorable and resulted in good fruit set on almost all the pear cultivars (varieties). From May through September it remained warm and unusually dry, and the irrigation system installed in early summer was put to good use.

Early in the season, **Harrow Delight** again showed itself as tremendously productive, with very good quality fruit. Fruits of **Bosc** were attractive and russeted. Among red skinned pears, **Starkrimson** (Kalle strain of red Clapp Favorite) remains the most reliably productive, with light, sweet flavor. **Sensation Red Bartlett** is less productive but offers typical aromatic Bartlett flavor. Our observations over the last 4 years indicate that **Cascade** has a definite biennial bearing habit. Though flavor and color are just as good in the "off" years, the loss of productivity is a serious drawback. Two late season pears, pollinators in the Bosc test plot, did very well in 1995. **Concorde** trees, though only in second leaf, produced a heavy crop of large fruit. However, it was not as attractive as **Conference**, which looks promising.

ASIAN PEAR RESEARCH 1995

In 1995 the weather pattern was unusually warm in the last two weeks of February, followed by a cold spell in early March, then a return to above normal spring temperatures. The Asian pears had begun to break dormancy, but were not yet in bloom at the time of the frost, so that minimal damage resulted. Most cultivars bloomed well within the usual period and set at least a moderate crop of fruit. In the harvest period it was dry and sunny, and the irrigation system installed in early summer was used both for irrigation and for fertigation on a regular schedule.

Hamese #1 produced its usual heavy crop of fruit, but was not quite as sweet as 1994. Fruits of **Ichiban Nashi** were smaller than last year but very flavorful and of high quality. **Shinseiki** and **Chojuro** both produced good quantities of well sized, flavorful fruit to set the standards for overall performance. **Yoinashi** produced a good quantity of attractive tawny-skinned fruit with excellent flavor.

PEACH AND NECTARINE RESEARCH 1995

The sharp frost in early March 1995 did not appear to reduce the amount of bloom when flowers appeared. In the early bloom period (March 10-14) days were relatively warm (53-61° F) and night temperatures moderate (41-49° F), so that despite a little rain conditions were otherwise favorable. Conditions were not so good in the mid-bloom period (March 25-24) which was both rainy and cold, with highs around 50° F and lows down to 28° F, while the late bloom (March 25-28) saw warm clear days and cold nights. Overall set after thinning did not seem to be reduced, however. Weather at harvest was good, with warm days and little precipitation. The irrigation system put in place in early summer supplied adequate water, and a regular schedule of fertigation was maintained. Warm weather continued into the later harvest season, and most varieties produced a good crop of fruit.

In the early season, **Sentry** again did well, producing good quantities of attractive, very flavorful fruit. In the mid season, **Harken** and **Harbelle** were both reliable and productive. **Newhaven** is proving to be productive, with good quality. Several of the new peach and nectarine varieties planted in 1994 had some sample fruits in 1995 that were very flavorful, and we look forward to seeing the 1996 crop. The two early nectarine varieties, **Juneglo** and **Nectared**, were transplanted 1994 and have not fully recovered. The mid-season nectarines did not mature as well as in 1994; on average size was smaller and some fruits seemed to lack sufficient sweetness for best quality. Skin cracking was not noticeable this year.

PLUM RESEARCH 1995

In 1995 the weather pattern was unusually warm in the last two weeks of February, some days registering as high as 60° F. All of the early blooming plums were starting to open and some, such as Beauty and Methley, were in full bloom at the end of February. The first days of March saw a sudden drop in temperatures and a killing frost, which eliminated most or all of the early plum bloom. Conditions for the later blooming European plums were more typical, and most of those varieties bloomed well and set adequate fruit. In the harvest period weather conditions were warm with little precipitation. Installing an irrigation system early in the season was proven worthwhile.

Of the Japanese types, **Shiro** produced a fair crop despite the frost, and so did **Methley**. **Seneca** is the best all-purpose European plum, good for fresh eating, drying and canning. **Stanley**, a late Italian prune, produced heavily with good flavor. Some of the new plums planted in 1994 had a few fruits to sample. Notably productive was **Early Laxton**, a European plum from England with attractive, very sweet and small fruit. We look forward to seeing more samples of these new varieties in 1996.

CHERRY RESEARCH 1995

In 1995 the weather pattern at bloom time was cool and mild during most of the bloom period. From April 3-16, daily highs were in the low to mid 50s and overnight lows in the mid to upper 40s. There was no heavy rain, but trace amounts of precipitation were recorded about every other day. Conditions improved only at the very end of the bloom period (April 21-28), and highs were in the mid-60s, with no significant rain. Fruit set was good on most trees, and the exceptions were those varieties that have a record of shy bearing. Conditions at harvest (June 16-July 14) were very good. The weather was warm and rainfall only a trace, so there was little fruit damage from cracking or rot. Again the major destruction was by birds, with harvestable fruit remaining only on those varieties that were netted. Netting of individual trees, though the only option open at present, is both labor-intensive and impractical, especially for large mature trees. An alternative we are pursuing is the grafting of cherry trees on a new dwarfing rootstock series, in particular Gisela 5 (148-2) which produces trees only about half the size of trees on standard Mazzard rootstock. We obtained some of this rootstock as well as 3 other Gisela rootstocks, and will be grafting some of our proven varieties onto them to test their potential for both home garden and commercial plantings.

Angela did well again in 1995, very productive as usual, and with fruit size somewhat larger than in most years. Still one of the best for home gardens. **Viscount** was excellent this year, very sweet and firm with better than usual productivity. **Kristin** was less productive but fruits were very high quality, and tree habit not too vigorous. **Tulare** looked promising, producing large, firm fruit, but needs more evaluation in a real rainy season. In the late season, **Lapins** had a nice crop of high quality cherries. There was little rot or cracking noted in any of the varieties.

APRICOT RESEARCH 1995

Apricots bloom earliest of all the stone fruit and thus are particularly sensitive to weather factors that affect pollination. In 1995 an early warm spell in mid-February brought daytime high temperatures of 58-60, and average daily (night?) temperatures registered in the mid to high 40s. All of the apricots came into full bloom earlier than usual (February 25-28). This was just the time that a cold snap set in; from February 26 to March 3, overnight lows registered from 29 to a low of 26 degrees. This severe frost killed off all the bloom on the main bearing areas of the trees. However, in some varieties the buds formed on new one-year branches had not yet reached the bloom stage. These survived the frost to bloom out about three weeks later, and these were the only varieties to set any fruit in 1995.

