



# The Bee Line

NEWSLETTER OF

## WESTERN CASCADE FRUIT SOCIETY A NON-PROFIT EDUCATIONAL ORGANIZATION

Volume 20 Number 3

Summer 1999

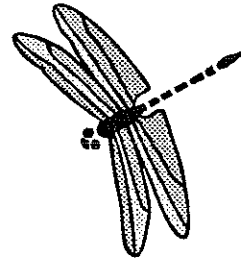
Apples Pears Figs Grapes Kiwi Cherries Nectarines Peaches Plums Blackberries Raspberries Strawberries Blueberries Currents Huckleberries Gooseberries Nuts



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Membership Renewal Form



### DATES TO REMEMBER

- July 10 10:00 a.m. WCFS Board Meeting Federal Way Library
- July 17 Cherries, Early Plums Harvest Day WSU Mt Vernon WWTFRF members
- August 14 Garden Tour Home of Sharon Nowicki
- August 14 Peaches, Nectarines, Plums Harvest Day Mt Vernon WWTFRF members
- September 10-27 Puyallup Fair
- September 11 10:00 a.m. WCFS Board Meeting Federal Way Library
- September 11 Pears Asian Pears, Early Apples Harvest Day Mt Vernon WWTFRF members
- September 18 Piper Orchard Tour
- October 9 Field Day WSU Mt Vernon Pears, Apples Harvest
- October 30/31 WCFS Fall Fruit Show
- November 13 10:00 a.m. WCFS Board Meeting Federal Way Library

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## NEWS FROM THE CHAPTERS and MEMBERS

### AN INVITATION FROM PIPER ORCHARD

Ron Schaevitz, president of Piper Orchard Chapter, invites all WCFS members to the first work party after their summer recess to see how the orchard has developed as a result of their monthly work parties for over ten years.

The work party is scheduled for Saturday September 18 from 10 a.m. to 3 p.m. at Carkeek Park in north-west Seattle.

Ron says several apple varieties should be ripe for harvesting so bring pole pickers (some pole pickers will be provided by Piper Orchard members). He adds that you should bring a picnic lunch and sit under some of their favorite trees to dine during the noon hour.

Directions: Drive west on NW 110th Street from either Greenwood Ave NW or 3rd Ave NW, continuing on to Carkeek Park Road through the park entrance and down the hill past the METRO plant. Park in the area just west of the plant. (You can first drive to the recreation area overlooking the Sound and follow the one-way road back to the parking area.) Gather your lunch, gloves, etc, lock your car and walk east on the path on the south of the waste water facility proceeding beyond the pumping plant about 200 yards. The orchard will be just around the first bend.

### TAHOMA CHAPTER

Carmen Franco, president of Tahoma Chapter sends word on the their activities. Members were invited by the Puyallup Fair Council to conduct seminars at the Spring Fair last April.

Leonard Jessen presented a seminar on care and planting of new fruit trees and grafting. He explained about new bare root fruit trees and potted trees and how to fertilize and water them. Leonard demonstrated different ways to graft scion wood on fruit trees, and answered questions from the audience.

Don Stewart covered the subject of pruning and tools. He demonstrated how to prune apple, pear, apricot and plum trees. Don brought several types of pruning tools and saws, explaining how to sharpen, disinfect and care for these tools.

Ed Jones spoke on the planting and care of new fruit trees, addressing the amount of fertilizer needed and the use of boron mixed with potassium for fall application. He included general tips on how to harvest apples and pears, demonstrating how to check pears for ripeness by holding the pear in your hand and gently pressing the thumb at the stem. If soft, the pear is ripe.

Our thanks are added to those of Carmen's to these three for representing WCFS

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### SWEDE HOLLOW ORCHARD GARDEN TOUR

Sharon Nowicki, a member of Tahoma Chapter, is having a garden tour at her Swede Hollow Orchard in Edgewood on Saturday, August 14 from 10:00 a.m. to 2:00 p.m. Sharon has extended her invitation to all WCFS members.

The grounds contain a berry patch, vegetable garden, rose garden, orchard, pasture and small wooded area on four acres. The orchard has 39 trees. Sharon's recent hobby, grafting, has increased the variety of fruits to well over 250. She says that the method she uses for tagging and record keeping may be of great interest to the members and you may want to adopt it for your own use.

You are welcome to bring a picnic lunch to eat at tables under the trees, Sharon will serve iced tea and cookies.

The address is 9215 24th St E. Directions to Swede Hollow Orchard:

From Tacoma take Fife exit 137—54th Ave E.—South.

Turn left at the light onto 20th. Continue east on 20th as the road turns to 92nd Ave then to 24th St E. Watch for the first house on the left, on the corner.

From Puyallup drive north on Meridian to 24th St E. Turn left, look for the last house on the right.

From Seattle take Enchanted Village exit, see below

From Federal Way drive south on Enchanted Village Blvd, which turns into Meridian. Turn right on 24th St E.

For further instructions or information call 360 927-2184 or by e-mail: [swedehollow@aol.com](mailto:swedehollow@aol.com)

## FIG TEST GROWERS WANTED

Dear Editor,

Several members of both the Seattle Tree Fruit Society and The West Cascade Fruit Society are aware that my nursery, The Puget Sound Kiwi Company is now selling fig trees in addition to the kiwis. Thus far I have offered only "Gillette" and "Desert King" varieties for sale based on their record of reliable annual production in the Puget Sound Region.

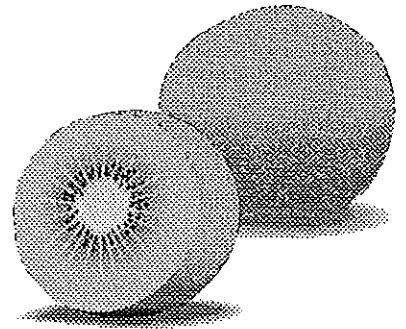
Most of the fig varieties sold in area nurseries come from Southern California or Oregon's Willamette Valley where growing conditions are very different from those around Puget Sound. I am looking for Fruit Society members who have land and are willing to participate in a comparative variety test for about the next ten years. I will furnish the trees marked by variety and planting instructions to insure best results. Test group members will need to have space for 5 to 10 trees in nearly full sun at a single site. Each tree should be allowed a space of 7 feet by 7 feet, have water available, be protected from deer predation, and preferably be at your home rather than a remote location you visit only on occasion. I am looking for test sites in the following locations: Olympia, Tacoma/Puyallup, Sammamish

Plateau, Bremerton-Poulsbo area, Port Angeles/Sequim, Monroe, Everett/Marysville, Sedro Woolley, and Bellingham/Lynden.

If you are interested in participating, please contact me by Phone or Fax at (206) 523-6403. The sooner we get started, the quicker we can educate backyard growers about the most promising varieties.

Also, I have a severe shortage of Desert King cutting material. If you currently grow Desert King and can spare some cuttings, call me.

"Kiwi" Bob Glanzman  
1220 NE 90th St  
Seattle, WA 98115



A member writes:

Could you tell me when Sekai Ichi and Tsugara bloom and are ready to harvest?

I looked in the Fruit, Berry and Nut Inventory book and found that Sekai Ichi ripens in September, but no mention of bloom time. Does that mean it is an early bloomer?

Regarding Tsugara I found no information other than it's parentage. Does anyone out there know?

Your answers appreciated -e-mail or write to editor

Sorry to take so long to mention this, Bob

**SEATTLE TREE FRUIT SOCIETY**

The summer meetings for Seattle Tree Fruit Society are field trips. Some are to member's homes.

In April they went to Cloud Mountain Farm in Everett for a tour of the tree fences, led by Tom Thornton who planted one of western Washington's first commercial orchards. As reported in the May issue of their newsletter *The Urban Scion Post* 'Sadly a large portion of his "famous" tree fence has been lost to winter ice. He now trains his trees to a slender spindle style: cut the whip at 28 inches then strip all buds save one.'

May took them to Raintree Nursery in Morton.

In June it was back to Seattle, visiting two member's homes. Richard Mathes' in the Phinney Ridge area. Richard gardens on two city lots. On the lower lot he has native plantings. And JoAnn Alidinia's home in the Greenwood area. On one city lot she has apple and Asian pear trees, raspberries, strawberries, black and red currants and more!

In July they are going to tour Piper Orchard. In August they will visit T.K. Panni's in Bellevue and Myer and Barbara Coval's on Mercer Island.

The September meeting will be back at C U H gearing up for the Fall Fruit Show.

### CHAPTER PRESIDENTS

Let us know what you are doing. Let the rest of WCFS members become aware of your activities. You may get ideas for your chapter from their reports

# 1998 FALL FRUIT SHOW INFORMATION

## DISPLAYING YOUR FRUIT

Orel Vallen says it is not too early to start thinking about what you are going to display on October 30 and 31.

Have **YOU** considered submitting your fruit for display?

This event is **FOR** you and **BY** you. Even if you have only a small selection, it is needed. Visitors need to know how many home orchardists there are, and that we are all active.

The following procedures were designed to make the displays look compatible:

Prepare a 3" x 5" card for each sample of three to five fruits with the variety name and other information you may wish to share. This could include the harvest date and other pertinent data. If you are submitting more than one kind, they can be arranged alphabetically.

Prepare a larger sign with your name and the geographical growing area. Plates, which hold three to five specimen, will be provided.

After harvest, the fruit will need to be refrigerated to store successfully. If you can, it would be nice to have some fruit for the tasting table.

## DO YOU HAVE A MYSTERY APPLE?

The apple identification experts will be there to name yours. You should select fruit that is typical in color, size and shape for the tree you are trying to identify.

To assist them, bring four to six specimen with stems and free of blemishes. If you don't have that many, bring what you can. **DO NOT WASH OR POLISH.**

Refrigerate the fruit in a plastic bag if it has to be stored for more than one week. You may be asked the following questions:

- When was the fruit picked?
- Is it from a single tree or a row of trees?
- Is it from an old orchard or a new planting?
- When is the fruit ripe?
- How long does it keep?
- Is the tree upright, spreading or willowy?
- Does it bear on the shoot tips?
- Is it damaged by scab or mildew?
- Is it good fresh?
- Is it good cooked?

## DIRECTIONS TO TUKWILA COMMUNITY CENTER

I-5 Northbound: exit 156 (Tukwila, W Marginal Way)  
Stay in right lane & take Tukwila exit.

Turn left onto Interurban Ave continue north for .4 miles turn right onto green bridge at light. Take first right into Community Center lot.

I-5 Southbound: exit 156 (Tukwila, Interurban Ave)  
turn right onto Interurban Ave continue north for .6 mile, turn right onto green bridge at light, take first right into Community Center lot.

## VOLUNTEER VOLUNTEER VOLUNTEER

Volunteers are needed to help in several areas: selling tickets at the door, the education table, membership table, fruit tasting table, setting up Saturday morning, taking down Sunday after the show. It's a lot of fun and you get free admission. Where would you like to help out? Let someone know. Say yes if someone asks.

## REMEMBER THEN?

There was a time when our Fall Fruit Show had 1000 people in attendance for the two day event, a goodly portion of those people were members. The purpose of this event was for the membership to share their know how (talking to the attendees), learn a little more (attending the lectures) and display the fruits of their labors. The membership planned it and supported it. Its success was measured not by the attendance number, but by the displays of fruit and the varieties offered.

Attendance is falling off—attendance of the membership. Member participation is not what it used to be; fewer displays of your harvest bounty, fruit for the tasting tables, to offer the benefits of your experiences to the folks who come with questions, or to share your successes, or failures, with other members.

Even though anyone with a computer can find most of the information needed at the moment, there is nothing like talking in person with someone who has "been there, done that". That is why the people come to the Fall Fruit Show, and why we need to be there for them and show them what can be done

# 1999 FALL FRUIT SHOW

SATURDAY OCTOBER 30

9:30 A.M. TO 5:00 P.M.

