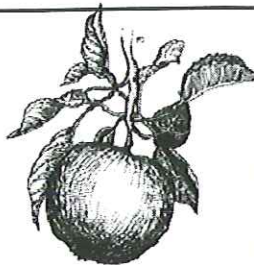


# the Bee Line



Volume 25

Summer 2005

Newsletter of the Western Cascade Fruit Society

## Control of Apple Maggot and Codling Moth is WCFS Priority

by Mark Lee, editor

**E**ducating the public on the control of two insect pests has become a high priority of Western Cascade Fruit Society. Codling moths and apple maggots are a big problem now in the Puget Sound area, and the problem is getting bigger each year as they spread to previously unaffected trees. The backyard grower is impacted by these pests, and so are commercial growers, and this affects the economy of the state.

Anyone planting a fruit tree is providing a potential host for both codling moth and apple maggot. As good members of the community, it is our responsibility to help stop the spread of these pests through education of the general public.

In educating the public and ourselves about codling moth and apple maggot, some of the topics we need to cover are warning signs of their arrival, life cycles of the pests, and how to control them. Before getting into these details, let's have a little history lesson.


First to arrive in our area was the codling moth, as told in the Pacific Northwest Garden History by Kathy Mendelson. "When Oregon Trail emigrants began planting fruit trees in the Willamette Valley in the 1840s and 1850s, they discovered that it was so easy to grow perfect apples that the region became known as the *Land of the Big Red Apple*. The area had many things going for it. The land was rich. The weather was suitable. And perhaps most remarkably, there were no pests or diseases. No codling

moths to drill worm-holes into the apples. No rosy apple aphids to suck the life out of the trees. No apple maggots, ermine moths, or any of the other evil-doers. Unlucky growers might be hit by a late frost, or try trees on a bad site, but most had healthy trees that produced perfect fruit without much fuss.

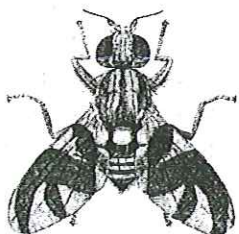
"Unfortunately, those good old days are long gone. Codling moths arrived in Washington in the 1880s, probably catching a ride in an apple that nobody knew was infected. By then, it was a well-known pest elsewhere. Originally found in southeast Europe, codling moths arrived in the U.S. by the 1750s. A hundred years later, they'd

(Continued on page 2)

**WANTED**



**CODLING MOTH**  
A.K.A. CYDIA POMONELLA



**APPLE MAGGOT**  
A.K.A. RHAGOLETIS POMONELLA

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The BeeLine is a quarterly publication of the Western Cascade Fruit Society, a non-profit 501(c)3 corporation in the State of Washington.

**WCFS focuses on codling moth and apple maggot** *(continued from page 1)*

made it west to Ohio, which was a big apple-growing area. From there, it was a short hop to Washington, especially if they caught a ride on the railroad. Once they arrived, there was plenty of habitat, since the region had lots of old, abandoned apple trees. There was virtually nothing to slow them down, until it was too late."

The apple maggot is a more recent arrival to our area. It is a native insect of North America and has historically been a pest of apples in the northeastern United States and eastern Canada. In 1979, the apple maggot was first discovered in the Pacific Northwest in the Portland, Oregon area. Since then, apple maggot adults have been found in most western Washington counties. To date, neither apple maggot flies, maggots, nor fruit damaged by them have been detected in commercial orchards in Washington state.

**How can you tell if you have codling moths or apple maggots?**

Besides the use of traps and nets, the only way to tell you have these pests is by the damage done to fruits. Cutting the apples in half will tell you if the apples are rotten or not.

If you find maggots or worms, look for the presence of legs. Codling moth worms have a distinct brown-colored head, and several pairs of legs. Apple maggots are leg-less, cream-colored cylindrical-shaped, and with a blunt posterior and a tapered front end that contains two black mouth hooks.

If maggots or worms are not found, the flesh of the fruit damaged by apple maggot has a mushy, brown appearance, while the apple core is left untouched. In contrast, codling moth worms tunnel and reach the apple core, where they feed actively, leaving frass.

**What are the life cycles of the codling moth and apple maggot?**

The adult codling moth is gray with brown markings, giving them excellent camouflage against the bark of the trees. It has a wingspan of about 3/4 in.. The 3/4-in. larva is pinkish with a brown head. There are several generations a year; the early eggs are deposited on leaves, and the later ones directly on the developing fruit. A female codling moth can lay over 100 eggs. A codling moth larva has the ability to find a fruit and enter it within a few hours. The larvae feed inside the fruit and pupate on the bark of the tree. Over-wintering as fully grown larvae either on the bark of the trees or

on the ground near them, the larvae pupate in the early spring and emerge in early May as adult moths from the pupal sacs.

Egg laying takes place when temperatures at twilight are above 59°F. Codling moth growth from egg to adult requires a minimum daily temperature of 52°F. The growth and development rates increase above 52°F until the average daily temperature is 86°F. Temperature above this level will retard growth.

The rate of development in these stages increases more or less linearly with temperature but decreases gradually after developmental rate reaches a maximum (88°F for the egg, 84°F for the larva and 86°F for the pupa). Above these temperatures, mortality increases and at 100°F survival is very low. Exposure to temperature below 50°F, the lower physiological threshold, arrests development but is not lethal unless freezing occurs. Hibernating larvae are cold resistant and can survive temperature below -4°F. The lowest temperature tolerated by codling moths is around -24°F.

Female apple maggot flies deposit eggs singly just below the skin of an apple or other host fruit. When the female lays an egg, a small but visible puncture is made in the fruit which can lead to "dimpling." Eggs are elongate 1/16 inch curved, smooth, and white. Depending on temperatures, the eggs hatch after a 3-7 day incubation period. The tiny cream-colored larvae (maggots) feed in the fruit, passing through three growth stages. Maggots are about 3/8 inch long.

The apple maggot larvae crawl down the trunk like the codling moth caterpillars do. They stay in the apple and simply wait for it to fall, then burrow into the soil and pupate. They spend the rest of the winter in the ground, emerging as adults from July through September. The adults must feed for a period of 7-10 days in order to reach sexual maturity. After this period, they are attracted to fruit, where they mate and the females lay eggs. There is one generation per year. The apple maggot fly is about 1/4-3/8 inches long, with a black abdomen. Females have four white bands on the abdomen. The smaller males have three bands. The wings are clear but are marked with black bands.

**How can these pests be controlled?**

Read the article by Judi Stewart starting on page 14 for a lists of strategies the home owner can use for controlling codling moth and apple maggot.



## Message from the President

by Judi Stewart, WCFS President

Greetings fellow members, It's May and we have an early "summer." Seems like summer sidled in a few weeks ago. As I write this message, the daytime temperatures are comfortable enough to work outdoors in short sleeves and the evening thermometer reading is perfect for sleeping. Though I usually plant the tomatoes the first week in June, I've been rushing to dig the holes, put in the stakes and arrange the drip system. The orchard is already being watered, especially the cherries, and I'm wondering if I ordered enough bark mulch after considering all the early reports of severe draught for our area. The facts indicate that we're headed towards a continuing warming trend. Makes me wonder about the long-term ramifications of water shortages looming in our future. All the reports show our climate is changing and we must decide how to deal with the inevitable consequences. We must plan or someone will plan for us.

The May 1st issue of Good Fruit Grower lists strategies to help in draught situations. This issue also has an article about peach rootstocks, specifically the Krymsk 1 also known as VVA-1. The article states that, "VVA-1, a semi-dwarfing rootstock that's less than one-third the size of Lovell, is one to watch. Thus far, it has had the highest yield efficiency of all rootstocks and produces some of the largest fruit as well." The rootstock is used for plum, peach, apricot and nectarine. It goes on to say, "VVA-1 is the early winner..." This is the same rootstock WCFS made available to members earlier this year. I hope those of you who grafted with Krymsk 1 will let us know how it performs. We anticipate that we'll be able to offer rootstock to members in our next BeeLine.