Conditions in the period just before harvest were good, with clear, dry weather and sufficient heat for adequate ripening, though not as hot as in 1994. Unfortunately, due to the frost at bloom time, fruit production for most varieties was poor or nil. Apriums and pluots are both early bloomers, and they had no fruit at all in 1995. Among the apricots, **Puget Gold** was the only one to produce fruit in any quantity. Trees of **Harglow** that were transplanted in 1994 were still recovering from the move and should be almost back to normal in 1996. Trees of **Alfred** set some fruit of good quality, but although the trees are healthy and vigorous, their overall productivity record is not high.

In 1990 a test plot of Puget Gold was planted, consisting of 18 trees on 3 rootstocks: Lovell, Mariana 4001, and St. Julien A. These trees are now in mature production, and noticeable differences in productivity, tree vigor, and tree survival were observed. A preliminary evaluation in 1993 found that of the 6 trees on Lovell, 5 were healthy and fruiting; on Mariana 4001, 4 trees were healthy, 1 died and 1 was taken over by rootstock after the top became diseased. St. Julien A had the poorest record; only 2 trees were healthy, 2 died, and 2 more are diseased and unlikely to survive.

In 1994 we took yield records as well as a rating of tree vigor and survival. This year we recorded productivity by counting all fruit set before thinning. Both Lovell and Mariana 4001 were virtually identical in productivity, tree vigor, and survival. St. Julien A was much poorer both in the areas of tree survival and in overall productivity. Based on these results, St. Julien A is not considered a good rootstock for Puget Gold apricot. Citation rootstock, another popular stock for stone fruits, was not included in this trial but we would like to do a similar comparison with it sometime in the future, as we have heard favorable accounts of its performance as an apricot understock. We initiated a new apricot seedling project in 1995, in cooperation with local home orchardists. In the spring 500 apricot seeds were germinated and then planted out in the nursery. When the seedlings are ready to transplant, **THEY WILL BE GIVEN OUT TO THE VOLUNTEERS, WHO WILL GROW THE TREES FOR 4-10 YEARS AND REPORT BACK TO US ON ANY THAT LOOK PROMISING AS A FUTURE VARIETY.** Since these seeds come from a program established for breeding disease resistant, good quality apricots (such as **Harglow** and **Harcot**), the chances of getting a good variety are better than with randomly chosen seeds. This year we have also collected more seeds and plan to extend this program as interest grows.

GREEN (SOFTWOOD) CUTTINGS OF GRAPES

by Lon J. Rom
POMONA Winter 1995

Though grapes are traditionally grown from dormant cuttings, there are times when growing them from green cuttings can be useful. Some instances are:

For rapid propagation. With proper care, green cuttings can be rooted in as little as a week, potted in a greenhouse and forced for more green cuttings. It is possible to start with one cutting and go to several thousand in a few months this way.

To save time. There weren't enough vines to fill a new planting, or several have died since spring. With dormant cuttings you have to wait until winter to make cuttings, root them and then plant them out. It could take another two years to fill the gaps. With green cuttings, vines can be started that summer and, properly handled, the vines can be planted out by early fall. With fall planting, the new vines can be ready to start training up the next season.

To save varieties. When a vine is your only on e of a variety and it gets damaged in the middle of the growing year, green cuttings can be used to start anew one saving the variety, if not the original vine.

To root difficult varieties. Some varieties and species are very hard to root from dormant cuttings. Some of T. V. Munson's grapes containing the hard to root species *Vitis lincecumii* almost certainly were lost because nurserymen of the time had too much trouble propagating them from dormant cuttings. Before green cuttings, the Muscadine and Scuppernong grapes of the south had to be layered to propagate them.

Green cuttings can be made from any vigorously growing shoot on a vine. Avoid shoots that are not growing and have started to harden off (turn from green to brown). Cuttings should be about 6 inches long with two to three nodes. Only the top leaf is left and if full size, is cut in half to reduce transpiration. Don't take all the leaves off as leafless cuttings are very hard to root. Unless the young vines can be held in a greenhouse overwinter, it is a good idea to take green cuttings early, usually no later than bloom time, to give the vine time to grow and harden well.

Dip cuttings in root hormone (I prefer Dip 'N' Grow) and plant in a mix of 3 parts perlite and 1 part peat in a mist bench with 80 to 85 degree heat mat in the bottom, enclosed in a plastic tent to maintain humidity. Such a set can be purchased for starting seeds in a good garden supply house. Or, for small quantities, use a black pot with a clear plastic bag over it, supported with sticks to keep the bag from touching the cuttings, which might cause rot from the condensed moisture. Place the pot in a bright location, though not in full sun. The black pot draws heat to the root zone. Anything larger than a gallon usually doesn't heat evenly. Putting the pot on a rock or cement helps because the rock will act as a heat sink to keep the pot warmer at night and reduce temperature fluctuations that slow rooting.

With controlled bottom heat, green cuttings will root in as little as one to one and a half weeks, while the ones in plastic pots can take up to six weeks.

Once rooted, the plants are potted, then held in high humidity for another week, gradually weaning them from it. After that, grow them in a shade house, or at least out of direct sun for another two weeks or so. After that, plants can be set in the field, if they can be regularly watered and fertilized. Otherwise, hold them in pots until they are dormant, then plant them as normal dormant plants. When setting them directly in the field, it helps to shade them, or put an open milk carton around them to protect them. Even if they do scorch, they will usually just lose their old leaves and will leaf out and start to grow again if well maintained.

GOOD FRUIT GROWER SUBSCRIPTION

NOW is the time to renew your subscription (if you haven't already done so). Group subscriptions are available for $15.00 per year to WCFS members. The rate is based on one check paying for the subscriptions, all coming due at the same date. The publisher has allowed us an extention of time to get the information to them. I **MUST** have your check, payable to WCFS, by **April 20**. My apologizies for not getting this information in the Winter Newsletter. If you can't get a check to mein time, call and tell me it is coming and I will include you in the order.

Mail your check, noting that it is for Good Fruit Grower to: WCFS Treasurer, Evelyn Troughton--2625 13th Ave W Unit 306--Seattle, WA 98119-2054- phone (206) 282-6191.

MORE ABOUT NAFEX CONFERENCE '95

Just when you thought you heard the last about the NAFEX Conference 1995, here comes some more. The following is information I thought you would like to have.

Bob Purvis of Selah, president of NAFEX, writes of his recollections of some of the talks, based on his notes and the videotape that Jerry Lehman made of the meeting. Here are some of them excerpted from Pomona, Winter 1996 issue [brackets are Bee Line editor's additions]:

"For those of you who did not attend, one of the best parts about the meeting was that Frank Kirby, working with Dr. Norm Looney there in Penticton, organized the meeting well enough that it ran smoothly. I really appreciated Frank's naming the officers of western fruit organizations--Chuck Parkman of the Western Cascade Fruit Society [immediate past president], Loren Mills of the Home Orchard Society, and Erik Simpson of the Pioneer Fruit Growers [new WCFS Board Member]--to act as session chairman."