AND

SUNDAY OCTOBER 31

10:00 A.M. TO 4:00 P.M.

at

Tukwila Community Center

12424 42nd S

Tukwila

LOTS OF FREE PARKING

ADULTS \$3.00

CHILDREN UNDER 16 FREE

FEATURED SPEAKERS

SCHEDULE IN OCTOBER NEWSLETTER

SCOTT CONNOR

CISCOE MORRIS

GARY MOULTON

BOB NORTON

GEORGE PINYUH

LORETTA WALKER

CONTINUOUS BOTH DAYS

FRUIT TASTING

APPLE IDENTIFICATION

MASTER GARDENERS

MEMBERS FRUIT EXHIBITS

COMMERCIAL EXHIBITS

APPLE MAGGOT DISPLAY

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## FQPA?

by Dick Tilbury

Do you know what *this* acronym stands for? We should--it could affect the cost of our food, its safety, the import/export of food commodities and how we use pesticides.

FQPA stands for the Food Quality Protection Act passed by Congress in August 1996 as part of the 1996 farm bill. In the span of just ten years it requires the US Dept. of Agriculture (USDA) and the Environmental Protection Agency (EPA) to review the use and registration of all pesticides as related to food safety.

According to the act, EPA must reevaluate pesticides in order of their perceived risk. The organophosphate pesticides such as Diazinon, Guthion and Imidan, and carbamates such as Sevin and Temik are in the first group of agricultural chemicals to be reviewed. This first report is due in August 1999. These insecticides are used on about 75% of US fruit, vegetable and grain crops, roughly 50% of all insecticide treated acres in the US.

Volumes have already been written on the pros and cons of the act's eventual implementation. More will come with the August report and follow on reports out to the year 2006.

We all have a stake in this issue. Analyze press releases with respect to which organization is talking and what its motives are.

Is it an organization trying to eliminate all use of pesticides, is it a farm organization trying to maintain the status quo no matter the health costs, is it a chemical company trying to protect its products in the market place? Let's hope the decisions will be made on science.

The following is from a 32 page 1999 March message to Massachusetts tree fruit growers from the U Mass Dept. of Entomology:

"American agriculture is facing challenges of a magnitude that it has not experienced in the recent past. Producers are struggling with economic forces which are stretching

their capacity to remain in farming to the limit. Increased international competition will be a given in the next millennium; significant price increases are difficult to envision as communication and shipping capacity increase globally. At the same time, increased production costs are eating up any small profit margins which do exist. This is true for most other agricultural commodities as well as tree fruits.

"There is no doubt that implementation of FQPA will cause increased complications in crop production due to increased pre-harvest intervals and other types of (pesticide) use pattern changes. However, there are many good aspects of FQPA which should be considered in addition to the increased environmental/consumer protection that the law hopes to provide.

"Never before have EPA and USDA opened up the registration procedure to so much input from groups affected by their rulings. Because of the difficulties of implementing these policies, regulatory officials have had to learn vastly more about agricultural production than they have in the past. They are coming head-to-head with the difficulties growers face in growing agricultural crops,

"USDA is planning to set up regional pest management centers to help growers with crop production problems. Regulatory officials are also becoming more aware of the financial situation of most growers as they go through this process. Improvements such as IPM crop insurance and even price support systems for fruit and vegetable growers are being actively debated and investigated.

"The difficulties of FQPA implementation can help focus attention on the pressing needs of US agricultural production in general. Growers must be willing to voice their concerns and make their needs known. It is important to face the coming challenges with an open attitude and use the coming changes (to) our advantage instead of mourning the loss of 'the old days.'"

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In January 1998, Ellen Terpstra, president of the US Apple Association wrote an article published in *Western Fruit Grower* with the header "**FQPA Crisis Looming**". She wrote 'Before the ink was dry on the Food Quality Protection Act of 1996 (FQPA), the minor-use community began to speculate about its ultimate impact. Some warned that we could soon lose all organophosphate (OP) pesticides. Others felt that OPs would be phased out over a long period of time. It now seems that the first guess will probably be correct, except it's worse. Carbamates will probably be lost as well. Since carbamate pesticides have the same mode of action as OPs, they will probably be put in the same "risk cup" as OPs. In

other words, they will be combined with OPs for the risk assessment.'

She added 'that if OPs and carbamates are lumped into the same "risk cup," few apple uses are likely to survive. Some pests, such as **apple maggot and plum curculio**, are difficult to control without OPs. With few pesticide alternatives in place, the remaining pesticides are expected to face extreme pest resistance problems. Integrated pest management (IPM) will be a difficult option for many growers who will be forced to use harder, less discriminating pesticide alternatives. Thinning could become even more risky if all carbamate uses are lost on apples.

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## A SAFE UNPASTEURIZED CIDER IN THE FUTURE?

By **SUSAN CORT JOHNSON** For the Capital Press

CAMINO, Calif. -- The Apple Hill Growers' Association is looking into ways to kill pathogens in fresh apple cider without pasteurization and allow growers to continue to sell untreated product, as they have for the past 35 years.

Preliminary results from a machine being tested at an Apple Hill juice maker's plant show a reduction in *E. coli* 0157:H7 levels from 100,000 microorganisms per milliliter to one per milliliter.

Bacterial contamination of fresh apple cider and fruit juices by *E. coli* in recent years has the U.S. Food and Drug Administration considering a law that would require all juice to be pasteurized.

But pasteurization equipment costs anywhere from \$15,000 to \$20,000 -- a 2-year profit margin for the small producers that make up most of Apple Hills juice processors. Of the seven Apple Hill growers who process juice, only one produces more than 40,000 gallons annually.

FDA and the apple growers want to ensure safe juice without putting any of these small producers out of business, said association President Kirk Taylor.

The machine being tested at Apple Hill pumps a thin film of cider past an ultraviolet light at the rate of about 2 gallons per minute, which seems to bring the pathogenic levels down.

"They had already tested a UV apparatus by another company that hadn't worked, but this one actually worked," said Randy Worobo, assistant professor of food microbiology at Cornell University.

Worobo, who traveled to Apple Hill to test the machine, said apple cider contains many solids, "and ultraviolet light has very little penetration into liquids that have

anything blocking it."

Engineers Phil Harman and Patrick Borrelli, at Rochester, N.Y.-based FPE Inc., in conjunction with Worobo, developed the \$6,000 machine.

Studies are being conducted at a processing plant no longer used by an Apple Hill grower. A sealed laboratory has been created at the plant, and Taylor, who holds a doctorate in biochemistry, is overseeing the research.

"This past year we were doing baseline studies to see how many naturally occurring organisms are found on the outside surfaces of the fruit that make it from the whole apple into the final juice itself," Taylor said.

Other interventions being tested at the Apple Hill pilot plant are an antimicrobial wash of the apples before pressing, use of a steam tunnel to treat the whole apple and kill contaminants on the outer surface, and dipping the apple in hot water to kill organisms.

"Whatever we develop for apple juice might be carried over to other juice industries, such as citrus, and vice versa," Taylor said. "The citrus industry has done a lot of work on steam tunnels and other interventions so it is an interesting cooperation at this point."

In 1997 a panel of government and private individuals wrote the Apple Hill Quality Assurance Plan, 23 steps that processors can use to ensure the production of safe, fresh apple cider. The steps are a mixture of common sense, health codes and good manufacturing practices Apple Hill growers adhere to, said Taylor.

The El Dorado County Agriculture Commissioner's Office is working with the growers' association in its efforts to reduce pathogens in apple juice.

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## VIROIDS PRODUCE DWARF CITRUS TREES

**PRELIMINARY RESULTS OF RESEARCH** by Joseph Semancik, professor and plant pathologist at the University of California, Riverside, show that when viroid IIa is introduced in the first two years of a citrus tree's development, it reduces tree size, improves yield and fruit size and causes the tree to produce fruit earlier in its life.

Viroids are not small viruses. The viroids are a small transmissible nucleic acid, which is a single RNA with no protein coat. Its presence in orange trees was discovered less than 20 years ago. However, scientists believe they've coursed through citrus phloem in California for more than a century.

Although they were first detected as disease-causing agents, a number of viroids do not cause disease, including IIa. Viroids do not exist in animals, but they can be found in a wide range of plant species.

Semancik budded "Campbell Valencia" orange scions from the UC Riverside Citrus Clonal Protection Program that were free of all known pathogens to Rubidoux trifoliolate orange seedlings. At the time of the budding, the seedlings

also were inoculated with single viroid isolates. After growing in a greenhouse for a year, they were planted in 1984 at the UC Lindcove Research and Extension Center near Exeter.

"There was little effective dwarfing the first two years," Semancik said. "But after two to four years in the field, the minaturizing kicks in." Today, the 15-year old trees with viroid IIa are strikingly smaller than identical viroid-free trees planted at the same time one row away.

"All trees containing viroid displayed a significant reduction in tree size," he said. "Trees with IIa consistently outyielded viroid-free trees by about fifteen percent, even though canopy volume was reduced by twenty percent."

This article appeared in the June-July 1999 issue of *The Grower*

# RASPBERRY GROWING IN TURKEY

• Dr. Erdogan Barut Department of Horticulture Uludag University  
Bursa, Turkey Fax & phone: 0090224 4428970-308

## Introduction

Turkey has a big potential in world fruit production. The suitable climate and soil conditions play great importance, providing an important germplasm source for fruits (Eris and Barut, 1998.) Turkey, surrounded by the Black, Marmara, Aegean, and Mediterranean seas, has different climates such as subtropical, humid and continental.

The Black Sea coast has the highest rainfall with 2000-3000 mm. annually; this quantity falls to 200-400 mm. per year in southeast Anatolia. Due to its higher rainfall, the Black Sea region has acidic soils, whereas the Mediterranean coast has more calcereous soils.

## Growing Areas and Production

Total raspberry production of the world is approximately 400,000 tons. Raspberries are grown in Europe, North America, and Australia. The main countries in which raspberries are cultivated are Russia, Germany, Poland, USA, and Hungary (FAO 1996.)

Raspberries are not widely grown in Turkey despite very suitable ecological factors. It is possible to say that all regions except the southern coast are convenient for raspberry culture, particularly the Marmara and Black Sea regions (Onur 1996.)

In Turkey, raspberries grow wild in areas with elevation at or above 600 m. which feature high relative weather or soil humidity. So many cultivars and types are spread out. For a long time, raspberry growing has been known by amateur growers, but from 1967 intensive growing was started in Bursa vicinity.

In 1972, adaptation studies began using cultivars such as Rubin, Nuburg (New Burg), Schönemann, Canby, etc., which came from abroad. These studies were carried out by Atatürk Central Horticultural Research Institute in Marmara region. The results showed that Rubin and Canby were the best of the studied cultivars.

Nowadays, Rubin and Nuburg are the most widely-grown cultivars in spite of not-so-good yield and fruit quality. In Marmara region, which has the most important raspberry-growing industry, product yield is about 2500 tons. For the other regions of Turkey, we have no statistical data because it is difficult to find regular orchards there (Agaoglu 1986, Onur 1996.)

Raspberries are grown in high mountain villages in Turkey, planted among general plants such as sweet cherries, apples, pear and chestnut trees. In some raspberry orchards, strawberry and other vegetables are grown among raspberry bushes. Most of the growers are not rich and thus nobody is hired to carry out growing; instead, every person in the family fulfills it (Barut 1996.)

Sizes of the raspberry orchards range from 500 m<sup>2</sup> to 5 da. Newly-established orchards are bigger than older ones, especially in the Marmara region.

## Cultivars

In Turkey, Rubin and Nuburg are widely grown, as are

many other cultivars, most of which are not selected. In 1997, an adaptation project with twelve different cultivars from abroad was carried out to increase the number of raspberry cultivars. Cultivar list was as follows:

Summit	Nuburg
Heritage	Canby
Willamette	Rubin
Meeker	Aksu Kirimizisi
Tulameen	Bursa Boduru
Cola II	Yalova-I

The project will have been finished by the year 2000. As a further step, the propagation of promising cultivars will be begun.

## Propagation

Raspberries require much water, so irrigation is very important to growing. Growers in Turkey understand the importance of irrigation, which is generally applied at five- to seven-day intervals, depending upon summer weather conditions. Surface water is used as an irrigation method; in some new orchards, drip irrigation has been introduced, and its use is increasing.

## Training

Now that the raspberry has a half-wood structure morphologically, it needs a stake for training. In Turkey, two training methods are generally used--the hedge and high trellis systems. The hedge system is preferred in rough areas, and the high trellis system is practiced much more in flat, wide, new orchards. Among high trellis systems, the wall system using two wires is widespread; the yield is higher and plants are less prone to pests or disease, especially *Botrytis cinerea* (Agaoglu 1986, Barut 1996.)