On the subject of grafting, I'd like to let you know about a fortuitous accident. NOFC members were grafting a few weeks ago and ran short of pots for some of the remaining rootstocks. Several of the remaining rootstocks were lacking a sufficient number of roots and looked skimpy or slim. We would normally decide to grow these pieces out for another year before grafting. As luck would have it, these were ultimately grafted and Karen Page, NOFC president, said she'd take these grafts home to pot up. Well they sat in the bucket for six days before Karen was able to pot them. When she

was about to, she noticed all the rootstocks had many more roots than just the few days earlier. Not only did they have more and new roots but the scions had pushed and were budding out. The grafted trees that we potted just six days before did not exhibit this amount of growth. What happened? NOFC uses mycorrhizae on all grafted rootstock. For six days the grafted rootstocks were sitting in a solution of water and mycorrhizal gel! NOFC will now conduct a controlled experiment in order to reproduce and test this discovery and report on the findings. If you have an interesting tidbit, news or piece of information, please share it with us. I'm sure we'd all like to hear about it.

Speaking of news...we have welcome news from Vashon Island. We take pleasure in announcing that the members of Vashon Island Fruit Club voted to join Western Cascade Fruit Society as of this fall or earlier if possible. There are already several members of Seattle Tree Fruit Society who are also members of Vashon Island Fruit Club. Western Cascade will also be re-invigorating the former membership roster from the South Puget Sound Chapter. If anyone from the former chapter or from the Olympia area is interested in being a part of a new WCFS chapter, please get in touch with me. I'd also like to remind you that any member of any Western Cascade Fruit Society chapter may join or affiliate with any other chapter(s). In addition, if any member is interested in any other chapter's program, by all means, please attend their meeting. Meetings, programs and events are listed on our website. You'll find the information at [www.wcfs.org](http://www.wcfs.org) under events. Our meetings are free and open to the public.

For anyone interested in a short vacation to California, five northern California chapters of California Rare Fruit Growers are planning their 2005 Festival of Fruit in conjunction with the 2005 Annual NAFEX Conference. This meeting will be held in Santa Cruz from September 7th through the 11th. The WSU Northwest Washington (formerly known as Mt. Vernon) Research and Extension Center will hold its cherry harvest event in July. The exact date will be posted on our website.

Wishing you an abundant summer fruit harvest.  
Sincerely,

*Judi Stewart*

**News from Vashon Island Fruit Club**

**A**s a club we are excited after our vote to join WCFS. The unanimous vote was recorded on April 12, 2005 at our membership's quarterly meeting.

We are a young club born in May of 2004 and now boast a membership of 110. Monthly Saturday field days, held at member properties, is the key to our growth. Field day topics are scheduled 6 months in advance and are held according to the month-by-month fruit tree/berry maintenance requirement activity.

In addition, continuing education topics are a part of every membership quarterly meeting. Guest speakers and general members disseminate useful information on a broad range from fruit topics to wine making.

Our club is fortunate to have our member horticulturist, Dr. Robert Norton, Program Chair, who gives many personal hours in the planning of our educational activities.

Members who saw the BeeLine publication were impressed and look forward to receiving the regular publication at their home. We look to this publication as another source to further enhance our knowledge of fruits and berries.

For members of the other chapters, consider visiting Vashon Island in July for the annual Vashon Strawberry Festival in which our club will participate in the town parade.

*Jerry Gehrke*

Secretary, VIFC, April 22, 2005

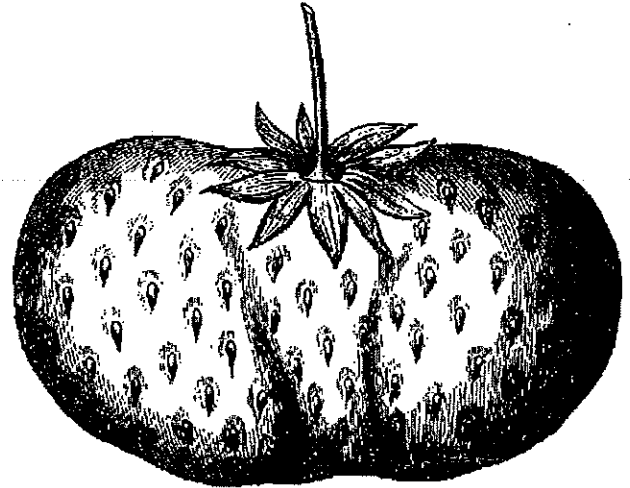


Fig. 89.—BOULE D'OR.

**Welcome to New Members**

Here is a partial list of our newest members. For those not listed, please be patient as we become more organized with our next issue.

**At Large Members**

*Lori Moak-Kean*  
*Resource Renewal*

**Olympic Orchard Society**

*Mark Dawber*  
*John & Karen Junell*  
*Larry & Lynda Perry*

**Tahoma Chapter**

*Betty King*  
*Ed & Iris Parcheta*  
*Terry Tomlinson*

**Peninsula Fruit Club**

*George & Mildred Unruh*

**North Olympic Fruit Club**

*Elaine Bailey*  
*Clark & Virginia Crandall*  
*David Goldman*  
*Neil Harrington*  
*Kathleen Mason*  
*Greg McPherson*  
*Stephanie Reith & Henry Werch*  
*Cindi Ross*  
*Gayle Thorne*

**Seattle Tree Fruit Society**

*Margaret Alvarez*  
*Peg Boley*  
*Vickie Brodine*  
*Matthew Coill*  
*Ryan Dotson*  
*Dave Favour*  
*Art Hall*  
*Lorayne Ham*  
*Doral & Mary Lou Johnson*  
*Sandra Johnston*  
*Christopher King*  
*Theresa & Steven Knapp*  
*Stefin Kohn*  
*Margaret Lundquist*  
*Scott & Melissa Lynch*  
*Keith & Joyce Mastenbrock*  
*Wolfgang Mayr*  
*Dan McGunagle*  
*Frank Morales*  
*Joe & Heather Paar*  
*Caitlin Pensak*  
*Linda Tynes*  
*Jim Ullman*



## News from the Board

*Minutes of the Western Cascade Fruit Society Board  
March 12, 2005.*

The meeting was held at the Rainier View Christian Church in Parkland. The following were present: Patti and Paul Gotz of Seattle, Bill Horn of Tahoma, Mike Shannon of Peninsula, Gary Heaton of Clallam, Leonard Horst of Clallam, Erik and Del Simpson of Clallam, Don Peterson of Seattle, Dr. Roger Eichman of North Olympic, Mel Armstrong of Peninsula, Renae Carnay of Tahoma, Ralph Rush of North Olympic, Paul Becker of North Olympic, Mark Lee of Seattle, Steve Witcher of Tahoma, Carolina Nurik of Vashon/Seattle, Dr. Robert Norton of Vashon, Judi Stewart of North Olympic and George Moergeli of Peninsula. Mark Lee took the minutes until George arrived.

### Financial Report

Patti discussed the financial report. The Audit report was presented by Erik Simpson and completed on February 12th. Erik said everything was checked and no problems found. The rules require a budget, which we did not have yet.

(George arrived and took over taking the minutes.)

Patti reported that the dues collected amount to about \$4200. The umbrella insurance costs between \$800 and \$900. The Spring issue of the BeeLine costs \$718.55 for a yearly cost of \$2800. The website is \$5.00/month.

A question as to the insurance coverage was answered by stating that we have a million dollars of liability, \$200,000 per building and \$10,000 per person.

Judi appointed George to handle requests from individual clubs for the insurance certificate when an event is being held. It was stated that such requests must be made at least two weeks prior to the event. George was to work with the broker. Judi asked Patti to forward insurance policy copy to George. It was also pointed out that if a chapter needed more coverage, it would be that club's responsibility to obtain it at their expense. All clubs were to make sure that there is no "charge" for admittance, but instead a suggested donation.

Ralph moved that the budget be accepted as amended. Paul seconded, motion passed.

Those in attendance received copies of the proposed budget and the audit report.

### Old Business

#### Mid-West Apple Improvement

Mark Lee reported on the possible participation of our Society with a mid-west group-tied to Purdue which was getting scion wood from Kazakhstan. It would cost WCFS \$700 to be a founding member and \$100 each year

for three years. Dr. Norton pointed out that this would be a long-term situation, and that outcome would be twenty years away for us to get scionwood from them. It was decided to pass on this.

### Piper Orchards

Paul Gotz talked to Ron Schaevitz and learned that only he and Paul Donaldson were active. However, they do get about three volunteers to help with the pruning and maintain the orchard. They would abide by whatever the Board decided, (i.e. keep them under our organization or not). It was felt that it was good advertising and we wanted Piper to still be a part of the group.