"I was pleased by the turnout (close to 100 people) and by the thoughtful questions many of you asked our speakers, as well as your comments on the questionnaire which I passed our."

"I was pleased, also, at the caliber of speakers that Frank was able to secure for this meeting. It's always a treat to hear Bob Norton talk about apple varieties [read his address 'Apple Cultivars In My Crystal Ball' in its entirety, following], but it was equally educational to hear from Jim Ballard (of the Pacific NW Fruit Testers' Assoc.) and Wendy Couriard of PICO about the problems of evaluating the new fruit varieties."

"Although I learned a lot about apples from the NAFEX meeting at Amherst in 1994, it was good at the 1995 meeting to hear a number of talks about other fruits as well, among them subtropical fruits, new Canadian raspberries and strawberries, table grapes and edible landscaping. Equally heartening to me was a god response to the call for NAFEX members who aren't professional fruit scientist to speak at the "Amateur Night" Monday-evening session. Hearing Ike Kerschner talk about some of the diseases and difficulties of growing pears, berries, etc. at Longwood Gardens (a place I visited regularly as a child) in southeastern PA made me thankful to be living in an arid rather than humid climate. Carl Nelson, from a humid climate on the opposite side of the continent (Western Washington), showed colorful slides of and gave us ideas about a number of interesting and unusual trees and shrubs sold by Raintree Nursery. However, the climax of the evening came with Seth and Chip Saturn's setting out a great number of preserves, relishes, sauce, and jellies made from unusual fruits as well as furnishing some of the same to taste."

Bob also recollected, with gratitude, Michael Pilarski's out-of-print 1977 publication of *Fruit Tree Cultivars in British Columbia*, set out on a back table where many people could look at it. And, he said, "equally rewarding was the opportunity to read the entire manuscript of Warren Manhart's new book, **Apples for the 21st Century**."

The field trips were instructive he states, and adds, "Some of our members who appreciate fine wines probably found our Thursday visit to Lang's Vineyard, not far from Penticton in Naramata, the high point of the two days of field tours. For me, the high point of the tours was our visit to the Summerland research station. The station personnel not only prepared a delicious buffet luncheon for us but also brought out large boxes of some of the newest apples and pears developed or tested there at the station. The apples were good, but the best part of all was not only seeing but being able to eat a Harrow 604 pear, an early ripening selection from the Harrow blight-resistance pear breeding program. The fruit has good cosmetics, a smooth texture and excellent taste. Dr. Harvey Quamme of the station pointed out that this summer pear selection was both precocious and productive, and worth planting in home orchards."

Bob closes his comments with this observation, "One of the best things about NAFEX meetings is not just learning more about fruit and fruit growing, nor just tasting new fruits nor seeing other people's orchards, but meeting people from all over the North American continent. If you're a new member of NAFEX, this is a chance to meet others from your part of the U.S. or Canada and possibly learn from their mistakes. If you have had a measure of success in fruit growing and have been in NAFEX for a while, you'll find it rewarding (as I did) to look for new members and give them some words of welcome and encouragement. As a former Alaskan, I was delighted to meet for the first time some Alberta fruit growers I had only read about-Wayne Fuhr, Wayne Boulton, and Gary and Linda Wetanko-and to compare notes on our experiences growing the same cold-hardy Prairie Province cultivars in somewhat different climates.

Our 1996 meeting will be in Alabama. Try to make it--it's well worth the time and money needed, and within driving distance of many more members. Read on for reports from six of the presenters at our summer meeting."

Editor's note: The following reports are also from Pomona, Winter 1996 edition, and as I understand it, summaries of the addresses given, with the exception of Bob Norton's on Apple Cultivars.

APPLE CULTIVARS IN MY CRYSTAL BALL (NAFEX '95)

Robert A. Norton, Ph.D. AppleCorps
Professor Emeritus, Washington State University

Thanks for allowing me to join with the most knowledgeable group of general fruit variety enthusiasts in the world. I don't say that casually. There are breeders who may know more about varieties and the genetics of a single fruit, but probably none with the broad knowledge that you have of a wide variety of fruits.

The realization that you are such a knowledgeable group caused me to cogitate for quite a long time on what I could say that would be of interest to you--something you could take home.

I decided to share with you what I see in my crystal ball for the future of apple varieties and, more importantly, how the vision in my crystal ball has changed over the past 60 years, since I first took interest in an apple.

You will hear three other experts today and tomorrow talk about apple cultivar evaluation. I daresay none will claim to suggest the perfect apple of the future; nor will I. How many of us could answer the question: "What's the best apple you ever tasted?" I could give my top five or ten, but not the best. My "best" apple has changed many times; hasn't yours?

I though it might be of interest to you to see how my thinking about apple varieties has changed over the years since my first experience with apples-almost 60 years ago.

In the late '30s as a boy of 12 or so, I first thought about apples as weapons for war-apple fights, preferably ROTTEN apple fights. The trees in my old Connecticut neighborhood had been part of a commercial orchard at the turn of the century. My buddies and I launched them as missiles at the opposing "army." We protected ourselves with homemade wooden shields. Our favorite variety (not that we thought about varieties in particular) was, I believe, Roxbury Russets; but when we found some Twenty Ounce, we really had some deadly ammunition.

A few years later in one of my first paying jobs--picking up drops--my favorite was the incomparable, aromatic McIntosh, which reaches its aromatic and most succulent peak the moment it's ready to drop off the tree. (No stop-drop sprays in those days.)

In the '40s and early '50s, as a student, I didn't think much about apple varieties, but in my first professional job, at Utah State University, I got into fruit variety evaluation again, both on the job and with some rented orchards that I managed. There, I felt that the old Common Delicious and the "new" Starking Red Delicious were wonderful apples. Grown at 4500 feet elevation on old trees, not overly fertilized, they were great varieties; no one complained then about lack of color, tough skin, flavorless flesh, and a mealy condition after reasonable storage. Try finding Red Delicious fruit like that these days among new "super" sports.

In addition to Reds, Goldens, and Jonnys, we also had what I then thought was the greatest pie apple, the Wolf River. I've changed my mind several times since then.

After a brief non-apple time in California, we came to Washington and, even though hired to do research on berries and veggies, I couldn't resist trying to find replacements for, or at least supplements to, the then popular varieties--yellow Transparent, Gravenstein, and King of Tomplins County. Here I found what still is my favorite sauce apple (Gravenstein) and near-top pie apple as well. The others had their good points, but within 10 years, by 1974, we had a whole new set of favorites for eating and cooking, such as Discovery, Gravenstein, Summered, Jonagold, etc. (Figure 1).