## Plant Protection

In raspberry growing areas, only *Botrytis cinerea* causes much damage. This important disease is especially visible during harvest time and in orchards not using the high trellis systems. When raspberries are grown together with other vegetables and fruit, protection is remarkably difficult.

## Harvesting

Raspberry harvest represents 80% of the total production costs. The entire family participates in harvest, which is done between July 1-30. The yield per da. is nearly one ton in Turkey.

Harvesting begins early in the morning to prevent loss of fruit moisture. If the fruits are to be consumed fresh, they are packed into boxes holding 100 g., 250 g., or 500 g. in weight, and then are placed into cases.

(Continued on page 9)



If the fruits are to be processed, they are packed into the 1-5 kg. boxes and sent directly to processing plants. Card-board and plastics are used for packaging materials (Barut 1996.)

95% of fruits harvested in Turkey are frozen and exported to foreign countries. The "Penguin" and "Kerevitas" companies process approximately 80% of raspberries. These companies freeze fruits at -40° C. by using the IQF (Individual Quick Freezing) system. The berries are kept at -20° C. during transportation.

In addition to frozen foods, raspberries are used for jam, marmalade, pastry, fruit juice, and gel. Recently, raspberries have also been used for ice cream and yogurt in Turkey (Onur 1996.)

Turkey's climate is very suitable to raspberry culture, and production and export capacity can be improved. But improvement is possible only if the number of cultivars is increased as a result of adaptation studies in different regions, and if there is increased development of cultural techniques and marketing strategies.

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The above article, printed in the Winter 1999 issue of Pomona, was received by John English, a NAFEX board member, from Dr. Erdogan Barut, researcher in the Department of Horticulture, Faculty of Agriculture, Uludag University, in Bursa, Turkey.

Dr. Barut sent it to John with the hope that the article could be printed as from a "guest researcher from Turkey," His closing comment was, "I hope it will give us the possibility of scientific cooperations."

Editor-in-chief, Jackie Kuehn, adds "Please feel free to

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## SEAWEED EXTRACT AS A FERTILIZER SUPPLEMENT

The Great Lakes Fruit Growers News - November 1998

Fruit and vegetable growers from Japan to Great Britain and across North America are using the natural fertilizer supplement Acadian Seaplants Seaweed Extract. This crop nutritional supplement is derived from *Ascophyllum nodosum* seaweed, commonly known as Norwegian kelp, which grows in abundance on the coast of Nova Scotia.

Research has shown that *Ascophyllum nodosum* seaweed's unique composition makes it a valuable marine plant for agricultural applications, according to an Acadian press release. It contains over 60 naturally-balanced plant nutrients, trace elements, amino acids, carbohydrates, vitamins and naturally occurring plant growth promoters.

Acadian Seaplants Limited manufactures its products from freshly hand harvested *Ascophyllum* and uses an extraction process to retain the natural properties of the live *Ascophyllum*. The products produced are available in soluble powder and liquid format that can be applied in a foliar spray or through irrigation systems.

"We've been using Acadian Seaplants Limited Seaweed Concentrate for almost 10 years and we've seen strong return bloom year after year for apples," said Ron Reister, co-owner of Reister's Grower Services. "The objective is to get higher yields every year and we feel the Acadian Seaplants product, used in conjunction with a grower's regular foliar nutrition program, is achieving this objective."

Decades of university research, conducted throughout the world, has consistently demonstrated the economic benefits to commercial growers of using *Ascophyllum* Seaweed Extract for increased yields of quality fruits and vegetables, according to Acadian. Research at Clemson University in South Carolina during

the 1960s and 1970s found the extract promoted vigorous stem and leaf growth and earlier blossoming and fruit set when sprayed on foliage and flower beds. Clemson studies also showed that soaking roots in the extract reduced transplant shock and accelerated root growth.

European research revealed that yields of quality apples and peaches were significantly improved with foliar application of *Ascophyllum* Seaweed Extract. More recent Acadian Seaplants research has found significant increases in yields of marketable fruit in crops such as grapes, nectarines, oranges and apples as well as vegetables including tomatoes, potatoes, carrots and sweet corn.

"We're seeing very exciting results," says Jeff Norrie, agricultural research scientist with Acadian Seaplants Limited. "The use of these products to supplement existing fertilizer programs has been shown to increase both yield and quality results and improve efficiency of the overall fertilizer program. As our research progresses, we further our understanding of the benefit, far ranging uses and impact of our seaweed extract on agricultural crops."

Acadian Seaplants markets its products to over 40 countries worldwide and is a recipient of the Canada Export Award, a National Citation for Excellence in Technology and Innovation and an Environmental Excellence Award.

To obtain additional information, contact Ron Reister at Reister's Growers Services in Conklin, Michigan, telephone (616) 887-9933; fax (616) 887-8415 or toll free 1-800-984-8953.

## FLAVOUR IN SOFT FRUITS

Howard Stringer advises amateurs to put taste at the top of their requirements when choosing varieties for the garden

There is a wide choice of soft fruit cultivars available to the amateur today, and new ones seem to be launched every year. But many of these new cultivars are the result of commercial breeding programmes, and I question whether a cultivar that is an improvement on a commercial one is necessarily suitable for the amateur.

The aims in breeding a commercially successful cultivar are to improve yields, regularity of cropping, disease and aphid resistance, to reduce the temperature requirement of the crop and perhaps to develop a growth habit that can be harvested by machine. The fruits must be firm, so that they may be marketed without damage, of high quality (in this context the word does not necessarily mean that the flavour is good, but implies primarily that the fruit is pleasing to the eye, of good shape and a clear bright colour. The amateur arranges his priorities differently. He wants a reasonable and regular crop, but does not have to send his fruit to market and flavour is put high on the list of desirable attributes.

Yet it is difficult for him to get an unbiased opinion on what constitutes good flavour, as it is a very personal assessment. One of the best ways open to the RHS member is to join the Society's Fruit Group. Fruit tastings are frequently organised and they are popular, as they usually include a wide range of cultivars.

I grow all the fruit needed for my household, and am always looking for improvements on existing favourites. By scanning the pages of continental publications, I have discovered one or two cultivars preferred in France for flavour, but little known in the UK, that I feel are worth a trial in British gardens.

With the notable exception of strawberries, soft fruits freeze relatively well, and it is good advice to the amateur with little space in which to grow fruit, to avoid planting for succession, and to grow as many bushes as he can of one or two of the best flavoured cultivars and freeze the surplus. In this way soft fruit can be enjoyed all the year round.

It is a modern trend, in keeping with the desire for a healthier diet, to eat fruit uncooked. Because of this, less sugar is eaten and one discovers that properly ripened soft fruits have a superior flavour. The seeds of red currants, for example, are far less intrusive eaten raw; cooking toughens them. A little natural yoghurt blends very well with soft fruits (with the exception of strawberries), and this is the way soft fruit is served in my household.

### Strawberries

New cultivars frequently appear. They also seem to disappear just as quickly, so that a gardener who grows a well flavoured strawberry should try to preserve some stock plants in good health in case it ceases to be available.

The flavour of strawberries which ripen outside the season of our northern European cultivars does not compare with those we grow in our gardens, and with a little care, gardeners in the south can have strawberries from mid to late May until the autumn. The earliest well-

flavoured cultivar is 'Pantagruella', which ripens in the south of England in mid May when grown under glass, or at the end of May when grown under polythene. I grow one row under a polythene cloche, and one unprotected, which gives strawberries when they are expensive in the shops and before the pick-your-own outlets in my area are open. There are a great many well flavoured mid season cultivars, and as personal taste is such a variable factor, it is a good plan to buy, perhaps four plants of several promising cultivars from a reliable nurseryman or garden centre in August. Plant them 2 feet apart (60cm), pick a few trial fruits next year and if they are to your liking, treat the plants as mother plants and pot up the runners.

My family appreciates 'Royal Sovereign', 'Aromel', 'Tenira' and 'Cambridge Late Pine', but the first named is difficult to grow well, and is host to all diseases to which strawberries are heir. 'Tenira' can be mentioned in the same breath as 'Royal Sovereign' but is much more robust. 'Cambridge Late Pine' is later than most, and one of the last survivors of the pine-flavoured strawberries of which the Victorians were so fond. It is not a heavy cropper but is deliciously flavoured. Regrettably, no virus-free clone is yet available. Well flavoured autumn berries are supplied by deblossoming 'Aromel' in spring and taking a crop from September onwards.

### Raspberries

Much attention has been paid to breeding in resistance to some strains of aphid, which helps to prevent virus infection, and to increasing the length of the laterals, making the fruit easier to see and to pick. However, flavour has often suffered as a result, and as raspberries freeze magnificently, it is only necessary to grow the best flavoured cultivar. In my view 'Malling Jewel', released in 1950, is by far the best flavoured early summer fruiting cultivar and is also excellent for kitchen use. For those who have room for two cultivars the flavour of 'Malling Leo' also takes some beating, although it is a vigorous grower.

### Gooseberries

The gooseberry tends to be long-lived, many of our cultivars being over 150 years old. Some are the result of amateur breeding for the old gooseberry shows to grow the heaviest berry. A few, however, have inherited both size and good flavour. Attempts have been made to introduce resistance to American gooseberry mildew and introduce spinelessness. The latter has been found to be associated with very weak growth, but one or two mildew-resistant cultivars have been introduced, which are excellent for all purposes where good flavour is not required. For the moment, therefore, we have to look at the older cultivars, most of which are susceptible to mildew. Fortunately, gooseberry mildew can be con-

trolled by a routine spraying.

It is a great pity that the most authoritative work in the English language on the gooseberry, Barbara Ann Rake's *Report* (describing over 130 cultivars in great detail) has not been published. However it can be seen in the Lindley Library. More readily available is an article by Miss Rake in the *Gardener's Chronicle* of 21 September 1963 (pp.212-213). There are many interesting cultivars to experiment with, and as one is unlikely to need a large number of ripe fruits of any one, it is desirable to grow a row of cordons. There is a superb demonstration of this form of training in the Model Fruit Gardens at Wisley, where a collection of about 100 cultivars is being built up.

There is one cultivar, grown in Europe but little known here and not described by Miss Rake, which I have grown for some years. It is 'Weisse Neckartal', meaning 'White berry of the the Neckar Valley' It was bred in Saxony in the 1920s, and is considered to be the best flavoured of the native-bred early cultivars. It is a moderately vigorous grower, making an open, upright bush and cropping well. The berries are medium sized, soft haired and of very good favour. It ripens about the same time as 'Langley Gage', although the berries are larger, less sweet and more aromatic than that variety.

#### Red currants

Fruits are often picked for market when the topmost berries on the truss are just starting to colour, so that by the time they are in the shop they will be fully coloured. However, few people realise that this fruit intensifies in flavour and loses some of its sharpness if left on the bush after colouring. Some cultivars will, in fact, hold their fruits for several weeks, provided that they are protected against birds. A few canes and some fruit cage netting make a very cheap and easy-to-erect cage. The entrance flap can be secured by clothes pegs.

An early ripening, well flavoured, large fruited cultivar, whose berries hang for several weeks, is 'Jonkheer van Tets'. It is quite vigorous and capable of setting very heavy crops, which can bend down the rather floppy branches. It is, therefore, best grown in a trained form. A little later, smaller berried, more aromatic and less sharp, is the American 'Red Lake', which also hangs well. There appear to be two forms of this cultivar; I have obtained it from two reliable sources, both have been confirmed as 'Red Lake' but one has a better flavour. Fortunately this can be easily recognised by the red veining in the leaves, so be sure to buy your plants in leaf. Both 'Red Lake' and 'Jonkheer van Tets' freeze well.

In my view, however, these red cultivars are eclipsed for fresh fruit flavour by the pink currant, 'Champagne' (syn. Couleur de Chair). This, or one of the same name, is a very old cultivar, mentioned by several continental pomologists in the late eighteenth century. It was well received in a trial conducted by the RHS in the 1890s (*J. Roy. Hort. Soc.*, Vol. 13, p. 135). The medium sized berries have very soft, unobtrusive seeds and a distinctive, aromatic flavour when left on the bush two to three weeks after the berries have coloured fully. There are two disadvantages. The fruits do not freeze well, retaining flavour but not texture, and they split rather easily in wet weather, a short time after they

have developed full flavour.