### Gary Gorremans

A discussion of Gary's service and a misunderstanding led to his leaving the chapter when he moved to Winlock. Judi suggested that he be named a Member-at-Large as a complimentary member for one year. Patti moved and Erik seconded this arrangement. Passed.

### BeeLine Size

The publication could be more than 24 pages (multiple of four's). Outside paid advertising could be up to a maximum of 25%. Members could still advertise at no cost.

### New Business

The website is Geocities. Jean McGhee has been paying \$4.95 per month out of her own pocket. She needs reimbursement and Patti will work out the financial problems with the website.

Judi had a request that each chapter have a link to the website. Erik moved, Gary seconded. Passed.

The Forum is signed on to by 25% of the members. Judi asked the presidents to sign on their members.

Vashon reported that it has 90 members and between 40 and 60 attend the workshops.

A motion to change the by-laws was made. It was moved by Eric, seconded by Ralph that the outgoing president serve as a board member for the following year. Passed.

The next meeting will be held on April 9 to complete the unfinished work of this agenda. The Peninsula chapter will host. Place is at Central Kitsap Fire Station 51 on Silverdale Way next to the Post Office and Home Depot.

Judi passed around a handheld microscope for each to see. It costs \$15.00.

Elections were held to fill three Board positions. Candidates were Don Peterson, Carolina Nurik, Steve Witcher, and Paul Becker. The last three were elected.

Submitted by

*George Moergeli*  
Secretary.

## Chapter News

### Olympic Orchard Society

President

Erik Simpson (360)683-6684

7pm, 2nd Tuesday each month

Clallam County Commissioner's Chambers

223 E. 4th St., Port Angeles

April - Beekeeper Harley Oien spoke on pollination and organic bee care. Voted to change name to Olympic Orchard Society.

May - Composter John Junell spoke on compost for orchard and garden, and teaching school kids about fruit growing. John Holtrip spoke on water shortage.

April 20 - Helen Haller Elementary, Sequim. Graft 40 trees for 40 kids.

### North Olympic Fruit Club

President

Karen Page (360)732-4008

7pm, 1st Tuesday each month

Tri-Area Community Center

10 West Valley Rd. at Rhody Drive, Chimacum

April, May - Had booth at Jefferson Land Trust Tree Festival and Plant Sale. Had elections. Viewed video "Future of Food". Grafted almost 300 apple and pear trees for sale later in year.

Pruned trees of some members that needed help.

Had two hands-on pruning seminars.

June plans - Canning and preserving.

July - Wildlife author Russel Link.

Summer, Fall plans - Wine tasting tour, annual August 21st picnic, August county fair

### Tahoma Chapter

President

Leonard Estes (253)927-9038

7pm, 1st Thursday each month

Rainier View Christian Church

12305 Spanaway Loop Rd., Spanaway

Elections were held. See photo of chapter officers on page 8 of this BeeLine.

Jun - Mark Lee will talk about bagging apples at the June 2nd meeting.

### Seattle Tree Fruit Society

President

David Conners (206)782-7352

9:30am, last Saturday of each month

(except December)

Center for Urban Horticulture (Douglas Classroom)

3501 NE 41st St, Seattle

March - Spring Fruit Show a successful fundraiser. Pruning demo by Larry Davis. Mark Lee spoke on BeeLine and apple bagging.

April - Espalier and Belgium Fence Basics by David Conners.

May - Protecting Apple Fruit Trees Against Codling Moths and Apple Maggots.

June - Field trip to Raintree Nursery.

July - Potluck BBQ.

Oct 29 - Fall Fruit Show

### Peninsula Fruit Club

President

Mike Shannon (360)373-9489

7pm, 2nd Thursday each month

Eagles Nest Building, Room 100

Kitsap County Fairgrounds

1200 NW Fairgrounds Rd. Bremerton

Hosting WCFS Board Meeting on June 11

### Piper Orchard Chapter

President

Ron Schaevitz (425)745-8844

work party time 10am-3pm,

3rd Saturday of each month

(except July, August, December)

Piper Orchard

950 NW Carkeek Park Rd., Seattle

About 3 people are attending work parties.



## WCFS OFFICERS AND BOARD MEMBERS

### OFFICERS

JUDI STEWART, President	js@olympus.net	(360)379-1103	3396 Hastings Ave W	Port Townsend	98368
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GEORGE MOERGELI, Secretary	magicoho@centurytel.net	(360)275-5243	P.O. Box 852	Vaughn	98394-2564
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## Substance in Strawberries Destroys Cancer Cells

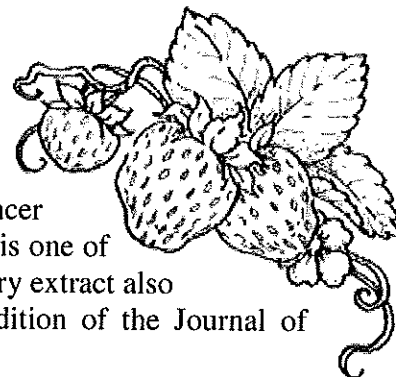
by PRNewswire, Mar 22, 2005, Watsonville, CA

Researchers specializing in the health benefits of plant compounds have shown that quercetin, a phytonutrient found in abundance in strawberries and other fruits, can induce programmed self-destruction of human cancer cells. This process, called "apoptosis," is important in cancer prevention because it is one of the primary ways the body eliminates damaged cells. Quercetin and whole strawberry extract also inhibited the proliferation of cancer cells. The study is published in a recent edition of the *Journal of Agriculture and Food Chemistry* (Ramos, Alia, Bravo and Goya).

In this study, researchers sought to identify the mechanisms through which fruit extracts or their components may exert protective effects on human liver cancer cells. Human hepatoma HepG2, a transformed cell line that permits the study of antiproliferative factors for liver cancer research, was used.

Quercetin was the most active polyphenol among the pure compounds tested, showing a dramatic reduction in cell viability (up to 80 percent) after 18 hours of treatment. Significant cell death from treatment with the strawberry extract was also shown to be dose- and time-dependent.

Quercetin and strawberry extract were also shown to arrest the cell cycle progression of human hepatoma prior to cell death. This means that cancer cell proliferation was retarded; thus, strawberries and their major phytonutrient, quercetin, may have protective actions at several steps in the process of cancer development.



## Scientist Invents Sunscreen for Fruit

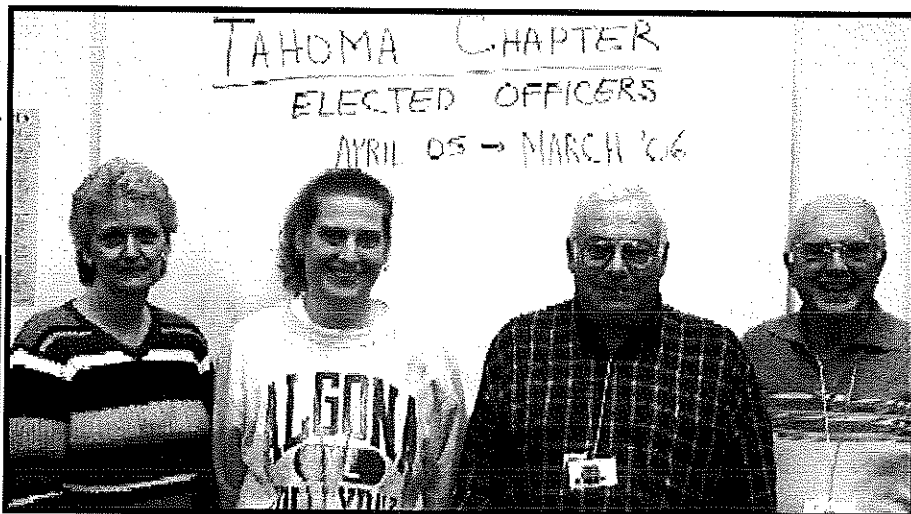
Associated Press, Mar 22, 2005, Wenatchee, WA

A Washington State University scientist has invented sunscreen for apples. Larry Schrader is a research professor at the Tree Fruit Research and Extension Center in Wenatchee. His invention is called Raynox, because it "knocks" the sun's rays.