Figure 1 Ten Best--Western Washington 1974-1984

Discovery	Gravenstein	Summerred	Akane	Prima
Chehalis	Spartan	Jonagold	Melrose	Idared

Over the course of 30 years at Mount Vernon (11962-1992), we evaluated more than 300 apple cultivars, not to mention perhaps 500 cultivars of other tree fruits, and our favorites naturally changed. Newer Cultivars, e.g. William's Pride, Elstar, Alkeme, Fiesta, and Gala rose in popularity, while others such as Earligold, Tydeman Red, Summerred, Chehalis, Prima, Macoun, Mutsu, and Idared slipped. This is not to say that they are not good varieties--only that others appeared to be better in one characteristic or another.

In 1993, a year prior to my final retirement from WSU, I put out another list of my 10 favorite varieties (Figure 2). This was my own list--not reached in consensus with my colleagues at the station, even though I considered their input.

Figure 2 My Ten Best, 1993

1st Rank:	William's Pride	Gravenstein	Elstar	Jonagold	Braeburn
2nd Rank:	Jonamac	Alkeme	Fiesta	Liberty	Melrose

I couldn't just stop at 10, so I also included an "Honorable Mention" group of 10 (Figure 3).

Figure 3 Honorable Mention: Sunrise, Gingergold, Tsugaru, Red, Rubinette, Honeycrisp, Senshu, Karmijn de Sonnaville, NY 75707, Enterprise, NT 75414-1

In 1994, the Western Cascade Fruit Society revised its list of 10 best by a poll of the membership (Figure 4).

Figure 4 Western Cascade Fruit Society Ten Best, 1994

Gravenstein	Jonagold	Liberty	Elstar	Karmijn de Sonnaville
Chehalis	Spartan	Jonamac	Gala	William's Pride

Bear in mind that we had been growing and evaluating apples in the coastal area of Washington (English climate) since 1964. In 1987, our project became statewide, and we planted trials at Wenatchee and Prosser, using M9, M26, and M7 stocks (M7 later discarded). During the period from 1987 to 1994, we planted and evaluated about 150 cultivars, including the most promising material from throughout the world, much of it advanced breeding material under number. Some of you may have received reports of these trials, the last of which was released at the end of 1993. Here are some of the more promising cultivars of late 1993 (Figure 5).

Figure 5 Promising Eastern Washington Cultivars, 1994

Golden Delicious Types: NJ96, 107, 109, 116, Golden Supreme			
Arlet, Senshu, Orin	Gala strains	Braeburn strains	Fuji strains

The variety trial plot has now been taken over by D. Greg Lang at Prosser; the Wenatchee plot is being used by Dr. Bruce Barritt for his new breeding program. We gathered and planted a large collection of material that does not exist in any other North American cultivar trial, so I'm hoping that it will continue to be managed effectively.

So what does my crystal ball see for the future? Realistically, for the next 10 to 20 years, I see very few <u>really</u> new cultivars making a big splash on the commercial market. I think we will continue to select mutations or variants of the present front-runners--the worlds best commercial dessert apples (Figure 6). I obtained this list by polling 20 to 30 of the world's apple experts, first in 1988 and again in 1992. Surprisingly, the top ten remained the same in both polls. Experts (and consumers) change their opinions very slowly.

Figure 6 World's Best Commercial Dessert Apples, 1988

Cultivar	No. of Votes	The Experts Who Voted
Jonagold	19	Frank Alston, England
Gala	18	Charles Andre, France
Golden Delicious	16	Grady Auvil, USA
Cox's Orange Pippin	12	James Ballard, USA
Fuji	11	Vittrup Christensen, Denmark
Elstar	10	Joseph DeCoster, Belgium
Empire	10	Peter Goddrie, Netherlands
Red Delicious	10	Mike Janket, USA
Braeburn	8	Hiroo Koike, Japan
Granny Smith	8	Robert Lamb, USA
Mutsu	6	David Lane, Canada
McIntosh	4	Marcel LeLezec, France
Senshu	4	Guy Ligonniere, France
Macoun	3	Warren Manhart, USA
Melrose	3	Robert Norton, USA
Spartan	3	Herman Oberhofer, Italy
Tsugaru	3	Joe Precsewski, USA
Boscoop	2	Bob Stebbins, USA
Criterion	2	Schichiro Tsuchiya, Japan
Discovery	2	Roger Way, USA
Gravenstein	2	Allan White, New Zealand
Orin	2	
Summerred	2	
Splendor	2	

Summerred	2
Splendor	2

A few new varieties which could make some impact (Figure 7) are Pink Lady, Carousel, Ambrosia, Gala Supreme, Fortune, Stellar, Honeycrisp, Pristine, Shinsekai, and Sansa. Some of these also may turn out to be colossal flops as well. Some growers are planting substantial acreage of new varieties with little or no track record. Grady Auvil, our octogenarian apple guru, did this, and it paid off with Granny Smith, Gala, and Fuji, but he also quickly burned some mistakes that didn't pan out.

Figure 7 On the Horizon

Carousel	Ambrosia	Pink Lady	Gala Supreme	Fortune
Stellar	Honeycrisp	Pristine	Shinsekai	Sansa

For me and, I'm sure, for you--the members of NAFEX: We get the kick from trying out new things, never expecting to find the ultimate best variety that will cause us to seek no further. I'll be trying new things as long as I can keep a knife sharp and can cut a bud or graft. They haven't invented the perfect apple yet, and I hope they never will. That way the searching will never end.

What is my "take home" message?

1. I don't see a major change in cultivars over the next 10 to 20 years.
2. The proliferation of redder strains will continue (unfortunately). This can only result in lower internal quality.
2. NAFEX possibly can become recognized as a second- or third-level evaluation group (after the breeders) and can exert influence on those who evaluate apples, urging them to consider internal quality on an equal basis with skin color and appearance. This would be a great benefit in educating the consumer. Ballard's Fruit Testers' Association also can be a strong supporter in this effort.
4. There will never be a perfect apple, but ain't we havin' fun looking for it?

CHERRY TRAINING SYSTEMS (NAFEX '95)

Helmut Arndt, British Ministries of Agriculture, Fisheries & Food
Kelowna B.C.

In the 1950s sweet-cherry orchards were typically planted at spacing as wide as 20x24 or even 20x50 feet. the training systems used then--open center and modified central leader--are still popular today, but spacings have shrunk down to 20x20 or even 8x16.

One of the characteristics of sweet-cherry trees is to have scaffold branches that are very upright if left to themselves, and perhaps not very fruitful. One good technique to counteract this tendency and make your trees more fruitful as well as to control vigor when faced with such branches, is to cut them back in late winter to a 6 to 12 inch long stub or stump. When the trees breaks dormancy, several weaker and more horizontal shoots will typically arise from the stump. These typically will be much more fruitful and less vigorous than the original upright limb. If faced with a long stretch of trunk with no side limbs, scoring the trunk (halfway or even all the way around its circumference below the desired place for limbs) in mid-February to March will help develop limbs which typically will be weak and flat. Painting the desired locations for limbs with Promalin is yet another technique to induce branching. Following this program of pruning, it is possible to space trees as closely as 6x16 and maintain them at 14' high.