#### Black currants

There are many new cultivars, bred primarily to retard flowering so as to escape blossom damage by late spring frosts. But these cultivars, however desirable from a commercial point of view, do not have the same rich dessert flavour as the best of the older ones. Of these, 'Boskoop Giant' is generally considered to be the best. It is a strong, fairly upright grower, making a large bush and bearing quite large berries, thin skinned, sweet and juicy. It is an excellent dessert fruit and freezes well, but in my view it is surpassed in flavour by 'Silvergrieter's Zwarte', similar in vigour but a little more upright in habit, with berries of similar size and ripening a few days later. This cultivar, bred in Leeuwarden, Holland, and released in 1936, is widely grown in many European countries but is little known in the UK, possibly because of its difficult name. 'Boskoop Giant', however, freezes better.

A seedling from the latter which has inherited much of its juiciness and flavour is 'Wellington XXX', raised in 1913 and released by East Malling Research Station in 1921, in the time of its first director, R. Wellington. It is not quite so early flowering as the previous two and the berries are smaller, freezing exceptionally well. All need some frost protection when in flower and this can be achieved by laying fruit cage top netting, loosely rumpled, over the bushes for the critical period.

#### Blackberries

One cultivar which is extremely richly, though not typically, flavoured is 'Thornfree', an American hybrid of complex parentage. It has smooth, rather rectangular canes which stiffen quickly and need to be trained in position early. It is a huge cropper of large berries, ripening rather later than most, and in a good autumn will go on fruiting into late October. The berries colour before they have developed their flavour, and need to be left until soft, otherwise they will taste sharp. Gardeners in the north may find that this cultivar does not ripen sufficiently in the open garden. In my experience it makes poor jam but freezes well,

Progress by the major research stations has been extremely rapid and future crosses will undoubtedly bring forth seedlings with both excellent flavour and desirable commercial attributes. The recently released apple 'Malling Fiesta' is a case in point.

It is to be hoped that this article will encourage readers to try out different varieties of fruit in their gardens and to hold fast to those they find to be good. Because for freshness, there is no substitute for fruit from your garden.

Howard Stringer is a member of the East Malling Research Association and a Committee member of the RHS Fruit Group.

Published in *The Garden* February 1989

Thanks to Chuck Parkman for submitting this article.

# TURKEY—PAST AND PRESENT

by Evelyn Troughton



In April I spent 14 days in Turkey (plus 3 days cruising the Aegean, visiting the Greek islands of Rhodes, Crete, and Santorini, and a brief visit to Athens and Corinth).

The primary object of the group I was with was archeology—just when I thought I was ruined out (we were at nineteen sites) there was another marvelous site to fill me with awe—and following the steps of the Apostle Paul. We also visited mosques, palaces and museums.

However, I did my best to find out what I could about the fruit culture of this beautiful country so I could write something that would be of interest to all. I was not as successful as I wanted to be; our guide, Selim, was well versed in history, but not agriculture.

I have tried to contact a couple of experts who might know what varieties of fruit are grown there. The vendors in the markets did not know. But these are busy folk and I haven't heard from them as of this date. So what I tell you will be generic.

Most of the fruit is grown in eastern Turkey, and that was not a part of our itinerary.

When we arrived, it was cool. Istanbul is in the northern part of the country and spring had not arrived yet. The skies were grey, but as in Camelot, it rained only in the night. Well, there was one day it rained pretty heavy, but we were in the bus driving to our next destination. It never rained while we were visiting the ruins.

I saw apple orchards, cherry orchards, a banana plantation—this was in the south, close to the Mediterranean Sea, as were the lemon and orange groves. There were grape vineyards, olive trees, strawberries. Pomegranite trees, peaches, apricots and pears.

I was told they grow a lot of tomatoes and cucumbers, and they were always served at every meal—even breakfast! But I never saw them in the fields.

What I did see was a lot of fields with cloches and a lot of greenhouses. So it could be that the tomatoes and cukes were under the cloches.

The banana "plantations" were in greenhouses. Yes, greenhouses, even though they were close to the Mediterranean and the weather was warm. They were on the hillside, so it could be that the temperature at night cooled drastically.

It was amazing to see orchards amongst the ruins, and beautiful flowering trees too.

The apples at the stands were not pretty, nor were they crisp (I could tell by the "flick test") Apples served at breakfast were very good, and crisp, but I don't know what they were. I know they were NOT Red Delicious!

I was told that the bananas grown in Turkey were not exported. However, the price at the markets were high (compared to our prices for bananas).

For a brief time, I was a millionaire! I had twenty million lira—\$58 American!

I tried all the strange food, and most of it was very good. The desserts were rich, laden with honey—I could not eat them, but I gave each one a bite. I tried to eat light breakfasts, as all their meals are four courses. The salads were all the same, shredded lettuce, carrots, cucumber and red cabbage. The appetizer was usually a filled pastry. By now I am not hungry...then came the entree and dessert. There is no way I can remember all of the foods we were served, I did not take notes! I just enjoyed.

In Istanbul along side an area where the old city walls had been restored, people planted and harvested food. One of the crops is a lettuce like leaf used in salads called roka, which is sold to the restaurants and hotels. Although described to me by Selim as strong flavored, I found it quite good and not at all bitter.

Since visiting orchards, etc. was not high on the agenda, nor even part of it, I was able to take some pictures only from the moving bus. I'm surprised that they turned out so well. These are pictures of the greenhouse plantations and the covered fields.

I was lucky, a friend loaned me a nice little camera—the kind one has only to drop the film in and it does everything else on its own. It took panorama pictures also. I shall bring my album to the Fall Fruit Show in case anyone is interested in looking at it. It will be at the education table, of course!

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**BETTING ON HARD CIDER** by Jean D. Aylsworth  
Is there a future in inedible apples? This New England Grower thinks so.

Steve Wood of Poverty Lane Orchards, Lebanon, NH, is admittedly "betting the farm" on his new plantings.

Discouraged by trends in price and markets for traditional New England apple varieties such as McIntosh and Cortland, he's making a bold move to try to put profit back into his fruit growing operation. He's ripping out acres of good fresh market fruit trees to make room for almost inedible British and French varieties that are used in hard cider production. Over the next two years, he hopes to plant 8000 to 10,000 hard cider trees in what will likely be the largest such planting in the U.S. It is, he says, akin to planting vinifera grapes solely for wine production.

In the last couple of years, the production of hard cider in the U.S. has skyrocketed - but there's a hitch Wood believes. "All these new cider makers are stuck making hard cider from commercially grown American apple varieties or importing concentrate from abroad. There is no cider orchard industry in the U.S." Most hard cider varieties (categorized as "bittersweets"), are very high in tannins, which make the apples taste bitter and astringent. "they're nasty to eat but they bring body and complexity to fermented cider," he says.

Wood, who has traveled extensively in England and took a cider-making course there, counts British cider producers as his friends. Since the mid-80s, their advice has helped him learn to grow hard cider varieties such as Dabinett, Yarlington Mill, and Kingston Black.

"We are attempting to grow these varieties here under vastly different conditions than they have in England," he says. "We have different soils, a short growing season, and late season cold snaps. Some varieties we've tried benefit from autumn cold --others don't."

**Planting An Experimental Block** Wood planted his first block of about 1000 hard cider trees in 1989. He says it was strictly experimental, but he learned a lot from it. "I made a lot of mistakes that I won't repeat," he says. "But some of these varieties grow to a very high standard here."

Yields from those eight-year-old trees - grown on MM.111s and MM.106s - have been sufficient for Wood to dip his toe in the hard cider production end of it. Last year he made 1000 gallons and plans to make 4000 gallons this year. Considering the low volume, he's been able to market all of it locally, both on draft in pubs and in 750 ml. bottles.

Wood's trying to be careful about the capital investment he's making in the cider operation because he doesn't want to get behind the 8-ball and feel that he has to sell all the cider he makes -- regardless of quality. "I've thrown away some nice cider because it wasn't quite up to the standards I've set for it," he says. "Everything we sell now is developing a reputation. That's more valuable than sales volume."

**Different From Apple Wine** Wood emphasizes that the hard cider he makes is different from apple wine. "To make wine from anything other than grapes, you generally have to add sugar to get it to a level of alcohol of about 11% to 12%," he says. "In my view, no apple will support

that amount of alcohol on the palate. Our hard cider apples are fermented in their own sugar and the finished product has 7% to 8% alcohol. Well-made hard cider has less alcohol than apple wine, resulting in a pleasant balance of alcohol fruit, acid, and tannin."

Wood is gambling that the U.S. market for hard cider will continue to grow, and with it a demand for the more complex ciders that depend on bittersweet apples for their character.

It's kind of a chicken and egg thing: which should come first, the market development or planting the trees? You can't really build the market without having a supply of the right kind of apples to make the product, but to plant the trees without a ready market is risky.

"In my judgement, the only way to get enough raw material to produce the quality of cider we want to make is to get the trees in the ground," Wood says. "If demand builds for flavorful tannic hard cider and we don't have the right fruit, the potential of our business will be limited."

Wood says he is speculating on the potential growth in the U.S. hard cider market by planting more trees than he is likely to use the fruit from in his own cider operation. "We'll either sell our fruit to other hard cider producers. or we'll start another cider venture ourselves," he says. "My theory is that to get a good return for our fruit, we'll need to continue to make this an integrated agricultural venture, and keep our hand in the cider making as well as the growing of these apples."

**Looking At Alternatives** Wood currently has about 80 to 100 acres of tree fruit, but will increase that to about 120 acres as he plants more hard cider-type trees. Wood plans to continue growing some McIntosh, Cortland, Gala, and Jonagold, but he's taking out several blocks of these fresh market varieties.

"In the early '80s I was growing McIntosh and Cortland and making a good living," he says. "In those days, I started grafting and studying some of these oddball varieties more or less as a hobby. Then, as the economics of growing, packing, and shipping changed in the late '80s, I lost confidence in our ability to make a living in the traditional wholesale apple business. and began to take a more serious look at alternatives. I see it as an effort to regain some measure of control over our own livelihood."

In addition to replanting some acreage with the hard cider varieties, Wood began trying some "antique" varieties such as Esopus, Spitzenberg, Golden Russet, Pomme Grise, and Ribston Pippin. He sells the fruit from those trees at his farm stand and ships some to urban markets in the Northeast.

"There are a lot of reasons for making these changes, but the main one is that I want to continue growing apples," he says. "But if this fails, our acreage of inedible apples will be one of the bigger jokes on the New England landscape!"

## BITS AND PIECES

### CIDER MAKING IN WASHINGTON

There is an active interest in cider making in western Washington.

On April 1, the day after I sent the Bee Line to the printer, I received notice of a Cidermaker's seminar sponsored by WSU Mt Vernon Research Station and Western Washington Tree Fruit Research Foundation (WWTFRF). It was held on April 20 at Silver Lake Wineries in Woodinville.

The program included sessions on commercial and amateur cider production, growing cider apples and other topics of interest, as well as tastings for commercial and home-made cider.

For those interested, proceedings may be obtained for \$15. contact Charley Bergeron at 253 584 5216

### Puyallup Fair News

The 1999 Puyallup Fair dates are September 10 to 27, and WCFS will be there again this year. The Tahoma Chapter sets up and mans the display, but more help is needed. Carmen Franco, Tahoma president welcomes your offer to volunteer for a 3 or 4 hour stint, or two or three if you have the time. You will have free entry to the fairgrounds and a parking pass. To volunteer by phone call Carmen at 253-565-2908 or by e-mail to francocd@juno.com.

### ATTENTION BOOK LOVERS

Dave Battey sent this information on Tuesday April 27: "There are two amazing antiquarian/used book sites that have significant numbers of the old fruit books.

<http://www2.alibris.com/cgi-bin/texis/bookstore>

<http://www.suttonbooks.com>

They both (as of Saturday) had copies of the Apples of New York for sale. I just received a book from Alibris today and am very satisfied.

### THE RARE FRUIT GARDEN IN PUYALLUP

Ed Jones sent news of these recent additions to the rare fruit garden in Puyallup: Harglow Apricot, Cavalier Nectarine, Desert Delight Nectarine, Early Treat Peach, Eva's Pride Peach, White Lady Peach and Seneca European Plum. All are on Citation rootstock which tolerates wet soil but not drought. We'll see how they do, he said.