It's a waxy liquid made from Carnauba wax, a natural ultraviolet B blocker, found on leaves of Carnauba palm trees in northern Brazil. Sprayed on apples, it reduces sunburn by an average of 50 percent.

Schrader found that apple cells die when the surface of the fruit reaches 126° F. The damage causes the apples to be rejected as culls.

He estimates eight to ten percent of Washington's apple crop has been lost every year to sunburn.



Newly elected Tahoma Chapter officers, left to right: Sandy Nesper, Treasurer; Rachael Fantz, Secretary; Bill Horn, Vice President; Leonard Estes, President.



Is your membership in Western Cascade Fruit Society up-to-date? Check the mailing label of this newsletter for your renewal date, or talk to your Chapter Treasurer for the status of your membership. Don't miss a BeeLine. Pay your dues.







# The Mad Scientist

by Dr. Roger Eichman, NOFC, WCFS Liaison to WWFRF

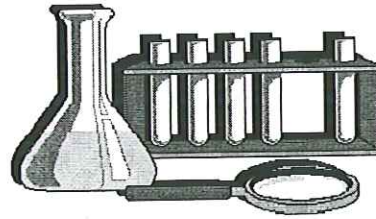
When I lived in Alaska, I had no bee pollination on my fruit trees. I sprayed my trees with Miracle Grow one year and my fruit set was increased so much so that I never worried about pollination again. Now that I've moved here, I still spray and have had very healthy and lush fruit cropping on all my fruit trees. NOFC members Ralph Rush and Victor Colacurcio experimented and sprayed their peach and apple trees last spring with Miracle Grow and observed a much improved fruit set. The trees receiving the spray had little or no fruit previously. Now Mt. Vernon Research Unit will experiment and petal spray a few of the blueberries bushes with Miracle Grow. I will verify the Mt. Vernon results and report to you at a later date.



As I write this, the tent caterpillars are hatching. They can be killed with insecticides, by burning, pruning infested branches, crushing, etc. I lost all but two apples from all of my trees last year and struggled to prevent severe damage to some newly-grafted trees. After removing as many caterpillars as I could find, I experimented by using pine oil, Tabasco sauce and other repellents with little success. The trees were re-infested the very next day. Finally, at the end of the season, I applied a ring of Vicks Vapor Rub directly on and around the bark of the small trees. Few if any caterpillars would cross the ring. I'm also trying moth balls and Vaseline this season.

The tent caterpillar moths will be swarming in early July, most likely between 9:00 pm to 11:30 pm. The moths can be trapped by putting soapy water in a dish and shining a light pointed up from under the dish. The light will attract the moths. They'll dive into the dish and drown. Or try using a thin

layer of oil instead of soap. Scoop the dead moths out the next day and continue to monitor until they've gone. The moth population will decrease day by day. Another method is to shine a light out a window to attract the moths. Then use a shop vac to sweep them off the glass. Wasps and Bt or neem oil sprayed on the leaves will control caterpillars. The leaf must be ingested by the caterpillars for the agent to be effective. It takes a little longer, but works.



This year WWFRF will try using Tanglefoot with a bark shield on some apple trees to prevent apple maggot larvae from crawling up the tree. If you try this, make sure to apply a paper tape to the bark first as Tanglefoot applied directly to the tree can damage the bark. The Tanglefoot may need to be reapplied after a month or two. You might like to try experimenting with this method or try a ring with some of the above mentioned materials on separate limbs. Some of these substances might also control many additional insect problems such as ants, earwigs, and sow bugs. I also

had damage from slugs and snails on grafts in the green house but a ring of Vicks around the tops of the pots prevented them from crossing onto the plants. Please let us know of your experiences if you try these methods and we'll report them here.

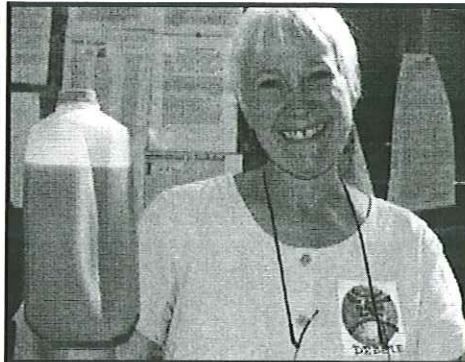
If you're looking for a good and very inexpensive grafting seal, try mixing together some toilet bowl sealer with a little Neosporin and sprinkle in some medicated food powder. You could add a little candle wax if the mixture is too soft. Use this as you would grafting wax and it might improve your takes. Keep the mixture in a small can and see how easy and convenient it is to use.

**Dr. Roger Eichman**

NOFC and WCFS Liaison to WWFRF

[The members of NOFC affectionately dubbed Dr. Eichman, The Mad Scientist.]



**2005 Salt Spring Island Apple Festival Excursion****Ahoy there, land lubbers!**

Mark your calendars for Sunday, October 2<sup>nd</sup>. This is the date of the 2005 Salt Spring Island Annual Apple Festival in British Columbia. WCFS members Harry and Debbie Burton will play host to the island's most celebrated festivity.

Salt Spring Island is one of the Gulf Islands. Made up of over a dozen large islands, interspersed with a multitude of islets too numerous to count, this special west coast island Canadian paradise is a small taste of the Mediterranean blended with a unique Canadian flavor. It receives less than 30 inches of rain per year. Lying southwest of the Strait of Georgia along the coast of Vancouver Island between Campbell River to the north and Victoria to the south, this necklace of islands is surrounded by sheltered waters, strong tides and dramatic coastlines. The island is 17 miles long, 9 miles wide, with 83 miles of shoreline. Visitors and prospective residents are attracted by the mild climate and annual sunshine in excess of 2,000 hours.



Departure will be early from Port Townsend. Once on board we'll watch the sunrise and enjoy the freshly baked coffee cake and hot coffee. As we glide through the beautiful passages we'll admire the sea life, birds and mountain scenery. Once we pass through Customs, we'll be at the Fulford dock where we'll be met by a bevy of Harry's capable island guides. Each of us will be given a Festival ticket with a list of orchards and tour stops and a map of Spring Island showing the locations of host farms, a description of what each host has to offer and off the beaten path island sights. Harry and Debbie Burton grow about 200 apple varieties in their orchard. You will choose the locations you wish to visit and will be challenged to see everything before we depart.



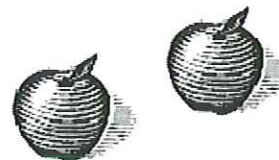
We'll then be whisked away to visit the sights. A favorite stop is the creamery where fresh goat, sheep and cow cheeses are produced from local milk. After a leisurely gourmet island lunch, we'll continue exploring. Then it's back to our vessel and a glorious trip home.

You will need to have with you a valid passport or birth certificate. A driver's license is unacceptable for identification into Canada. This information needs to be entered on the registration form found on page 11. The form asks for personal information required by the authorities and is kept confidential. Our space is limited by the available tour vehicles on the island. Reservations will be on a first-come first-served basis to adult members of WCFS and they will be confirmed. The price of the excursion is \$100 per person and is due in full with the registration form. We suggest you stay overnight in Port Townsend on Saturday night if you're coming from a distance, as we depart the dock before sun up.