The tall-spindle technique, developed in Germany by Tobias Vogel, involves cutting newly planted trees at 36 inches above ground, then training the shoots that develop to a 45 degree angle to the central leader. The following winter, the new central leader can be cut off just above the first whorl of branches that develops. Under this training regimen, the trees can be spaced 8 to 10x16 feet and kept to a height of 12 to 14 feet ultimately, with good light exposure to the interior of the tree.

Grady Auvil of Orondo, WA follows a similar procedure but allows the central leader to develop, then be cut back only slightly so that several whorls of branches develop, each having 4-5 limbs. Pruning is done mostly in the winter.

Tatura trellising of cherries, on a V-shaped trellis, involves spacing the trees 3-4 feet apart in the row and cutting them off at 20-24" above ground to promote development of two main branches that can be trained to grow on the wires of the trellis. The Tatura system promotes early, high production of fruit.

In the Merchant system, the trees are planted at a 45-degree angle with laterals trained to grow on a wire. This allows good early production also but has the drawback of poor branching by the trees. These are several of the techniques currently being experimented with in growing sweet cherry.

SOFT FRUIT TRAINING SYSTEMS (NAFEX '95)

Tim Watson B.C. Ministry of Agriculture, Fisheries, & Food
Oliver, B.C.

Four common systems are used to grow peaches, nectarines and plums: medium density plantings of trees pruned to an open center, hedgerows without support, hedgerows with support, and high density plantings.

In theory, the high-density planting should be the best because it promotes early cropping and with little need for use of ladders, greater labor efficiency, as well as good fruit color and size and the ability to be harvested mechanically. Unfortunately, to do this well requires the use of dwarfing rootstocks or dwarf cultivars and growth regulators. With there being no truly satisfactory commercial dwarfing stocks or cultivars and only one growth regulator, Cultar, cultural manipulation is the main technique that is available.

A medium-density peach planting typically has open-center trees at an 8-12 by 14-22 foot spacing. The chief drawbacks to this training style is that open-center trees eventually develop umbrella tops. The fruiting zone is about 6 feet deep on the tree, but with time the fruiting zone rises, necessitating more use of ladders. Advantages are that the trees fill in their space quickly and can produce quality fruit; also, input costs are low because no trellising is involved.

A hedgerow without support typically involves planting peach trees 5-8 feet by 14-16 feet. The training system is typically one of three: a parallel V, in which the newly planted tree is cut off to 12-15 inches high and then allowed to grow 2 shoots parallel to the row; or a perpendicular V, in which the two shoots grow perpendicular to the row; or central leader, in which the branches are kept short so that the fruiting wood is kept close to the central leader.

The parallel V allows for mechanical harvesting and is quite productive, but shading is a problem. The perpendicular V allows for good sunlight penetration but is harder to harvest mechanically or prune. The central leader allows keeping nectarines to a height of 10 feet, and allows the closest spacing of trees.

Hedgerows with support typically feature a vertical trellis on which the central leader grows upright and the limbs are either tied to a horizontal position on the wire (horizontal palmette) or allowed to grow at a 45-60 degree angle to the vertical while tied to the wire (an oblique palmette). Tying the limbs horizontal often results in production of numerous watersprouts in peaches. This technique is better adapted to growing plums; the oblique palmette is the one better suited for peaches but could also work well for plums.

High density plantings of peaches typically would mean use of a Tatura trellis with the trees spaced 2-4 by 12-18 feet apart. The advantages of this technique are high yields, good sun exposure, and because the scaffolds are trained at wide angles, good fruitwood development.

PERSIMMON BREEDING (NAFEX '95)

Jerry Lehman 7780 Persimmon St. Terre Haute, IN 47802

Indiana, my home state, is probably the center for persimmon germplasm and growing of *Diospyros virginiana*, the native American persimmon. Persimmon pulp is highly nutritious compared to that from other fruits and commands a price of $32/gallon, yet there has been little development of commercial cultivars. Development of commercial cultivars has been hindered by some of the faults of the fruit: astringency, softness and dropping of fruit when ripe, a long harvest season and the high cost of labor, short shelf life, precipitated black tannins in the pulp, and a fruit calyx that is often times open on the tree.

To properly process the fruit, the calyx must be removed before the pulp can be harvested, and furthermore the flavor tends to be lost in freezing, or after 30 days of freezing.

James Claypool of St. Elma, IL has devoted 20 years of work to raising 2000 persimmon seedlings, looking for improved cultivars. Of these 2000, possibly 100 are superior to what is currently available. The ultimate goal is to develop a monoecious tree and perhaps also to find better control measures for persimmon borers and blackleaf. If the right tree can be found and propagated, quite possibly persimmons can be grown commercially more easily, making this delicious fruit more available.

Jerry adds at the end of his talk that use of ¼" x 12" cuttings has resulted in a 75% success rate in getting them rooted. He plants them outside in the middle of May in Indiana.

OKANAGAN TREE FRUIT INDUSTRY (NAFEX '95)

Dr. Norman Ag Canada Summerland Research Station
Summerland, B.C. V0H 1Z0

The Okanagan Valley is a long, north-south area in southern British Columbia with some of the best microclimates in Canada for growing tree fruits. The first fruit growing in the Pacific Northwest was planted at Ft. Vancouver on the Columbia River in the mid-1800's near present day Portland, OR by the Hudson's bay Company. The first attempts to grow fruit in the Okanagan were in the 1860s and 1870s on the benches above the Fraser and Thompson Rivers and were not very successful, chiefly because the winters were too cold.

The first successful efforts in the Okanagan Valley itself began in the 1880s and 1890s. It succeeded here because the climate was more hospitable and second, real estate developers in England sold land to English fruit growers. They quickly discovered that there were advantages to fruit growing in the Okanagan. Because of the dry climate (average 10" of annual precipitation), there were and are few fungal diseases. Furthermore, there was a good supply of irrigation water and no codling moths until the 1920s.

However, it took a while to find the right varieties for the climate because until recently, there would be a killing freeze 1 year in 10. (The most recent freeze, in 1950, basically wiped out the remaining Thompson and Fraser River valley orchards.) Distance from the markets was another major problem, so there early arose an emphasis in research on fruit storage quality. To cope with marketing problems, a marketing arm was established for tree fruits in the 1930s. The fruit industry here stabilized about 25-30 years ago but now in under urban pressures.