## WHAT'S NEW AT MT VERNON FRUIT DEMONSTRATION GARDEN

### Big Fruit Trees Planted in Demo Garden

Mature fruit trees were dug up from around the WSU experiment station this winter, where they had completed their useful life in variety trials. However, instead of discarding the trees, some of the best specimens were moved with large equipment to their new home in the "Demonstration Garden."

Sixteen mature trees were planted with the help of garden designer Patty Strehlow who directed the work.

Gary Moulton reports that the trees are set up with irrigation and are already growing well. The varieties planted are Ashmead's Kernal and Melrose apples; Shinseiki, Chojuro, Rescue and Clapps Favorite pears; Imperial Epineuse and Early Laxton plums, Kristin and Angela cherries and Hatbelle and three New Haven peaches.

The trees were chosen because each variety has proven to fruit well at the Mt. Vernon station. The trees are planted in an oval that forms the center of the future fruit garden portion of the demonstration garden.

### Volunteers Still Needed for Demo Fruit Garden

"The garden is really starting to go now. This means we really need volunteers to get involved. The volunteers can help select the new trees to be planted next year and then help take care of them," said WSU tree fruit research director Gary Moulton.

To get involved in the demonstration garden or to just get more information, please contact the volunteer coordinator Kim Siebert at 5505 87th Ave NE Everett WA 98205 (425) 334 0387.

# BAD PRESS FOR APPLE SCAB: FAULTY HUMAN LOGIC

by Harry Burton

"Hey mister, mister, don't use that DDT.  
Give me the spots on my apples,  
But leave me the birds and the bees, please."

Fellow Canadian, Joni Mitchell sang that in Big Yellow Taxi in the 60's. She was a visionary. Very few of us followed her wisdom.

Next to the Y2K disaster, the next most significant human folly is the North American obsession with looks over substance, which has given us the following afflictions:

- \* An overwhelming concentration on human beauty over personal human qualities.
- \* A worldwide consumer race to always have faster, bigger, nicer items in our life.
- \* A food source tainted with manmade agricultural chemicals.
- \* A food source that tends to disregard where food is produced, (the environmental cost), rather than promoting an "Eat Locally" concept.

It would take the resources of 4 to 5 worlds to support a world population of people consuming at the rate of the typical North American. We have set the standard which the rest of the world now deems as "most desirable." A world living at our living standard is not sustainable and not possible.

Apple scab provides a classic example of a human overreaction to a very minor visual problem, where the solution is worse than the original problem. Apple scab

- \* does not affect the taste of the apple
- \* is not harmful to humans.
- \* is only skin deep.
- \* can easily be cut off with one swipe of a knife.

Yet we have deemed the look of the apple more important than the taste. Why do we have this overwhelming urge to have perfect looking fruit? Why do North Americans eat with their eyes? We prefer to eat an apple that may have had up to 15 sprays applied to it before we buy it in the store. This is like Russian Roulette, with a 10 to 20 year delay from the time the trigger is pulled, until the bullet fires. This represents a tragic flaw in human thinking that exposes us to many man-made chemicals having unknown long-term effects on humans and all other species of flora and fauna. This is gradually killing us. Yet like smoking, we continue to follow these dangerous habits and accept the consequences without questioning, like a parade of human lemmings. The gods must be sitting back laughing as they play this "human video game called SLOW DANCING WITH DEATH."

The result of pesticides, fungicides and herbicides is homicide. This applies not only to customers buying the produce, but also to farm workers, who are exposed directly to

these chemicals on the farm. Children of farm workers are most susceptible. We have farmers believing it is impossible to grow a sustainable crop without the use of agricultural chemicals. The first step in converting a farmer to organic (away from manmade agricultural chemicals) is to replace the radio in the tractor with a tape deck, so that no agricultural chemical related advertising is heard.

I am very fortunate to live on Salt Spring Island, BC, the Organic Gardening Capital of Canada. Many of my customers will buy apples with some scab on them. The scab becomes a "label" that the fruit is grown organically. They judge an apple only by its taste. They also realize that the most powerful quality control measure for food is to know the grower. So farm gate sales and farm visits then are a quality control scouting mission. My old butcher told me. "If you don't know your meat, then know your butcher". The same applies to fruit and vegetable.

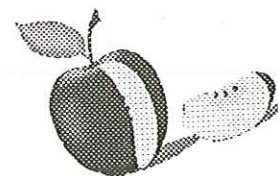
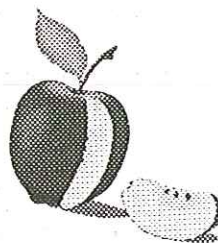
So the focus on growing healthy fruit should be to minimize apple scab. It is an interesting thought that the farther away from "the country", customers live, the more concern there is for looks over taste. We as a nation have distanced ourselves from nature. Some children get most of their nature and country knowledge from television.

We, the customer, are in the driver's seat. Until we demand organic produce, we will continue to ingest agricultural residues. The choice is ours. I chose to eat organically; in fact, when my personal apple supplies are all gone, I have a very difficult time buying a conventionally produced apple since I don't know what residues I will be eating along with the apple. Thank You.

Harry Burton is a member of the British Columbia Fruit Testers Association (BCFTA) and a member of WCFS. This article was printed in the Cider Press, spring 1999

Harry lives on Salt Spring Island and there operates his Apple Lucsious Organic Orchard.

WCFS has a number of organic growers so hopefully Harry will send future thoughts and advise for organic gardening to us for publication in the Bee Line.



## PRUNING IMPROVES PEAR QUALITY AND SIZE

by Dave Burkhart

Pear trees, like apple and cherry trees, can become quite large and difficult to manage if not pruned on an annual basis with special thought given to tree size. As the tree gets larger, costs increase, and size and quality often suffer. The Mid-Columbia pear district, in the mid 1980s, probably had more big trees than any district in the world. It still may have. Many pear growers began, at that time, to seriously look at pruning programs that could reduce tree size and would improve fruit quality. Several events precipitated this move:

--Because of the depressed cannery market, many growers were taking a closer look at sending more product to the fresh market. As we all know, fruit size is a more significant factor in fresh market Bartletts than it is for cannery fruit.

--For the winter pear grower, the improvements of fruit size and quality are inducements for rejuvenating the old tree.

--Ladder accidents are more common on big trees. Thirty-seven percent of all orchard accidents and 60% of all monies paid to orchard workers in the 1980s were ladder-related. With the then-high workers' compensation rates, this was incentive enough to get some growers to thinking about a smaller tree.

--Lack of adequate pest control in tree tops is also a reason for wanting lower trees. Some growers say that pesticide usage can be reduced by 25% by lowering old trees or by growing a smaller tree.

Extension staff had been conducting pruning clinics for several years with special emphasis on improved quality and the development of more accessible trees, but it was not until jointly-sponsored events were initiated that the program took off. In addition to the Oregon State University Extension, the Hood River Grower/Shipper Association and Wilbur-Ellis Company got involved.

Along with Jim McBride, a Yakima, pruning consultant, we started putting on pruning clinics that stressed rejuvenating old trees. Jim, a very capable pruner who has a good understanding of the basics of pruning and the ability to climb like a monkey, worked the tree, while I worked the ground. We made a good team that was able to generate a lot of interest managing old pear trees.

### Importance of light

Researchers periodically remind us that light is essential to the production of a good marketable crop of fruit. Fruit size and healthy fruit buds are influenced by exposure to light. Growth and development of the plant and fruit depend on the carbohydrates manufactured in the leaves. Leaves that are exposed to the sunlight are more efficient than those that are not.

We all know that pears in the top of the tree are larger and better quality than those in the middle of the tree. One of the limiting factors of growing quality fruit may be the shade that the tree casts on itself. As tree size increases, the amount of shading increases. Tree shape also influences shading.

In my visits to Argentina, I have always been impressed by the training method they use on their old trees. They develop a tree with four to six main leaders

trained in such a manner that many small limbs emanate from the top of the leader, which are then tiered, one limb above another, much like a palmette system. From the beginning, these leaders need some support, either a pole or a wire from an overhead support system.

The greatest benefit of this training program is that these leaders are separated by pie-shaped openings around the tree, which give excellent access for light, spray, and the worker.

### Lower the tree

When we look at a big, old tree, our first objective is to not only lower the tree but also to open the tree to sunlight. Some of us call these openings light channels, others call them windows. As we make these large cuts, we need to caution pruners that we want to retain a symmetrical tree with sound structural limbs. Hood River grower Gene Euwer said a spoked wagon wheel with the rim removed is a good model for such a tree.

A mechanical topper is not our choice of equipment for lowering a tree. The topper will make indiscriminate cuts, leaving a large stub, a scalped limb, or a place for the entrance of rot. Our choice for the removal of unwanted limbs is a chain saw. One can be much more selective, and the remaining cut will be angled and less subject to disease.

An experienced person should make the selection of major cuts in old trees. Often, the grower or a lead person should go through the block and make the cut or mark the limb for removal. Inexperienced help will often make a poor selection of limbs and defeat some of the goals that you hope to attain.

McBride introduced an innovative method of marking limbs for removal. Using a sponge paint roller with a long handle that is designed to paint inside corners of a room, one can apply paint quite easily to unwanted limbs. A person can do this from the ground where it is much easier to determine the limb for removal.

When big cuts are made, a rather large hole may be left in the tree. We should keep in mind that with pear trees, it does not take long to renew bearing limbs. The new sprouts that inevitably come after major cutting should be left unheaded but thinned. By the second year, some fruit will begin to set. Ultimately, the new limbs may need to be pruned in order to give the limb direction, or for growth control.

### Move back the tops

Our second objective in rejuvenating an old tree is to change the overall appearance of the umbrella-shaped tree. In order to accomplish this, we often need to head back upper limbs severely. Our goal is to have a tree that is wider at the bottom than it is at the top. If we can prevent excessive shading of lower limbs, a greater proportion of our crop can be grown from limbs that are closer to the ground. Usually, the process of moving the top back and growing new limbs or bringing weak lower limbs back can take several years.

It is not easy to replace a lower limb. Once a higher limb on a tree becomes dominant, lower limbs suffer. This is just as true with old trees as it is with young trees.



However, by allowing light penetration and by fostering new growth, one is often able to revive some of the lower, weak, scaffold limbs.

### Thin out old limbs

The third phase of our program is to thin out many of the smaller, crowded limbs that exist throughout the tree. Most often, these limbs, after repeated fruiting, will become pendant hangers. As a limb loses its apical dominance, risers develop back on the main limb, and if allowed, will take over the limb. If the weak pendant limb is not removed, fruit quality and size will often suffer. We often hear growers, at a pruning demonstration, comment on how heavy pruning will reduce the next year's crop. This can happen, but it is surprising how a tree will bounce back. I will comment on this further in my report on some research.

### Stimulate uniform vigor

The fourth part of the revitalization effort is to renew fruiting wood and stimulate uniform vigor throughout the tree. We have all heard the old adage, "A tree is only as old as its fruiting wood." This saying is just as true now as it ever was. Growers should try to keep fruit spurs under five to six years old.

Some pruners leave a stub when cutting off fruit spurs in order to encourage a new shoot to develop. This doesn't always work. With the opening of the tree to sunlight, sprouts and new growth will usually develop. We often refer to this growth as "wirewood." Along with development of this wood come water suckers or strong upright sprouts. The strong, vertical shoots need to be renewed, and limbs that tend to be more horizontal should be kept and left unheaded.

The process of renewing fruiting wood is an ongoing practice. Two-, three-, and four-year-old fruit buds usually give us the best fruit set and the best quality. This is why we need to keep new wood growing throughout the tree. On Bartlett's, and sometimes on winter pears, our fruit is set on one-year-old terminal growth. If the new growth is long and whippy, the fruit may be damaged by wind, and some heading of certain new shoots may be needed.

### Excessive sucker growth

Many times, our main bearing limbs have a great deal of excessive sucker growth that has to be removed each year. This is a problem with many pear cultivars but probably is most common on d'Anjous. Scaffold limbs that have a tendency to be flat or more horizontal are particularly bad for suckering.