Thank you,

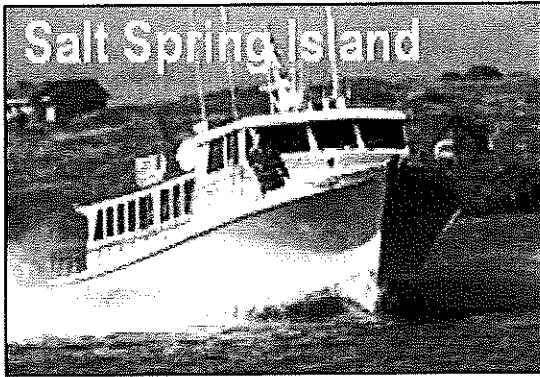
*Karen Page*

President, North Olympic Fruit Club





## WCFS Salt Spring Island



## 2005 Apple Festival Excursion

*"May the wind always be at your back."*

Name \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Phone (\_\_\_\_) \_\_\_\_\_ Email \_\_\_\_\_ Chapter \_\_\_\_\_

Date of Birth \_\_\_\_\_ Place of Birth \_\_\_\_\_

Please make your check for \$100 payable to North Olympic Fruit Club (NOFC) and send it with this form to:

North Olympic Fruit Club (NOFC)  
P. O. Box 1725  
Port Townsend WA 98368

## Upcoming Events



Protecting Apple Trees Against Codling Moths and Apple Maggots, STFS monthly meeting  
May 28, 2005 9:30 am, UW Center for Urban Horticulture

3rd National Organic Tree Fruit Research Symposium  
June 6-8, 2005, Campbell's Resort, Chelan, WA

WCFS Board Meeting  
June 11, 2005 at 10 am, Fire Station 51, Silverdale WA

Fieldtrip to Raintree and Burnt Ridge Nurseries  
June 11, 2005

WWFRF, WSU Mt Vernon  
Jul - Cherries; Aug - Peaches, Plums Nectarines  
Sep- Asian Pears, Early Apples, Oct - Apples, Pears  
- more info [http://www.wwfrf.org/html/main\\_frame.htm](http://www.wwfrf.org/html/main_frame.htm)

Vashon Island Strawberry Festival 2005, July 8-10

Multi-Chapter Potluck Picnic and BBQ  
July 30, 2005, location to be arranged

NAFEX Annual Meeting &  
California Rare Fruit Growers, Year of the Apple  
September 8-11, Santa Cruz, CA

7th Annual Salt Spring Island Apple Festival  
Sunday, October 2, 2005

BeeLine deadlines for submission  
August 1, Fall '05; Nov 1, Winter '05  
Feb 1, Spring '06; May 1, Summer '05

Farmers Markets occur weekly around the Puget Sound  
- check [www.pugetsoundfresh.org](http://www.pugetsoundfresh.org) for locations and times.

## Makers of Wine, Hard Cider find the 'Right Spot'

by Cookson Beecher

Capital Press Agriculture Weekly, Apr 29, 2005

*Editor's note: Drew Zimmerman is a member and outgoing board member of the WCFS.*

For winemaker Tom Bronkema and hard-cider maker Drew Zimmerman, there couldn't be a better place to grow grapes and cider apples than here on this chunk of farmland, anchored by a huge red barn, in the fertile Skagit Valley just across the road from the Washington State University research station.

"You have to grow the right grape in the right spot," said Bronkema, emphasizing the word "right" in both cases.

Zimmerman nodded his head in agreement, saying that finding the right location is key to growing fruit that will produce a quality beverage.

Now that they have done just that, they've embarked on a venture that includes growing grapes and cider apples, making wine and hard cider, and selling the beverages to customers who appreciate quality.

Zimmerman will sell his hard cider, a slightly fizzy cider with a 7 percent alcohol content, under the name Red Barn. Bronkema will sell his wines under the name Lahar.

Bronkema stirred up some history when he explained why he chose Lahar as a name. Lahar – volcanic debris – that flowed down from volcanos in early geological times enriched the area's soil.

The way Bronkema tells it, this is the same sort of volcanic-enriched soil that led to none other than the birth of the Roman Empire. As history has it, there was a region in Europe known for its outstanding wine, its excellence derived from a rich layer of volcanic soil that nourished the vineyards. With thoughts of good wine spurring them on, the Romans gathered forces and conquered the region. In victory, they won the pure pleasure of excellent wine.

Coming back to the present, Bronkema explained that volcanic soils are rich in trace minerals.

"You get fruit with spectacular flavors," he said.

Another decided plus: The area's volcanic soil ripens grapes earlier than would be expected in Puget Sound's cool maritime climate.

Both men also praised what they describe as the area's "long, slow, gentle, cool growing season," which is known for producing fruit with excellent flavor. They explained that fruit that ripens in a sudden flush generally doesn't have the quality or taste of fruit that ripens

slowly.

"This farm is the place to grow Pinot noir," Bronkema said, his voice full of confidence.

Zimmerman's love affair with hard apple cider began in Normandie, France, and involved an inn operated by an old man and his buxom daughter.

During a hot summer day, when Zimmerman and his wife were sitting out on the patio, he was served a wine glass full of cold hard apple cider, which, true to the charm of the story, had been brewed in the basement by the old innkeeper.

He recalled that his first taste of the cloudy brew "set me back at first." It was bitter, but with a funky, earthy taste. He finished the first glass and decided to follow it up with another.

"I realized there was complexity" in the flavor, he said.

During his stay there, he discovered that Normandie, which is in northern France, is the heart of the world's hard cider production. He capitalized on that newfound knowledge by trying out a wide variety of hard ciders.

He returned home with a fascination for the art and science of hard apple cider making. In his research, he discovered that the latitude and the climate of the Skagit Valley is similar to that of the Normandie region and to England, another prime location for cider apples.

"If you're looking for a place to grow apples for the best cider in the world, this is it," Zimmerman said.

He said he believes that customers are ready for quality hard cider. "I think there's a place in the world for a hard-cider culture, and I think this is the place."

The two men met at the WSU research station, where they were involved in cider- and wine-making projects. Both thought that in the years to come, they'd eventually become involved in these enterprises on a full-time basis. But through an unintended stroke of good luck, that happened sooner than they had imagined.

After being introduced to Carl Engebret, who had just bought the farm across the road from the research station, the two decided to join forces with him and launch a new business, Tulip Valley Vineyard and Tulip Valley Orchard.

They've planted three acres in Pinot noir grapes and

*(continued on page 13)*



## Cider (continued from page 12)

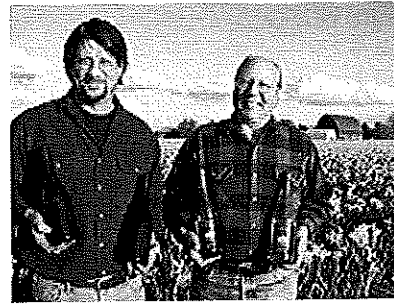
hard-cider and heirloom apples, which will come into production in two or three years. Until then, they're buying fruit from other growers.

Zimmerman said he plans to continue buying Jonagolds from local orchardists, but to combine the Jonagolds with hard-cider apples to enhance the cider's character and body.

Both are dedicated to making quality beverages, which Zimmerman described as "a labor of love and care."

"We'll make what the fruit gives us," he said, as Bronkema nodded his head in agreement.

For more information about Tulip Valley Vineyard and Orchard and the company's tasting room, call (360) 428-6894.



Tom Bronkema, left, and Drew Zimmerman hold some of their recently bottled wine and hard cider. The wine Bronkema is holding is Gamay Noir Black made from grapes in a Bellingham, Wash., vineyard. Most of his wine is Pinot noir. In the back is the barn, where a tasting room will be open to the public.

photo - Capital Press Agricultural Weekly

## A few thoughts about Grape Phylloxera

by David Johnson, Peninsula Chapter, charchemis2000@yahoo.com

At present, this pest is not common in the Puget Sound region, but it is well to be concerned about it. It is introduced to an area by careless gardeners who transport infected grape plants from other growers. The Washington state certification program screens for such pests, plus viral pathogens like Leafroll and Fan Leaf. Several nurseries participate in this program.

### General feeding habit of the root louse

Phylloxera in Washington State seems limited to root feeding. The eastern part of the U.S. also has a form that feeds on the leaves, but it has not been observed in Washington state so far. It is the root form that does the most damage by far to the vines. Unfortunately, the pest's two favored species are also the two most commonly grown for fruit, *Vitis Vinifera*, and *Vitis Labrusca*.

### Consequences of infestation on a grape vine

If the phylloxera gets into your garden soils it is virtually impossible to eliminate it, so prevention is the best way to go. Get to know what the pest looks like on grape roots and be careful where you purchase your vines. It may not be a bad idea to treat all new grape plants with a drench of some insecticide and dormant oil for a few hours as a 'just in case' measure. Check with WSDA for recommendations of what may work best. Once in the ground, it is pretty much impossible to get enough chemical to the root zone.

### Grape species (most susceptible to most resistant)

While both of the most popular grape species are vulnerable, the French hybrids and other American species have some resistance to the pest. Here are the species from 'most vulnerable' to 'most resistant'.