The Agriculture Canada Summerland research station, established in 1914, is now the largest of its kind in Canada. Tree fruits became its focus in 1916, and today the station employs approximately 25 pomologists. Apples and sweet cherries are the main focus of research. The 'Van' sweet cherry originated here and is now planted all over the world. The 'Sam' sweet cherry is another introduction, its name an acronym standing for Summerland Arthur Mann. It is noted for being split resistant, late blooming, and a good pollenizer. self-fertile sweet cherries were introduced from here, beginning in 1960 with 'Stella' and then continuing with 'Lapins', 'Sylvia', and 'Sunburst'.

Of the apple varieties introduced by Summerland, among the best known are 'Spartan' and 'Summerred'. The latter, ripening around August 21 there, is now grown commercially in Poland and Scandinavia. The 'Sundrop' apricot, another Summerland introduction, is now the basis of the New Zealand apricot industry. 'Sierra' is a good quality pear of the D'Anjou season which also originated at Summerland.

Tree fruits, grapes, and berries are the most important crops in the Okanagan. The main cities if this region are Kelowna (pop. 100,000) and Penticton (pop. 35,000), and to the south, Oliver and Osoyoos. The growth of Kelowna has wiped out pear-growing areas and made it hard to justify renewal of old orchards there, of which there are many. Creston, not far north of the border with Idaho, was and will soon again be notable for growing late-ripening sweet cherries.

The trends with apple varieties in recent years are not much different from those of neighboring Washington State. Acreage of Red Delicious and McIntosh, Golden Delicious and Newton Pippin has declined, but acreage of Spartans is up slightly and that of Gala, Jonagold, and Fuji, much more. Apples are far more important to the economy than pears—C$40.7 million versus C$2.6 million in a recent year. finally, the British Columbia fruit industry is becoming more interested in niche markets and more diverse varieties.

PRESENT AND FUTURE STONE FRUIT VARIETIES (NAFEX '95)

Dr. Frank Kappel Ag Canada Research Station Summerland B.C. V0H 1Z0

Although apples are the primary fruit grown in the Okanagan Valley, it is still a fact that 19% of the valley's acreage is planted to stone fruits. Sweet Cherries comprise 38% of this acreage, peaches 36%, nectarines 4%, and apricots 10%. Cherries predominate in the north Okanagan whereas peaches predominate to the south. There are very few tart-cherry orchards in the Okanagan Valley, and the acreage of this fruit is declining.

Among sweet cherries, Van and Lambert account for 55% of the fruit frown, with Bing representing an additional 13%, Lapins 11%, and in descending order Stella, Sam and Sweetheart most of the rest. The Redhaven peach is the most important, followed by Fairhaven (ripens 10 days after Redhaven) and Early Redhaven (ripens 10 days before Redhaven). Glohaven, a later-ripening peach, now looks very promising, with new plantings going in.

Red gold is the most important nectarine, ripening 3 weeks after Redhaven, but Fantasia and Firebrite are also important cultivars. Among apricots, Tilton is the most important, accounting for 35% of the acres planted. Moorpark is second,

followed by Perfection, Goldrich, and Skaha. (The last is a Summerland introduction characterized by its large size and good quality and color.)

The trends seen in stone-fruit planting in the Okanagan are an increase in plantings of late-ripening sweet cherries especially Lapins and Sweetheart. There is also an interest in white fleshed peaches and nectarines, peaches with highly colored skins, and in those from Floyd Zaiger's and other private breeding programs. The trend in apricots is toward those best suited for fresh marketing because of the good size and quality. Prune acreage is holding its own with Early and Italian the main cultivars.

Among the new sweet-cherry cultivators, there are some questions on winter-hardiness for Sweetheart as well as size. Nevertheless, the cultivar looks promising because of its spreading, precocious, easy to train trees. Regina from Germany and Attika (also known as Kordia) from Czechoslovakia are two promising new cultivars ripening with Lapins. The numbered selection 13N-6-59 from the Summerland breeding program is self-fertile, large, firm, and not in need of gibberellic acid treatments. It ripens with Bing and does best in warmer climates. The new cultivar 13S-10-40 is smaller than 13N, round, self-fertile, and very uniform in shape and color. Other noteworthy cultivars include Sylvia, which is not self-fertile but is very firm, storing for about 3-4 weeks, and attractive; and Summit, very large and not self-fertile but planted extensively in France and Spain.

Among the newer peach varieties are Harrow Diamond (12 days before Redhaven) and Harrow Beauty (12 days after). Harrow Diamond does not suffer split pits, has fairly good disease resistance, and excellent flavor. harrow Beauty is notable for not only an attractive appearance but also for its eating quality. Among white-fleshed peaches, White Lady and Tasty Zee are looking promising.

New nectarine varieties of note include the Harblaze and Earliscarlet (both a bit smaller than Redgold) and the white-fleshed Arctic Glo. Among new apricots, Hargrand (large and a good seller in spite of relatively poor color) plus Tomcot, Goldbar, and Goldstrike all look promising.

[Bob Purvis makes the following comments, based on experience with a few of these cultivars. The Harrow Diamond is an impressive early peach in Bob's yard and was one that always sold out quickly from the NY State Fruit Testers' Association catalog. Bob's observation of Tomcot both commercially and in his own orchard support the idea that its blossoms are fairly frost resistant. The flavor is very good, and the trees are productive even when planted in solid blocks. Again based on both commercial and his personal experience, Bob notes that even on Mazzard rootstocks, Sweetheart is precocious in bearing and very productive. Sweetheart, Tomcot, Goldbar, and Goldstrike are all available as trees from Van Well Nursery in Wenatchee, WA (phone: 1-800-572-1553) or from C & O Nursery in Wenatchee (phone: 1-800-232-2636).]

SOLUTIONS TO THE GOLDEN FRUIT QUIZ

Page 13, Winter 1996

Didn't hear from anyone with the answers-so here they are:

1. What tree was presented by Gaia to the god, Zeus, and his bride Hera?
   Tree of Golden Apples.
2. What is the name of the garden in which this tree grew?
   Garden of the Hesperides.
3. Who aas one of his Labours stole fruit from this tree? **Hercules.**
4. How did Hippomenes win the race with Atalanta?
   Threw down golden apples to tempt her.
5. What did Eris, the goddess of Strife, hurl into the wedding feast of Peleus and Thetis?
   Inscribed golden apple.
6. What was written on the hurled object? **"to the fairest."**
7. Who had to make the delicate choice between the three goddesses present at this feast?
   Paris, son of King Priam.
8. Who, after some bribery, did he choose?
   Aphrodite.
9. What and whom was he promised as a reward?
   Helen, wife of King of Sparta.
10. What did this provoke?
    Trojan wars.

How did you do? Does anyone have the answers to the Autumn Quiz?

HOW TO PATENT AN APPLE

By Megan Murphy-Hamilton

With more than one million apple trees in his nursery, Ken Adams knows applying for a patent on a new tree is costly and time-consuming. Adams, who is co-owner of Willow Drive Nursery, Inc. near Ephrata, WA, knows that if one of his trees has produced a promising new sport or unusual mutation, there are specific criteria he must meet if a patent is to be issued.