I don't believe any one of us has a good answer to the problem, but keeping a scaffold limb growing in a more upright position will help reduce suckering. By not removing all suckers and leaving weaker, flatter sprouts off the main limb, we will often encourage the development of short bearing limbs. These limbs should not be allowed to get too big, but should be held in place with fruiting and pruning.

### Research

At the Mid-Columbia Agricultural Research and Extension Center in Hood River, Oregon, some work was done on heavy versus light pruning by Dr. Gene Mielke from 1986 to 1990. The experiment consisted of three degrees of pruning: light, heavy, and none. The initial pruning was done in the winter of 1986-87. The 18-year-old trees on a 10 x 18 foot planting had begun to shade out in the lower

portions of the tree.

Yields the first year after pruning were reduced by both the light and the heavy pruning. In 1988 and 1990, the heavily-pruned trees had 50% more production than the control (see Table 1). Cumulative yields for the four years of the study showed that the production was 6% greater for the heavily-pruned trees than for the unpruned trees. Production from the light and the unpruned trees was similar at the end of the trial.

Fruit size in the heavily-pruned block was dramatically increased in 1989, with approximately three times the amount of fruit in the size 80 and larger sizes as compared with the control (see Table 2).

There are bound to be certain trade-offs with heavy pruning. Research has shown us that it may not be feasible to get as good a return with heavy pruning of Bartlett's as with winter pears. Rejuvenation-type pruning with Bartlett's will often reduce yields temporarily.

The rejuvenation program as outlined needs to be done in conjunction with other cultural practices. Heavy pruning, as we all know, can overstimulate the tree. Nitrogen fertilizer may need to be reduced, otherwise physiological disorders may prevail.

### Summary

Rejuvenation of old pear trees will improve fruit quality and fruit size. While yields may temporarily be reduced, long-term production will increase. This is particularly true of the lower part of the tree. Better access of sunlight, spray, and workers is an added bonus. The reduction of pest control materials and the avoidance of worker accidents are also added benefits.

TABLE 1

The effect of the degree of heavy wood removal on the yield of mature d'Anjou in 1990. Data are means for 22 to 25 replicate trees.

Degree	Yield (tons per acre)				
	1987	1988	1989	1990	87-90
None	33.2	25.4	19.2	15.9	93.7
Light	24.5	30.8	22.4	15.0	92.7
Heavy	26.7	19.8	28.9	23.8	99.2

TABLE 2

The effect of wood removal on fruit size.

### PERCENTAGE OF FRUIT Degree of heavy wood removal

Fruit size	Degree of heavy wood removal		
	None	Light	Heavy
50	.0	.2	.2
60	.3	.2	1.1
70	1.2	2.8	5.2
80	4.7	5.8	10.2
90	11.2	18.5	25.5
100	29.5	32.4	24.4
110	26.4	22.3	22.8
120	22.3	12.4	8.4
135	2.8	5.2	2.1
150	1.5	.2	.1
165	.1	.0	.0

# PRUNING APPLE TREES TO MAINTAIN SIZE AND SHAPE

by Richard P. Marini

The Fruit Growers News February 1999

Apple trees are pruned to maintain tree size and shape, to open the canopy for light penetration and air movement, to adjust potential crop load, and to improve fruit quality. Our ideas about pruning have changed little during the last year, so the following is a refresher on the major points.

## Standard trees

- ◆ Watersprout removal in the tree tops is usually a major chore, but this practice really improves light penetration. On the lower limbs, weak watersprouts can be retained and will produce fruit in two years.
- ◆ Try to keep the top of the tree more narrow than the bottom. Branches that droop cause shade problems and should be shortened to a horizontally-oriented limb.
- ◆ Shorten drooping lower branches to prevent fruit from hanging in the grass.
- ◆ Remove spur systems developing from the underside of branches because these are shaded and produce poor quality fruit.
- ◆ Prune trees annually. Sometimes large trees, especially those grown for processing, are pruned every two or three years to cut expenses. I have seen no data to support this, but this seems like a poor horticultural practice. Moderate or even light pruning every year should create a better balance between vegetative and reproductive growth.

## Semi-dwarf central leader trees

Many of the sample principles already discussed also apply here.

- ◆ Maintain a narrow top with limb removal. Limbs in the top half of the tree should be considered temporary. When the diameter of a limb is half the diameter of the trunk, it should be removed.
- ◆ Maintain tree height by cutting into two-year-old wood just above the moderately weak limb.
- ◆ Avoid heading cuts throughout the tree.
- ◆ Use thinning cuts to shorten drooping lower limbs.
- ◆ On trees with excessive number of spurs, remove 20% to 30% of the spurs, especially on the undersides of limbs.

- ◆ Retain some of the weaker watersprouts because they will produce flowering spurs in the future.

## Intensive plantings

Most intensive plantings are being trained as some modification of the vertical axe. We continue to be impressed with yields from this system in our research trials.

- ◆ Do not head the leader until it has attained the desired height, usually about 10 feet. The leader should be supported to a height not less than two feet below the desired height.
- ◆ Lateral branch development has been adequate without heading or manipulating the leader. Notching buds within two weeks before bloom has successfully induced branching on one- and sometimes two-year-old sections of the leader.
- ◆ After the tree top has fruited twice, usually seven years after planting, tree height can be reduced by cutting into two-year-old wood just above a lateral.
- ◆ Use limb rotation in the top half of the tree to maintain a narrow top.
- ◆ With more vigorous rootstocks, such as M.26, we have observed poor fruit color in the lower part of the tree. Light penetration can be improved by lowering the trees to reduce between-row shading, maintaining a narrow tree top and removing one or two branches in each tree.
- ◆ Except on weak soil with non-vigorous varieties, rootstocks more vigorous than M.9 are likely too vigorous for vertical axe plantings in Virginia.

## Responding to the drought

Trees often bloom poorly the year following a drought. Therefore, I expect some orchards (especially those with moderate to heavy crops this year) have little bloom next spring. This sets up the potential for alternate bearing -- a light bloom in 1999 will be followed by a heavy bloom in 2000; then thinning the trees adequately will be a challenge. One way to try to alleviate this problem may be to do some spur pruning or pruning into two- or three-year-old wood to remove 30% to 40% of the spurs on a tree. Growth resulting from these cuts will develop spurs with flower buds in 2000 and those spurs will bloom in 2001.

*Like the sweet apple which reddens upon the topmost bough*

*A-top the topmost twig, — which the pluckers forgot, somehow —*

*Dante Gabriel Rossetti*

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## APPLE MAGGOT SURVEY

Seattle Tree Fruit Society sent out a survey with their renewal notices mailed last November to January. In the May, 1999 issue of their newsletter, The Urban Scion Post, these results were published:

Responses were received from 42 sites (thank you, thank you!), from Bellingham to Puyallup, and from Gold Bar to Sequim. Responses were tabulated by zip code and here are the results:

**Q** Did you have AMF damage in 1998?

Half reported damage. Some areas like Camano Island have avoided AMF so far, but it showed up for the first time last year at a Vashon Island site. Its distribution in urban areas like Seattle and the Eastside is spotty, with some sites very infested and others in the same zip code reporting no damage.

**Q** If you did have AMF damage, which varieties were hit the hardest? Which were hit the least?

Varieties most damaged and varieties least damaged overlapped somewhat. AMF do prefer some apples over others and the palette offered at each site will affect the relative susceptibility.

Of the 20 varieties listed as hit the hardest, Akane, Bramley's Seedling, Jonagold, Karmine, King, Melrose and Spartan were mentioned more than once. Of the 18 varieties listed as hit the least, Yellow Transparent was the champ (not even codling moth seem to like them). But Jonagold, King and Melrose made this list too, as well as Liberty.

**Q** Did you put up any AMF traps? Did you spray for AMF?

Only 4 of the 42 sites used traps and only 7 sites sprayed. Only one of the 7 folks who sprayed deployed traps to tell them when (or if) to spray. Three of the sites which sprayed reported virtually no damage from either AMF or codling moth; others were less satisfied. Those who used Imidan were more satisfied than those who used diazinon.

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Apple germplasm from Asia's disappearing apple forests is being preserved at the U.S. Department of Agriculture's Plant Genetic Resources Unit at Geneva, New York. The unit's staff have made expeditions to the apple forests of Kazakhstan, where apples are believed to have originated to look for material that may have disease resistance or horticultural value that could be useful in breeding apples for the future. Representatives of other apple-producing countries, such as South Africa, New Zealand, and Australia, are doing likewise.

Dr. Jim McPherson, associate professor with the horticultural sciences department at Geneva, said the forests in Kazakhstan have been depleted by 90% since 1935 because of degradation by animals, erosion, and development. People have been cutting apple trees down for firewood. McPherson said the apple forests are no longer being protected, and the genetic base is being lost.

The unit's staff are planning expeditions to other areas where wild apples grow, including Chinas Sichuan

### Comments?

Comments ranged from grumblings about codling moth damage to an observation that two large bald faced hornet nests may have helped keep apple pests in check. (Bald faced hornets and yellow jackets are fierce predators of caterpillars; maybe they like apple maggots too!)

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Some personal comments--with Orel Vallen's guidance we (the Tilbury's) started trapping AMF at our SE Seattle site in 1994. That first year only 7 flies were caught. By 1998 the number trapped was up to 2,275, BUT with the exception of one tree (Ginger Gold) which bore the first time last year and was "undertrapped," we had no maggoted fruit. We don't spray either and join the others grumbling about codling moth.

Among our trees anything with Cox's Orange Pippin parentage seems attractive to AMF. This means our Cox, Holstein and Karmijn need lots of traps. We put up one trap for about every 50 fruit in these trees. Maybe the Ginger Gold should get this many too. Jonagold, Melrose and most others get one trap for 100 fruit. We pick up all fallen fruit and remove it daily the once a week may be good enough.

Whether you spray or rely on traps to control AMF this year, put a few traps up in vulnerable trees by June 1. After a total of 2 or 3 AMF are trapped, it's time to install the rest of the traps in all your trees or start a spray program.

WCFS Editor's Note: The survey on page 26 has been revised this month to include the survey conducted by STFS. I hope that all of you will respond. If you are a STFS member and responded to their survey, please respond to this one so we can get a good picture of apple maggot fly occurrence in western Washington.

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Province, where up to 20 different species of apples still grow in reserves and native forests.

The unit collects, maintains, and documents germplasm from apples, grapes, and sour cherries, and distributes material to public and private organizations. Material is usually brought into the country as seeds, as scion wood must be put through quarantine.

Apples have been maintained in field plantings, but researchers at the National Seed Storage Laboratory in Colorado have developed ways to preserve material as dormant buds in liquid nitrogen to increase the security of the collection. It is also cheaper than maintaining field-grown plants.

Staff in Geneva have begun to characterize the collection and develop a database. Through genetic fingerprinting, they are identifying and eliminating duplicates, and are avoiding acquiring plants that are unlikely to be useful.

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## DEATH SPHERES FOR APPLE MAGGOT FLY

by Richard Jones  
Fruit Grower, April 1999

As the first round of decisions under the Food Quality Protection Act (FQPA) draws nearer, the prospect of losing the use of organophosphates, (OP) for apple maggot fly control has many growers worried. Ronald Prokopy, entomologist, University of Massachusetts (UMass), says growers typically use three OP sprays in July and August to control this pest. If FQPA comes along and says we can't use OPs later than 60 days before harvest any more, what are we going to do?" he asks. "There isn't anything else out there that we can count on to control apple maggot fly."

UMass researchers, however, are working on an alternative control: biodegradable, insecticide-coated spheres that lure and kill the flies before they can lay their eggs.

### On The Right Track

Efforts to control apple maggot fly with techniques other than pesticide sprays have been ongoing for 25 years. Biological controls are not realistic, due to the very low acceptable injury rate for apples — only 0.5% to 1.0%. plant resistance is not a viable alternative either, says Prokopy.

Traps, on the other hand, have proven to be a possible option. Sticky-coated red spheres that mimic the appearance of ripe apples have been used commercially to trap apple maggot flies. Up to 99% control of the pest has been achieved by baiting the spheres with a synthetic apple odor and placing them on trees around the perimeter of the orchard block. This success, however, has been offset by the fact that the traps are very messy to handle as well as extremely labor intensive—they must be cleaned of accumulated flies and debris every two weeks.