- V. Vinifera** The root louse can actually kill these vines. *Madeliene Angevine* may have a bit more tolerance than most.
- V. Labrusca** They will survive but at much lower degree of health. Many of the older 'labrusca' hybrids are 1/2 vinifera so they are even more vulnerable.
- V. Davidii** An Asiatic you will almost never run into.
- V. Californica** Actually more susceptible than *Labrusca*, but seldom grown for fruit.
- V. Arizonica** Another one you won't likely be planting
- V. Amurensis** It tolerates the louse, but not very well
- V. Aestevalis/Lincecumii** Now we're getting a bit more resistant. There are a few decent hybrids of these American species available with good fruit quality
- V. Coignetiae** A bit better than *Labrusca* for resistance, it would seem
- V. Rupestris** Very high resistance and generally only found as a blend of other species as a hybrid parent, i.e. Castel 19.67
- V. Riparia** Very high resistance to the root louse and as above, found only as a parent of other hybrid varieties
- V. Longii** High resistance to the root louse, but like the above
- V. Rotundifolia** Immune to the root louse, but doubtful if any would mature in Western Washington, (though I'm trying a few seedlings to see.)

(continued on page 22)

**Guide to Controlling Codling Moth and Apple Maggot for the Home Owner**

by Judi Stewart, NOFC

Every landowner has a duty to control pests and diseases that infest backyard fruit and ornamental trees on private and public property under the Laws of the State of Washington. In apples, pears and Asian pears, the primary pests of concern are the Codling Moth *Cydia pomonella*, or the "worm of the apple" and the Apple Maggot *Rhagoletis pomonella*. The highway signs in western Washington which say, "Apple Maggot Quarantine Area/Please do not transport home-grown tree fruit," are intended to draw attention to the existence of the quarantine and to the fact that backyard or noncommercial tree fruit grown in much of western Washington may not be taken out of western Washington or across county lines. For the first time, half of Yakima County will now fall under quarantine. There currently exists an array of pest control tactics that can form the foundation of a selective, effective and stable apple pest management program.

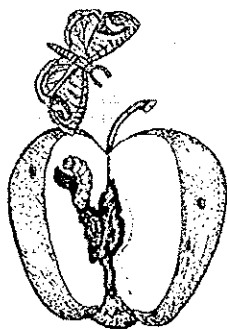
**Natural predators**

The importance of predators in the biological control of codling moth in apple orchards should not be overlooked. Predation removes 10-20% of the codling moth eggs laid in unsprayed orchards, and usually less in treated orchards. The major predators of codling moth eggs are minute pirate bugs, mirid bugs, earwigs, lacewings, and predatory thrips. Even though spiders are not likely to eat codling moth eggs, they may feed on larvae, though their absence is a good indication of the ecological disturbance created by insecticide use.

Egg mortality by a range of predators ranged from 7-52% in individual orchards. A high diversity of predators leads to higher egg predation. Predators are more numerous in orchards where mating disruption is used for codling moth control than in those treated with insecticides, and the unsprayed orchards had the highest percentage of dead eggs.

**Apple varieties**

Early varieties of apples suffer the most damage from apple maggots, followed by midseason apples. Hard late apples are less susceptible. Some even have enough internal pressure to kill the maggots before they develop.

**Integrated Pest Management - IPM**

Codling moths actually don't cause any damage. In fact, like many other insects, it's their larva which do all the bad deeds. This essentially means that if you are able to stop all moths from laying eggs on any one tree or fruit, no damage would occur. This may sound easy but the reality of achieving success is minimal. For this reason it is important to use different strategies at different times of the year. Don't rely on only one approach even for a single species. For example, a good job of control with the first generation of codling moth is critical to limiting the next round of egg layers. The best means of protecting backyard fruit trees is an IPM program utilizing several methods.

**Beneficial orchard practices**

Here is a list of general orchard practices that will discourage pests.

- Remove brush, debris, and culled fruit from orchards. By religiously picking up and destroying infested apples as soon as they fall, you can reduce the number of adults. Remember, carrying home-grown fruit from infested to non-infested areas is prohibited in Washington.
- Visually assess your fruit through the growing season and dispose of any "wormy" fruit. (Do not leave infested fruit on the tree or on the ground under the tree.)
- Remove loose bark to eliminate possible hiding places for cocoons.
- Some naturally-occurring parasites may help control codling moth populations. Avoid use of broad-spectrum insecticides which may kill beneficial insects.
- Maintain apple tree height to 12 -15 feet (use dwarfing/semi-dwarfing rootstocks)
- Use proper tree training and pruning
- Keep canopy open for pesticide & light penetration
- Keep fruit bearing zone low so sprays can reach & cover fruit
- Look for any outside codling moth sources and, if possible, remove infested trees (abandoned fruit trees, crabapple, large-fruited hawthorn & quince trees).

**Products and techniques for home orchard use**

Many of the products listed here work for both codling moth and apple maggot. Choose non-chemical management options as your first

*(continued on page 15)*



## Pests *(continued from page 14)*

choice. Many products used in the past may no longer be available to backyard growers because of their toxicity. New and safer controls are currently being developed and are undergoing trial. We'll attempt to report any changes to this list as they arise. Controls are grouped by the categories of Bags, Traps, Insect Predators, Clay, Oil, Pheromone, Virus, Bacteria, Nematodes, Fungus, and Insecticides.

### Apple Bags

The research clearly shows that apple bagging is a sound means of controlling codling moth and apple maggot. High quality fruit are produced with a minimum amount of effort. The bagging process saves time and money and reduces the use of insecticides. Individual fruits are bagged in the spring when they reach 3/4" in diameter and remain bagged until 3 weeks before harvest. This should be about three weeks after petal fall. There are two different ways to bag apples. One method is to use bags from Japan that are designed for fruit bagging; the other method uses locally obtained bags and twist ties. The two-layer Japanese apple bags are more durable and produce apples that are higher in quality than the local bags.

The Japanese apple bag has a long slit near the opening of the bag and a wire embedded along one edge. The bag is placed over the fruit with the stem of the developing apple slipped into the slit. The opening of the bag is gathered in a pleat-like manner and the wire running along the edge of the bag is crimped over the pleated opening to secure the bag. The bag is now fastened to the apple and should remain in place for the season.

If the bags are left on the fruit until harvest, the fruit will not color properly. Even red apple varieties will be light yellow in color when ripe. The bags need to be removed two to three weeks before harvest to allow the fruits to color properly. Generally, no additional pesticide sprays are needed once the bags are placed on the fruit. If you use plastic zip lock bags, you can make a small drainage hole in the lower corner. An alternative for home-made bags is to sew up row cover bags which need not be removed as the water and light penetrate and yet protect the fruit. Fruit can be harvested at the normal time. You may notice the fine finish on apples produced with the bagging method. Pears will also benefit by this process. Fruit bagging has been used in commercial orchards on the west coast to improve fruit finish on apples for export to Asian

countries. Some advantages of plastic bags are that you can see in the bag and the apples color up nicely. Some also reported fruit grew larger in plastic.

### Traps - Codling Moth Sticky Traps

To use codling moth sticky traps, simply assemble the trap, place the lure inside, and hang traps at eye level, on the north side of trees. If you have a grove of trees, it's best to place traps on the perimeter where insects are most likely to enter. The insects are lured inside, encounter the sticky surfaces, and become trapped without any means of escape. A unique technology releases the pheromone scent continuously in tiny amounts for up to eight weeks. Best of all, this action is strictly mechanical - no pesticides or harmful chemicals are used. For best results, set out traps with pheromone lures two weeks before bud break. Replace lures after eight weeks. If crop damage has already begun, traps may reduce the second generation but additional control methods will be needed. It has been shown that a greater trap density translates into a more accurate biofix. This makes sense when you consider that the traps are like "beacons" out there in the orchard; the more beacons, the greater the probability of attracting moths.



*The Codling Moth is recognised by its grayish appearance with shiny chocolate-brown tips on the front wings and wavy brown crossbands on the rest of the wings. Wingspan - 18mm. from Copper Mill Ltd.*

Commercial traps are Delta traps and wing traps. The codling moth lure attracts only male moths but the females are the problem.