Genetics Are The Key The most important factor is genetic. There must be something in the genes, even if it is minor, which distinguishes the tree from others. Which means you may run into trouble if the tree you're trying to patent is a Red Delicious or a Golden Delicious, according to Adams. Both of these varieties have been popular for decades, and growers are constantly trying to develop new varieties from them.

Finding Something New And Different Is Difficult "It can be really hard, because growers have patented almost every kind of genetic combination for both Red and Golden Delicious," says Adams. "It would be really hard to patent a new variety".

The patenting process can be stressful for patent office investigators as well, says James Feyrer, a primary examiner for the patent office in Crystal City, VA. Investigators are given only 8.6 hours to examine a plant for patent application.

Preparing To Patent What's the benefit of patenting a tree? Simply put, it offers you protection to keep others from asexually reproducing a copy of your tree or selling it, says Feyrer. The protection lasts for the life of the patent, which is twenty years from the date it's filed. If you're determined to pursue patenting a variety, here's what you need to know, according to Adams and Feyrer.

Clone The Original Use asexual reproduction to grow two or three generations of the tree you wish to patent. By doing this, you are producing identical trees which are clones of each other. "If you take mature apple tree and cut off its branches and reproduce each one, theoretically, it's the same plant," Feyrer says.

Weeding Out The Flukes Doing this ensures that the tree you wish to patent is really something new and different and not a fluke. Some chemical sprays and certain viruses can cause color changes in apples. Cloning will help you to determine whether you have a new striped variety of Red Delicious, for example, or if your "new" variety will turn out just like its parents.

Purchase A Rootstock Purchase a rootstock, and graft a bud or scion of the new variety to it. Most wholesale nurseries sell rootstocks at fairly low prices, according to Feyrer. Then wait until the tree bears fruit. This can be a long process, taking up to five or six years.

Consider Legal Advise While it's not mandatory, it can be a good idea to hire a plant patent attorney, Adams says. An attorney can help you meet the demands of the patent office.

Obtain Genetic Testing Most apple trees are diploids—that is, they have a set number of chromosomes. Sometimes, those chromosomes double and the tree becomes a tetraploid—a small tree which produces larger fruit and a thicker trunk, leaves, and stems. If you believe you have one of these trees, contact a local university or fruit growing laboratory. Most will perform genetic testing—examining tissue slices under a microscope—according to Feyrer.

Include Clear Photos T apply for a patent, obtain duplicate applications from a plant patent attorney, or write your own. When you fill them out, include detailed, color photos which clearly show how different your tree is from other varieties, Feyrer says. The photos should be large enough for the inspectors to clearly see the color of the tree, the fruit, and the blossoms.

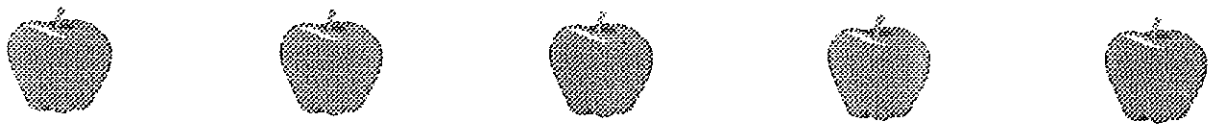
Get A Second Opinion Before sending the photos to the patent office, have them checked out by a botanist or a plant pathologist. These experts will help you determine if you are presenting an accurate genetic picture of the tree.

Preparing Your Photos When sending photos, attach them to sheets of paper which can come in several sizes, Feyrer says. These sizes include the following: 8½ x 14 inches, 8½ x 13 inches, and 8½ x 11 inches. There is also another measurement which is classified as the A4 size, which is about 8 x 11 inches.

Mounting The Photos Next, the photos must be mounted on Bristol Board with a two- to three- ply thickness. The Bristol Board measurements, which correspond with the paper sizes, are as follows: 21.6 x 27.9 cm, 21.6 x 33.1 cm, 21.6 x 35.6 cm, and 21.6 x 29 cm. For the mounting, the A4 measurement is 21 x 29.7 cm.

Weigh The Costs Application filing fees run about $255 for one grower with one tree. If you are approved, the total application filing fees will add up to $650. From start to finish, the process takes between three to five months. The total costs for the process—filing an application, investigating the patent, attorney's fees, and governmental fees—can range from $2000 to $5000.

No Guarantee Of Profits Adams notes that obtaining a patent doesn't necessarily guarantee your tree will be an instant commercial success. "You can patent all kinds of things, but if nobody wants what you have patented, all you have is a nice little plaque on the wall and the attorney's bill."



CORNELL UNIVERSITY'S NY 429 OFFICIALLY NAMED

The NY429 apple developed at Cornell University's Geneva Experiment Station has officially been named "Fortune". The latest in a long line of achievements by the apple breeding program, it is the second release under the leadership of Dr. Susan K. Brown, associate professor of horticultural sciences.

"By the turn of the century, we expect Fortune to be well on its way to successful commercial acceptance," said Dr. Brown. "Growers have the product on the market and there is already good commercial demand. Usually it takes 15 to 20 years for an apple to develop commercial acceptance, as it did with Empire, which the station released 30 years ago."

The initial cross of Fortune was in 1962, a hybrid of Schoharie Spy (a sport of Northern Spy) by Empire, with the first fruit appearing in 1971. Bred for both the fresh and processing market, Fortune is one of the first apples to gain high praise and commercial status before being officially named and introduced. Growers led the request for the naming of NY429 because of its success in trials.

Fortune is a highly colored apple and combines the desirable attributes of both parents. The apple has cream colored flesh, crisp texture and stores well. "It is a processing variety that can be eaten out of hand," says Dr. Brown. "It has the attractive appearance of Empire and the processing qualities of Northern Spy."

In the November issue of "Audubon," Mimi Sheraton characterized Fortune as s "gently sweet and reminiscent of the Delicious apple that is part of its genetic makeup, but with a juicy McIntosh snap when bitten into." Dr Brown characterizes its slightly spicy flavor as a sprightly blend of sugar and acid.

Mike Durando, president of the New York Apple Association says that Fortune is available in limited supply from select retailers. "How much production expands is determined by the response of the retail trade. Initial response has been very positive."

The next available supply of Fortune will be October 1996 according to Lee Peters, vice president of sales and marketing at Fowler Bros. Inc. in Wolcott, New York, which grows, packs and ships apples worldwide. He adds, "Consumer response has been excellent this year. Fortune is worth waiting for."

Cornell University Research Foundation welcomes inquiries as to the nurseries throughout the United States licensed by them to sell Fortune trees.