Encouraged by the positive aspects of the sticky spheres, researchers J.J. Duan, X.P. HU, and S.E. Wright began to search for an affordable, effective, and easier-to-use alternative. Early efforts with reusable, insecticide-coated wooden or plastic spheres showed promise. These reusable spheres were covered with a mixture of red latex paint so a sugar feeding stimulant was added as well. This system proved to be problematic in the field, however, as rain simply washed away much of the sugar, rendering the spheres much less effective

Researchers in Prokopy's lab next tried a biodegradable sphere made of sugar, flour, water, and glycerin —this time coated with red paint containing a small amount of imidacloprid and baited with the synthetic apple odor. Tests showed that the biodegradable spheres were nearly as effective as sprays and the sticky spheres, and performed much better than the reusable spheres. Flies are attracted to the traps by the color and odor. They land on the devices and feed, then die in a short period of time, before having a chance to lay their eggs. The new spheres retained enough sugar to stimulate fly feeding, even after 10 inches of rainfall. The spheres also completely biodegrade during the winter, leaving only the hanging apparatus in the

tree.

Unfortunately, field tests showed that while the biodegradable spheres were very attractive to apple maggot flies, they also looked fairly tasty to birds and rodents. This problem was solved by adding a hot pepper ingredient and painting the spheres black instead of red. Rodents are deterred by the pepper, and the black color while still drawing the flies --does not attract birds.

The biodegradable spheres are more effective under some circumstances than others. Tree size is important, "The spheres work better on smaller trees," says Prokopy. "They may be more suited to dwarf rootstocks."

Fruit variety also has an impact. Certain cultivars — Gala and Red Delicious, for example—produce an odor that is very similar to that of the flies' natural host, fruit of hawthorn, and may "override" the flies' attraction to the traps.

"We hope we can make up for that problem with better trap deployment," says Prokopy. This season, researchers in Prokopy's lab plan to use the same number of traps per acre as in previous years. The traps will be grouped in a smaller number of trees around the perimeter of the block, however, rather than placing one in each tree. "We're trying to generate better competition with natural stimuli, and hope to draw flies from far enough away that they won't enter the orchard between the trapped trees," he says.

### Avoiding OPs Affordably

Apple maggot flies typically do not emerge until the end of June, and from that point on it is really the only troublesome apple-attacking insect. "That's why this makes a lot of sense for some of us in IPM. Let's go after the late season pests first, because this is where your biggest crunch in terms of OPs is going to lie," says Prokopy.

Prokopy expects that growers will continue to use OPs early in the season against pests such as plum curculio, for example, but no later spraying may be necessary. "Many growers in New England who use these spheres should not need to spray insecticide after mid-June," he says.

As effective as they appear to be against apple maggot fly, the spheres will likely not be beneficial in battling other pests, "This technique draws upon a very powerful visual attraction by apple maggot flies and their relatives," he says Unfortunately, all pests are different — what works well for one may not work at all for others "We have to study each pest intensively to see what turns them on and turns them off," he says. "Then we

have to play upon those stimuli."

Comparing the cost of using the biodegradable spheres to the cost of spraying is difficult because so many factors enter into the equation, says Prokopy. He hopes, however, that a grower's cost to use the spheres will be around \$50 per acre "That's pretty competitive with three Guthion sprays," he says. "When you consider everything, this may be the cheapest alternative to spraying"

The biodegradable spheres are not yet available to growers. Imidacloprid still must receive EPA registration for use on the traps, and a commercial partner for producing spheres needs to be arranged. Prokopy is optimistic that they will be on the market within the next couple of years, although he says they should not be rushed out before they are ready. This summer's testing will be key.

**Dick Tilbury sent the above article with these comments:**

Footnote: information in the preceding article is a summary of more detailed information contained in two U Mass reports: (1) 21st Annual March Message to Massachusetts Tree Fruit Growers (1999) by Ronald Prokopy and Starker Wright, Dept. of Entomology, University of Massachusetts, 32 pages, and (2) FQPA and PTS: Implications for Apple Maggot Control by Ronald Prokopy, Starker Wright and Xingping Hu, Dept. of Entomology, U Mass., 14 pages.

We do not have access to the web but suspect that much of the above information may be available on their site at [http://www.umass.edu/umext/programs/agro/tree\\_fruit/](http://www.umass.edu/umext/programs/agro/tree_fruit/). Questions about the system should be referred to Wes Autio, (autio@pssci.umass.edu).

Some background on apple pest problems in New England: their worst insect pest is plum curculio, a small weevil which in the last 20 or so years has come to prefer apples (thankfully, we don't have it, yet). It flies into orchards from about peak bloom to petal fall. The female makes a cres-

### NEW BLACKBERRY VARIETY YIELDS MONSTER BERRIES

The new Kiowa blackberry may be just the fruit for people who love blackberries but hate having to pick so many to make a cobbler, said a University of Georgia (UGA) expert.

"This berry is a real size break-through," said Gerard Krewer, a horticulturist with the UGA College of Agricultural and Environmental Sciences. "Kiowa berries weigh about 10 grams each, and are bigger than a quarter. Most other varieties are five to six grams each - about dime sized."

Kiowa is one of several new varieties of erect blackberries. Growers prune these types into a hedge row without using a trellis.

"We recommend growers prune these types several times in the summer," Krewer said. These prunings result in a thick hedge of blackberries with the fruit on the outside of the bush and away from the thorns.

Developed blackberry plants are less ferocious than the wild types found in woods or fields. Krewer said black-

berries are, essentially, weeds. "And you have to manage them as such," he said. "You have to keep them pruned and the row middles mowed, or they can take over your yard or garden quickly."

Kiowa has several characteristics that make it a great blackberry for Georgia. UA scientist James N. Moore developed it at the Hope, Ark. experiment station, which is at about the same latitude as Griffin, Ga.

From The Fruit Growers News, June 1999

Editor's note: Wonder how these would do in our area? Has anyone tried them?

## THE GRAFTERS JACKET

by Arthur Brotheridge  
Fruit News, Spring 1999

The Magazine of the Friends of Brogdale

All grafters appreciate the need for a sharp knife, good secateurs, a saw, and material to wrap, grease if necessary, and label a graft. An item, I consider of equal importance is something to hold these items, where they are safe, while quickly and easily accessible.

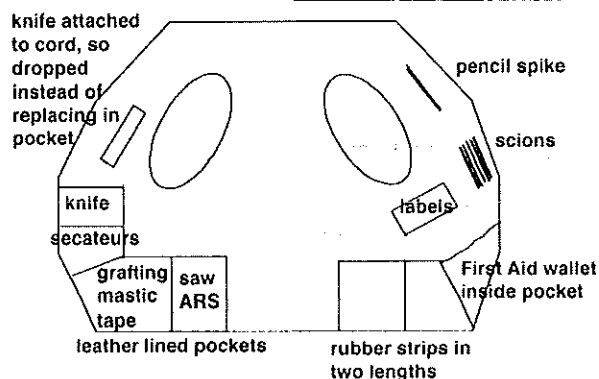
I have used, or seen in use, bags, buckets, baskets and boxes to hold equipment, and one or other of these is still useful when dealing with large numbers of scions. For small jobs, jacket or trouser pockets, or a carpenter's nail pouch is often used, but in the latter case this means that a sharp knife is mixed in with secateurs, wrapping material etc, with the possibility of cuts to the hand.

Some time ago, I felt that there had to be a better way. First, I made a canvas apron, similar to the leather aprons used for hundreds of years by head gardeners. This was an improvement but not the perfect solution. Next, the second of two jackets was developed, but only after about 40 trips to a workshop and sewing room for alterations, additions and refinements. Finally we arrived at a workable jacket, and also one specifically tailored for a left hander.

It is ideally suited to interests of making lots of different grafts on my own dwarf trees, a few grafts for friends, and instruction and demonstration at field days and festivals. I am satisfied that it speeds up the operation of grafting considerably.

Over the years, I have refined and improvised a number of pieces of grafting equipment. When I mislaid my knife, I made another, using Sheffield cast steel of a sheep shearing blade, broken and discarded perhaps a hundred years ago. Rolcut secateurs are superior for my purpose to my Felco pair, as confirmed by Raymond Bush in his Tree Fruit Growing, but also because they are "slimline", like the other

items I carry in the jacket. My grafting wax is stored in an old flat cigarette tin. Labels are made from painted aluminium Venetian blind and attached with plastic covered wire. These are scratched on one side with a sharp spike and a marking pencil on the other; they last for years. Strips of old bicycle inner tube are, in my opinion, superior to plastic tape for binding the graft, eliminate the need for mastic and produce good success rates.



Arthur Brotheridge gardens in Devonport, Tasmania

## A NEW APRICOT VARIETY

A new variety of apricot called Lorna produces large, sweet-tasting fruit for the early season. Lorna is the newest apricot from fruit breeders with the U. S. Department of Agriculture's Agricultural Research Service (ARS) in Fresno, California.

Geneticist Craig Ledbetter of the ARS Horticultural Crops Research Laboratory in Fresno, supervised the testing of about 1,000 trees during the last seven years before releasing the new apricot variety.

Ledbetter plans to provide Lorna cuttings to researchers and nursery operators in 1999. Lorna is suitable for backyard gardens as well as commercial production.

In California, Lorna apricots ripen in mid to late May, just after Castlebrite, the first commercial apricot of the season. But Lorna apricots are typically twice as big as Castlebrite fruit.

Lorna trees have only been tested in California, but Ledbetter believes they can probably be grown in other apricot-producing regions like Oregon, Washington and Utah. Like most other commercial apricot varieties, Lorna is self pollinating.

Lorna fruit may crack if rains hit an orchard just before harvest, or if the trees are accidentally over irrigated. Growers are advised to take extra care with scheduling irrigation near harvest time.

**RECIPE PAGE**  
**CONTRIBUTIONS WELCOME!**

Good Fruit Grower would like to publish your favorite fruit recipes. Also, they may produce a cookbook by compiling those recipes. If you wish, please include a brief story or anecdote about your recipe. Any categories are welcome (main dish, vegetables, salads, desserts, etc.).

Mail your recipes to:

Good Fruit Grower  
105 S18th Street, Suite 217, Yakima, WA 98901-2149;  
fax to 509-453-4880; e-mail to growing~goodfruit. com;  
check their Web site: www. goodfruit. com/ckbook.

**TWO FOR THE PRICE OF ONE**

Fruit vinegars are very fashionable at the moment and some supermarkets, as well as specialist stores, have quite a range. I like using fruit vinegar as a dressing with salads, but felt that making my own was an extravagant use of soft fruit until I hit upon the notion of using the fruit afterwards to make chutney. Here is my recipe using raspberries or redcurrants and I would think blackcurrants would also make a good vinegar, although I have not tried it yet. For a milder vinegar substitute wine or cider vinegar for the malt vinegar. I use a recipe taken from 500 Recipes, Jams, Pickles, Chutneys by Marguerite Patten, but the chutney is my own.

**Fruit vinegar**

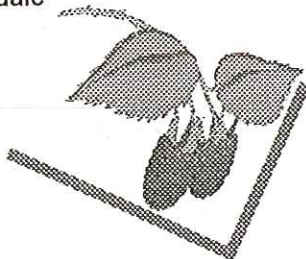
1. Allow 1 pt white malt vinegar to each 1 lb of soft fruit.
2. Add the vinegar to the fruit.
3. Leave for 3 - 5 days - stirring/shaking occasionally.
4. Strain off liquid.
5. Add 8 oz - 1 lb sugar to each pint, depending on personal taste.
6. Boil for 10 mins and bottle.

**Fruit Chutney**

For each 1 lb of fruit from vinegar (raspberries and redcurrants can be mixed 8 oz shallots (peeled, chopped); 8 oz apples (peeled, chopped); 6 oz sugar 2-4 tbs. white wine vinegar (perhaps a little more if fruit begins to stick ) 1. Simmer the fruit for about 5 mins.

2. Add shallots and simmer for a further 2 mins.
3. Add apples and cook for a further 5 - 8 mins.
4. Add sugar and cook for a further 5-10 mins until chutney is thick.
5. Bottle and store in the usual way.