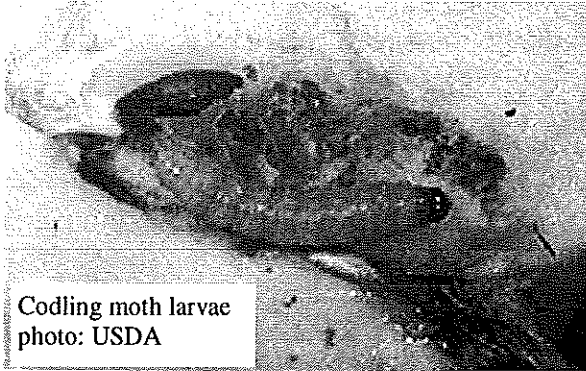
### Traps - Codling Moth Trunk Wrap

Wrap the trunk with corrugated cardboard or burlap secured to the base of the tree. Many of the caterpillars pupate in the corrugated cardboard cracks and crevices as this is just the right size. They will find it a perfectly suitable shelter, stop there and spin their cocoons. You can take the cardboard off periodically and burn it, reducing the number of moths next spring. Backing the cardboard with cotton batting may work even better. You're wrapping the trunks to intercept the codling moth larvae after they've grown and eaten their way out of the apple and are crawling down the tree to pupate. The adult moths start flying by mid to late May; eggs take 2 weeks to hatch and the apples need to start developing before the larvae can get very big. When your apples are about half-size,

*(continued on page 16)*

**Pests** (continued from page 15)

then start wrapping the trunk. Repeat this a few weeks before harvest. Collect the cardboard/burlap and burn it. Only rarely do codling moths complete a third generation, which is referred to as the "suicide third generation." Some places in California go through five generations of codling moth.



Codling moth larvae  
photo: USDA

**Traps - Codling Moth Black Light Traps**

Run two 40-watt black light traps in the orchard at night, all summer long, one in every three to four trees. One product is manufactured by the Stinger Co. Coverage of each trap is estimated at about ½ acre. These traps eliminate many moths, not only codling moths. The traps also kill night-flying, leaf-chewing beetles. Hang the lights from tree branches with S-hooks made from No. 9 wire, and move them around periodically. This is only practical where you have an electrical source close enough that you can reach the trap with an extension cord. Codling moth damage will be sharply reduced. Costco currently sells these dual lights for inside and outside.

Codling moth bug eater traps use a pool of water with a custom-designed, ultra-violet black light and reflective system. Insects approach the light and are blown down into standing water with detergent by a fan, causing them to sink and drown. A tray slides out for easy cleaning. The light is wall mountable. There is no zapping, no noise, and it's safe around pets and plants.

**Traps - Apple Maggot Sticky Trap**

Control apple maggot by hanging red spheres or balls coated with Tanglefoot and baited with an apple volatile lure (ammonium acetate or ammonium carbonate) in your trees. These lures increase the catch of adult maggot flies by up to 20 times. It's suggested to place a yellow plastic card or board also coated with Tanglefoot near the red sphere. As this year is warmer, start placement by late May and monitor the traps. Place

traps within the canopy in direct sunlight, surrounded by developing fruit and especially along margins of the orchards. If you know the hotspots of your orchard concentrate at those points. Hang two to six traps in each tree, more if you catch many flies, and scrape away dead insects, recoat or replace the traps as they become covered with insects, about every three weeks. Packaged lures keep indefinitely if refrigerated. Studies carried out in the western U.S. seem to indicate that sticky Ladd traps may be equal or superior to sticky red spheres. Ladd traps consist of a square yellow panel with a red sphere in the center. The yellow panel is believed to attract immature apple maggot flies whereas the red sphere is believed to attract mature apple maggot flies. Trap position is critical for effectiveness. One trap is used for every 100-150 fruits normally produced by the tree. Inspect fruit for larvae resembling the apple maggot. If you use any sprays, be aware that some flies do not emerge until the 2nd, 3rd or 4th year, so complete eradication in one year may not be possible. Based on research done at Cornell University, if an average accumulation of 5 apple maggot flies per trap (using the lures) are caught within a week, an application of an insecticide is recommended immediately. You can also coat medium-sized red apples directly with Tanglefoot. Or spread Tanglefoot on plastic wrap, secure it around the apple and wire it to the branch. Then discard and replace the plastic wrap every three weeks. Another suggestion: poke two holes through a red paper cup near its bottom. Run string through the holes, spray the cup with Tanglefoot and hang it in your tree. To the apple maggot, the cup is an apple. Once installed, you should monitor traps no less than twice a week, and look for any trapped adults. Once you start catching them on the trap, you need to consider treatment options. With the use of apple maggot traps you are now able to identify just when adults are active and since they won't start laying eggs for another couple of weeks, you are able to attempt some liquid treatments which will prove helpful. Apple maggot traps also work for codling moth. The traps are most useful in low pressure situations.

**Insect Predators - Trichogramma Wasp**

Trichogramma platneri (Fowler strain) are a beneficial wasps or parasitoids that destroy eggs of over 200 pest moth species (cutworms, fruitworms, leaf worms, leafrollers, loopers, armyworms, borers, etc.) Trichogramma wasps seek out

(continued on page 17)





## Pests (continued from page 16)

eggs, but do not feed on or harm vegetation. This is a particularly effective control as they prevent caterpillars from hatching out. Providing them with beneficial habitat (source of nectar) is a must. Releasing 400,000 parasitized eggs per acre over several consecutive weeks affords approximately 60% codling moth control. Codling moth numbers dwindle, making annual release necessary. Micro-wasps are pale yellow, 1/100 inch long. They drill through moth eggs to deposit 1-3 of their own eggs. Trichogramma larvae eat out the insides

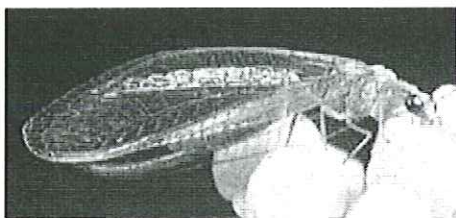


of pest eggs, pupate, and cut an exit hole in moth eggshells for winged adults to squeeze through. Males emerge first, wait for females, and immediately mate. The life cycle

from egg to adult is completed in 7 to 10 days (longer in cool weather). This short life cycle allows as many as 30 generations per season, and rapid population increase. Early season releases produce large populations. Trichogramma should be released in the morning hours in the lower tiers of the crown of EACH fruit-bearing tree. Insect larvae already hatched are not susceptible to Trichogramma. One drawback; apple maggots are better able to escape parasitoid wasps by burrowing deeper into the fruit than the wasp can penetrate with its egg-layer (ovipositor).

### Insect Predators - Green Lacewings

Green lacewings are especially effective against the eggs of codling moths. Lacewings are suggested for maintenance on



landscape trees due to their tolerance for pesticides, long life span and voracious appetite for bad bugs. They need a minimum temperature of 60°F and they eat more as the temperature rises. Put them to work in conjunction with wasps. They will also overwinter in our area.

### Kaolin clay

Usually sold as Surround, this product is more of a repellent and is non-toxic. Upon landing on a kaolin-coated tree, the codling moth female senses a wrong environment and continues on. It must be in place on the tree before adults lay eggs. Start applications at petal

fall and reapply every 7 - 10 days. If spray coverage is good, efficacy towards this pest is better. Surround proves effective only when 3 uniform applications have been made. Make back-to-back applications to get to this launching point of successful orcharding. Coverage then needs to be maintained weekly for approximately four weeks. Don't be tempted to continue kaolin coverage for second-generation moths and apple maggot fly. Heavy rain may necessitate additional applications. Reapply as the fruit grows and coverage gaps appear. Some brands of this product are accepted as organic.

### Horticultural oils

Horticultural oils work by suffocating the codling moth egg stage. First cover spray should be timed 7- to 10-days after bloom and re-applied every 7 - 10 days. There are reports that sustained use of the oils may negatively affect tree vigor and fruit size. The effectiveness of oil treatments may become more effective with dilute applications. Some brands of this product are accepted as organic.

### Pheromones - Combining with summer oil

Pheromones have been the organic apple grower's main tool to combat this pest. However, pheromones alone do not maintain codling moth at densities that even an organic producer can tolerate over time. Additional control tactics have been required.

Before 2003 the main additional control tactic combined with pheromones has been the application of summer oil. Summer oil is used at the egg stage of codling moth and usually three to four applications per generation had been applied with some growers using even more applications when codling moth continued to increase. Again, organic apple producers have become concerned with the accumulative negative effect on tree vigor, fruit quality and fruit size reduction when applying so much summer oil.