Information in the above article was taken from The Great Lakes Fruit Growers News, January 1996

Editor's Note: Jacky King at WSU, Mt Vernon Station, says that they have not tested Fortune so cannot comment on how it would do in Western Washington. She added that TOM PERKINS in Sedro Wooley is testing them, perhaps he'll write or call the editor (206 282-6191) and let us know how Fortune does for him. Anyone else growing Fortune? Let us hear from you.

GROUP PURCHASE OFFER BACK BY SPECIAL REQUEST

THE BOOK OF APPLES

by Joan Morgan and Alison Richards Watercolors by Elizabeth Dowle

The apple is the most widely grown and used fruit in the world, taking an important role in the history of mankind for over 8,000 years. The authors present, in an interesting and readable style, a very complete history of the apple. This attractive book of 304 pages contains 32 beautiful, original watercolor plates of apple varieties - the blossom cluster, the fruit, fruits growing on the tree, and fruits at maturity. The text also is supported by numerous black and white pictures and drawings.

This is a "must" book for all lovers and students of the apple, and makes fascinating reading. It is a very complete and handy reference to the history and development of the apple, and the origin and description of ancient and modern varieties! The book is beautifully printed. The watercolor plates are outstanding!

The well researched treatise is organized into six chapters: The Fruit of Paradise, For Pleasure, Meate and Medicine, For God and Country, Apples of the Few, Apples for the Many, and The Cider Story. The second half of the book contains a Directory of Apple Varieties: an in-depth preface, explanation of keys used, and an alphabetical list of over 2,000 apples and a list of 100 cider apples grown in the orchards at the Brogdale Horticultural Trust in Kent, the largest such collection in the world. Provided for each variety are: name, synonyms, origin and history, fruit description, and growth characteristics. Both ancient and modern varieties are included. Although mainly about the apple in England and Europe, reference is made to Canada and the United States. Additional information includes cooking with apples, fruit growing, names of various apple collections, organizations and sources for nursery trees, and references to over 125 citations and to apple varieties. The index relates to the text and appendices.

Dr. Joan Morgan is an authority on the origin and eating quality of over 2,000 apple varieties in the collection at Brogdale. She also is the first woman to be invited to be a member of the Fruit and Vegetable Committee of The Royal Horticultural Society. Alison Richards is an award-winning radio producer and writer and has a special interest in the social aspects of gardening and cookery. Elisabeth Dowle is a botanical artist and winner of four Royal Horticultural Society Gold medals, including one for the paintings in this book.

The hardcover volume is published by Ebury Press Ltd., London. It is distributed in the U.S. by Trafalgar Square, North Pomfret, Vermont. The price in the U.S. is $29.95 plus $3.50 for shipping.

Reviewed by Dr. Loren D. Tukey, Professor Emeritus of Pomology, Department of Horticulture, The Pennsylvania State University; in Pomona Spring 1994 issue.

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SPRAYABLE PHEROMONE CARRIERS

By Will Stockwin

Fruit Grower - September, 1995

New method of applying disruptive pheromones may soon replace labor intensive techniques

A technological advance may soon remove a key obstacle to using pheromone mating disruption: the costly, labor-intensive practice of attaching hundreds of twist ties per acre to trees. The new approach: quickly squirt blobs of pheromone-laced wax onto the tree.

Research to develop a sprayable biodegradable carrier for insect pheromones is being jointly conducted by Mike Delwiche, Dick Rice, John Krochta, and Cindy Atterholt of the University of California-Davis Department of Biology and Agricultural Engineering.

Long-Lasting Paraffin Is Easy To Apply

Preliminary work determined paraffin as the best biodegradable material for releasing pheromone for longer than six weeks. The test mixture breaks down as 30% paraffin, 60% water, and 10% pheromone, emulsifier, and vitamin E.

For the tests, pheromone rates of 35 grams per acre for Oriental fruit moth (OFM), and 30 grams per acre for peach twig borer (PTB) were identical to commercially available twist ties.

"It's a fluid with the consistency of toothpaste," says Delwiche. "On cling peaches near Yuba City, we squirted it on with a grease gun. For dick's work down south (near Kearney, on peaches, nectarines, and almonds), we made it thinner so he could use a paint gun like foresters use to mark trees."

Treatment Applications

The thicker material was applied with a single blob per tree on a six foot-high scaffold limb; applications of the thinner material, which had the consistency of thick paint, varied from 2 to 5 splats per tree depending on planting density, on scaffolds 10 to 11 feet high.

Results Comparable To Commercial Dispensers

According to Delwiche, "Dick's trials have been very successful, whereas ours basically failed. Interestingly, our Yuba City trial was next to a test of new commercial dispensers by Concept and Hercon, and statistically ours was better than one and as good as the other.

"They ran into the same problems we did, and the bottom line is that we started seeing OFM shoot strikes in June, and the grower decided to spray."

Rice says, "It looks like the OFM application has potential for continued development, but the PTB pheromone didn't last very long.

"The PTB pheromone is more volatile because it is a smaller molecule, so it may just be that this particular formulation of paraffin is wrong for this application. After we replaced what the rain washed off the first time, we decided not to go with a second application, because we weren't catching moths in the traps, and therefore didn't see any reason for it." says Delwiche.

Variables Skew Results

"We know that in colder weather, pheromones don't release as well from a carrier, and that when they do they tend to sink and stay lower to the ground," Rice says.

"The fact that the material they were using was thicker may have also played a role in how effectively the pheromone was released.

"They also had much higher OFM pressure than we saw, which may have resulted in mated females flying into the block from outside."

"The saving grace for us," says Delwiche, "is that our single treatment worked better than the dual treatments of commercial dispensers, although none of them worked well enough to keep the growers from spraying."

A company that Delwiche declined to name is working with the university to take over the project and bring it into commercial development, with a possible first use against tomato pinworm.

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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.

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If the DUE DATE on your mailing label is highlighted in **green**, your dues are payable before the next newsletter.
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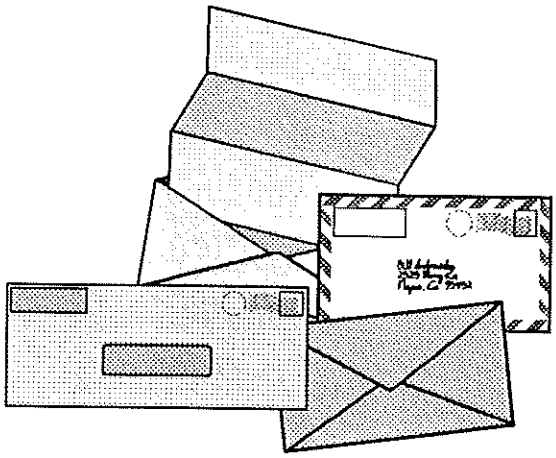

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