Sue White gardens in Beckenham, Kent  
Published in Fruit News Spring 1999  
Magazine of the Friends of Brogdale



**Best-ever Cherry Oatmeal Cookies**

- 1 cup dried cherries, chopped
- 1-1/2 cups brown sugar, packed
- 1/2 cup granulated sugar
- 3/4 cup vegetable shortening
- 2 large eggs
- 1-1/2 teaspoons vanilla extract
- 1-1/2 tablespoons grated orange peel
- 1-3/4 cups all-purpose flour
- 3/4 teaspoon baking soda
- 3/4 teaspoon cinnamon
- 1/2 teaspoon salt
- 3 cups rolled oats
- 1/4 cup hot water



Preheat oven to 350°F Soak cherries in water at least 10 minutes, drain well, and set aside. In large mixing bowl, beat together sugars and shortening until light and fluffy. Beat in eggs, vanilla, and orange peel. Combine flour, baking soda, cinnamon, salt, and rolled oats. Stir half into the sugar mixture, beating well. Add hot water and remaining flour-oat mixture. Mix in drained, chopped cherries. Drop by rounded teaspoons onto greased baking sheets. Bake for 12 to 15 minutes, or until edges are golden brown. Makes about 3 dozen 3-1/2-inch cookies.

**Pam and Guy Auld, Chukar Cherries**  
Prosser, Washington  
published in Good Fruit Grower

**Shredded Dried Apples**

Shred any snacking apple with a grater. Place in thin layers on cheesecloth (to help keep the juice from dripping) in dehydrator. Dry for approximately 16 to 18 hours. They dry very fast, keep checking them until they are the right consistency (like well-browned hash-brown potatoes).



Break into snack-size portions and take them along anywhere! They are a great natural, sugar-free treat. Any snacking apple works fine, we've tried Golden's, Reds, Jonagolds.

**Jesse and Margaret Heath Ephrata, Washington**  
published in Good Fruit Grower

## BORON PRODUCTS FOR FOLIAR SPRAYS: 1999 UPDATE

by Frank J. Peryea, Ph.D.

Washington State orchard soils are naturally low in the micronutrient boron. If boron fertilizer is not applied at least on an occasional basis, boron deficiency symptoms will eventually appear on fruit trees. Washington State University (WSU) recommends that boron maintenance sprays be applied every year to prevent development of boron deficiency.

Specific guidelines for foliar sprays of boron and other nutrients are provided in the 1999 Crop Protection Guide for Tree Fruits in Washington, available from the WSU Cooperative Extension Service, or electronically on the Internet at <[www.tfrec.wsu.edu/Horticulture/nutspray.html](http://www.tfrec.wsu.edu/Horticulture/nutspray.html)>.

Last year, I published an article in the *Good Fruit Grower* describing in detail the criteria for choosing the optimal boron product for foliar sprays in Washington tree fruit orchards (Vol. 49, No. 8, pages 41,43-44, April 15, 1998, issue). The article, "Boron products for foliar spray applications," can be accessed through the search engine at the *Good Fruit Grower* Web site at <[www.goodfruit.com](http://www.goodfruit.com)>. During the 1998 field season, I conducted several experiments to fill in gaps in the information.

These experiments included field evaluation of the phytoavailability of boron in Albion Liquid Boron (Albion, Clearfield, UT) and in a new boric acidbased product called B-17 (Nutrient Technologies, La Habra, CA). The Albion Liquid Boron was tested at the label rate of 12 fluid ounces per acre as well as the WSO maintenance rate of 0.5 pound actual boron per acre. The B-17 was tested at the WSU maintenance rate, which is also the label rate.

I also conducted a laboratory study examining the effect that ten different boron products had on spray water pH, using three water sources and boron concentrations ranging from zero to four pounds actual boron per 100 gallons. This boron concentration range covers the full spectrum likely to be used in Washington orchards.

In addition, I consulted with the Washington State De-

partment of Agriculture Organic Certification Program to determine which boron products are acceptable for use in organic orchards.

Table 1 summarizes the properties and performance of all of the tested boron products.

Apple tree uptake of boron from the sprays was the same for all of the products when they were applied at equivalent rates of actual boron. The initial form of boron in the product, liquid versus solid physical state, and presence of additives had no differential effect on boron uptake.

Many of the products comply with standards for use in organic orchards. Others do not because they contain nitrogen compounds or surfactants that do not meet the organic standards.

The influence of the boron products on spray water pH ranged from no effect to substantial increase. Boron products that increase spray water pH will require use of acidifiers if they are to be tank-mixed with pesticides and growth regulators that are inactivated by high pH. The pH of the spray water-boron product mixture should be checked and adjusted to the desired value before adding any pH-sensitive components.

The boron products vary considerably in cost per pound of actual boron. Check with your fertilizer dealer to obtain current prices for comparison.

Washington growers now have a wide selection of boron spray products from which to choose. All of the tested products performed well at delivering boron to the tree; hence, growers can base their choice on secondary characteristics of the products, such as availability from the dealer, organic compliance, effect on spray water pH, cost, and handling characteristics. At least one of the products should have the right combination of features to satisfy any grower's particular needs.

Properties and performance of commonly available boron spray products, 1999.

Product name	Physical form	%B (W/W)	Form of B	Organic compliance	Plant uptake	Increase in spray water pH	Cost per lb. B	Comments
B-17	pink crystals	17.0	BA	yes	good	none	low	Flows easily; may foam in spray tank
Mor-Bor 17	greenish crystals	17.3	BA	no	good	none	low	Flows easily; foams in spray tank
Spray-Bor	white powder	16.5	NaB	yes	good	moderate	low	Contains acidifier; may cake in bag
Solubor	white powder	20.5	NaB	yes	good	high	very low	May cake in bag
Solubor DF	white powder	17.4	NaB	yes	good	high	n/a	Flows easily
Albion Liquid B	pale blue liquid	5.0	NaB	yes	good	high	high	Viscous, slick).
Liquibor	pink liquid	2.5	BA, NaB	no	good	high	high	May foam in spray tank
Borosol 10	yellow liquid	10.0	BA	no	good	very high	moderate	Viscous; contains some N
N-Boron	dark blue liquid	5.4	BA	no	good	very high	n/a	Contains 4.5% N

**Form of B** indicates compound used in formulating the product: BA=Boric Acid; NaB=sodium polyborates. **Organic compliance** indicates compliance with standards established by the Washington State Dept of Agriculture Organic Food Program. **Plant uptake** summarizes relative B uptake by apple trees from sprays supplying 0.5 lb. actual B per acre and applied at the pink stage of blossom development. **Increase in spray water pH** details the relative solution pH increase resulting from adding the product to spray water. The efficiency of many tanks-mixed pesticides and growth regulators is reduced when spray tank pH is high (alkaline). **Cost per lb. B** indicates relative price. The coding n/a indicates that the B product is not readily available from orchard product warehouses in central Washington.





## GREENHOUSE RASPBERRY PEST CONTROL A DELICATE OPERATION

Pollination of greenhouse grown raspberries by bumblebees necessitates the use of a pesticide-free pest management program



What do you do for insect pest control on a crop which is new, where nothing is registered, and upon which pollinator protection is critical?

That's the situation that Cornell researchers find themselves with working out a winter production system for greenhouse raspberries. John Sanderson, associate professor in the Department of Entomology at Cornell, is leading the fight against the insect invasions. He reported his findings at the Greenhouse Raspberry Production Workshop held at Cornell in March.

The need for protecting the bumblebee pollinators is a very real constraint in an insect pest management system for greenhouse raspberries. All materials must be safe for the bumblebees, which leads one to using biological controls. This reliance on biological controls means a high level of management is needed, but it can also be a superb marketing niche.

Of course, the first job for Sanderson was to determine just which insect pests are problems in greenhouse raspberry production. Some insects which he thought may be problems, like western flower thrips, have not been so. Others, like black vine weevil, were a surprise.

Spider mites have proven themselves to be among the worst pests. Since the plants are grown outside during the summer, the canes can be infested outside. The solution for this type of infestation is to treat the canes with dormant oil when they are first moved inside.

Once the canes are growing, the spider mites tend to be found first in mid-canopy. Sanderson used predaceous mites which are commercially available, to control these outbreaks. Weekly preventive releases do not yet appear to be cost effective, which emphasizes the importance of the dormant oil applications when canes are first brought in to the greenhouse.

Sanderson's experience with the weekly releases also made him strongly suggest using two suppliers to ensure that the shipment of predaceous mites is received. They had one week when they did not receive their shipment and quickly wound up with a serious outbreak of spider mites. The outbreak was severe enough that they had to use a rescue treatment of JMS stylet oil to get the mites back to a manageable population. Sanderson strongly emphasized that JMS stylet oil is not currently registered for greenhouse raspberry production.

The surprise pest in the production system was black vine weevil, also known as taxus weevil. These insects infested the raspberries when they were grown outside and emerged from the soil four to six weeks after the plants were moved into the greenhouse. The larvae feed on the root hairs of the raspberries and the adults feed on the leaves, flowers and fruit.

They were a serious pest, and Sanderson strongly urged prevention as the best treatment. The adult weevils are only able to crawl so the raspberries should be grown in weevil-free areas. Avoid growing the plants near *Taxus* species and use barriers to prevent the weevils from crawling into the pots.

If weevils do make it into the greenhouse, several labor-intensive options are available. The adults hide in leaf folds and fruit clusters during the day so "beat sheets" can be used to collect the weevils after knocking them off the plants. Burlap plant collars can be used as traps. Infested plants should be re-potted as soon as an infestation is found.

The easiest way to monitor for this insect is to look for notched leaves and the emergence holes in the soil. Sanderson is investigating the possibility of using cryolite bait, applied prior to adult emergence, as a control option. As with other possible materials, it is not registered for use on greenhouse raspberry.

Aphids, a standard greenhouse pest have to date only proven to be a problem on black raspberry production in the Cornell project. However, a grower attending the workshop has had serious problems with aphids on red raspberries he is growing in the greenhouse. Commercially available parasitoids may be a control option and, if stylet oil can be registered for spider mites, it may also be effective against aphids.

Other insects infesting the raspberries included sawflies and spittlebugs. As with many of the other insects, the plants were infested when they were grown outside. However, these insects never built up to damaging levels.

In addition to the stylet oil and cryolite bait that Sanderson is investigating for possible registration on greenhouse raspberries he will be researching the use of Cinnamite (cinnamic aldehyde) for the control of spider mites and aphids. It has both contact and fumigant activity but has possible phytotoxicity problems. Sanderson would like to fine-tune the spider mite biological system to make it more economically feasible and come up with more control measures for the black vine weevil.

Any way you look at it, winter greenhouse raspberry production that is safe for bumblebees, and for workers, is a goal that should be attainable in the not too distant future.

*The above article by Dale Riggs appeared in the June 1999 issue of The Fruit Growers News*

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if it is highlighted in **YELLOW** your dues are payable before the next newsletter

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

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

**NEXT NEWSLETTER OCTOBER 1999**

## WE WANT TO HEAR FROM YOU

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

Q 1 Did you have apple maggot damage last season? No \_\_\_\_\_ Yes \_\_\_\_\_

Q 2 If so which varieties were the hardest hit? #1 being most affected \_\_\_\_\_

\_\_\_\_\_

Q 3 Which varieties were least hit? #1 being least affected \_\_\_\_\_

\_\_\_\_\_

Q 4 Did you put up any apple maggot traps? \_\_\_\_\_

Q 5 Did you spray for apple maggot? \_\_\_\_\_ Q 6 What did you use? \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

### WESTERN CASCADE FRUIT SOCIETY MEMBERSHIP INFORMATION

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

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_____ North Olympic	\$15.00	(includes monthly newsletter)	
_____ Peninsula-Kitsap	\$15.00	_____ Tahoma	\$15.00
_____ Piper Orchard	\$15.00		
_____ Donation for Western Washington fruit research at Mt. Vernon			

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

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SPRING 1999  
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British Columbia Fruit Testers Association  
California Rare Fruit Group  
Good Fruit Grower  
Home Orchard Society  
North American Fruit Explorers  
Brogdale (within uktravelguide)

<http://www.wcfs.org>  
<http://www.islandnet.com/~bcfta/>  
<http://www.crfg.org/>  
<http://www.goodfruit.com>  
<http://www.wvi.com/~dough/HOS/HOS1.html>  
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