### Pheromones - Synthetic pheromone with Permethrin

Available as "Last Call". The pheromone attracts the male moths to the droplets and when the moths contact a droplet they receive a lethal dose of insecticide. The product attracts and then kills male codling moths.

This material is a combination of codling moth pheromone and permethrin (a pyrethroid insecticide) combined in a black, tar-like

(continued on page 18)

**Pests** (continued from page 17)

material. It is viscous, but not too thick, and is applied as small droplets, by hand, with a small tube-style applicator. The droplets are applied to the smooth bark of twigs and branches during flower bloom when codling moths start to emerge. Be sure to get drops in the upper third of the tree canopy. Generally there are three applications over an 18-week period during the growing season. If applied properly, this control measure is very effective. Last Call codling moth was evaluated in 30 different apple orchards. Codling moth control with this attract and kill technology was superior or equal to that obtained with conventional organophosphate insecticide program. Last Call is probably best in smaller orchards, or as a supplement in organic situations.

Because of their negative effects on integrated mite control, the use of pyrethroids should be restricted to situations where codling moth or apple maggot cannot, for whatever reason, be controlled using other means.

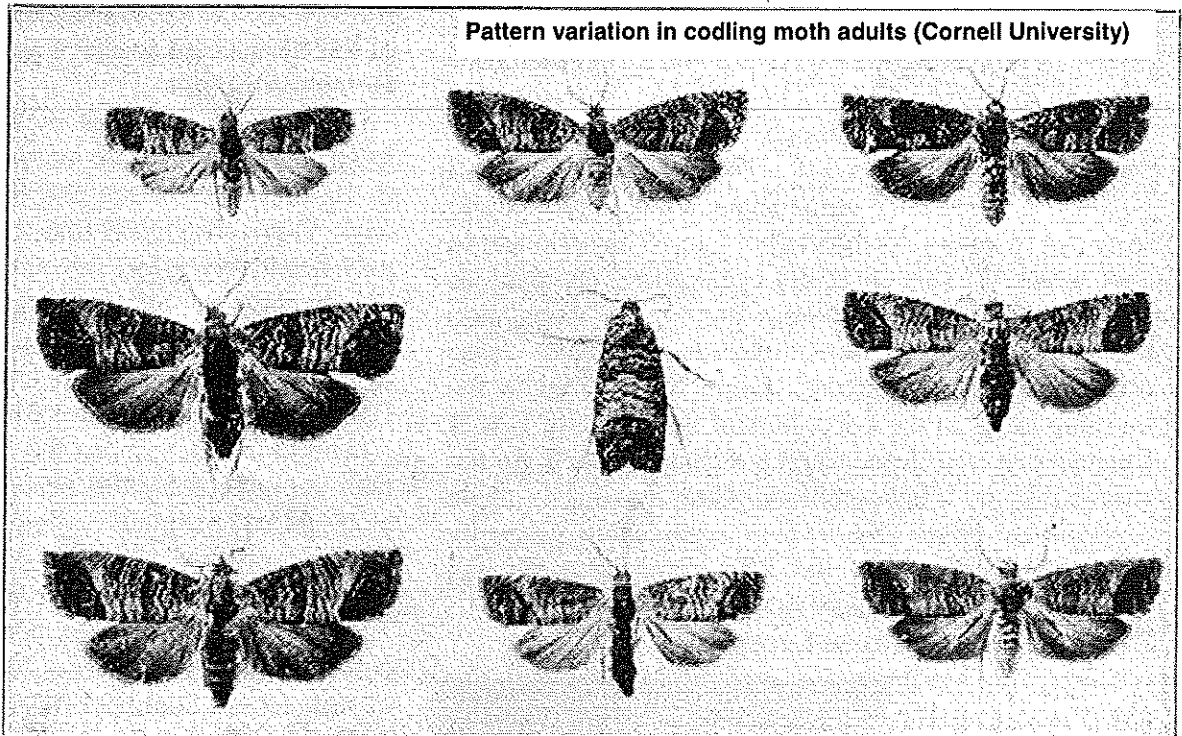
**Pheromones - Isomate C+**

Mating disruption techniques are an effective control mechanism. This is a twist tie applied by hand. The chemicals confuse the male moth and prevent them from locating the female and mating. Isomate C+ is a system for dispensing codlemone pheromone. It's proven to be comparable to conventional chemical programs and in some situations, better. After a season with Isomate C+, damage levels are often well below 1%. Place at the very tops of the trees, 400 ties per acre. It should be in the trees at full bloom and last the season. Orchards with missing trees or large gaps are not good candidates for mating disruptions. This approach works best in large rectangular plantings where the pheromone concentration in the air is more

uniform and can be maintained at a high level.

**Virus - Cyd-X and Virosoft**

These are an aqueous suspension of an insecticidal granulovirus for control of codling moth larvae on apple, pear, plum, and walnut. It must be ingested by larvae to be effective. The virus spreads from gut cells to other tissues, killing larvae in 3-7 days, depending on dosage and temperature. Dead larvae eventually disintegrate and release billions of new infectious units, which can infect other larvae. At least two applications per generation are recommended; the first just before or



at the beginning of egg hatch. The use of a spreader-sticker with UV blocking properties may extend the residual activity and enhance weather fastness. Use non-chlorinated water at a pH near 7 in the spray-tank mix. This material is certified by the Organic Materials Review Institute (OMRI) and approved for organic production. Use 1- 6 fl. oz. per acre. Cyd-X can be applied up to and including the day of harvest. Cyd-X should be refrigerated or frozen during storage as exposure to temperatures above 90°F can inactivate the product.

**Bacteria - Bacillus Thuringiensis**

Known as Bt, Dipel, Deliver, Biobit, Javelin, and Agree, this is a microbial insecticide specific for the control of caterpillars. It contains spores and crystalline endotoxin that must be

(continued on page 19)



## Pests *(continued from page 18)*

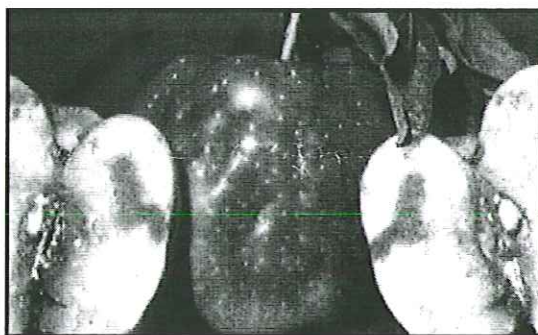
ingested by larvae with high gut pH to provide control. Although this material will control codling moth, it does not provide as effective a control as most conventional insecticides. Bt can be sprayed up until harvest. It is harmless to humans, animals, and beneficial insects, including honey bees.

### **Beneficial Nematodes - *Steinernema carpocapsae***

This nematode enters the pest through the mouth or other body openings and once inside the host, releases bacteria that multiplies rapidly and can cause death within 24-48 hours. They are an effective long-term control agent, continuing to reproduce and seek out new pest hosts. Nematodes can be injected through irrigation, applied with a watering can, backpack sprayer, or hose-end sprayer. They require soil temperatures of 60° F. and damp ground. Apply at the base of the tree to be protected. Keep soil moist for several days after application. There are many sources for parasitic nematodes. To kill remaining apple maggot pupae, supply beneficial nematodes in spring or fall.

### **Fungus - Spinosad (for apples only)**

Spinosad [spin-o'-sid] is marketed under the names of Success, Conserve, Entrust, Bull's-eye, GF120 and Monterey Garden Insect Spray. This a fermented (natural) biological control made from soil fungi and contains a neurotoxin that kills the codling moth larvae, as well as a broad range of other pests, yet has only a limited toxicity to most beneficial insects. It is particularly effective as a broad-spectrum material for most caterpillar pests at the astonishing rates of 0.04 to 0.09 pound of active ingredient per acre. It has both contact and stomach activity against lepidopteran larvae. All brands of this product are accepted as organic. Good control requires excellent timing and coverage. Resistance issues with Spinosad demand a knowledgeable restraint on overuse. Entrust against codling moth has a residual activity of 10 to 14 days. Entrust was approved for use on pome fruit, stone fruit, and nut trees. It can be used on both conventional and organic crops. It's highly toxic to bees exposed to direct spray. Therefore spray when the bees' work is done, at dusk or early morning. Safe to use around water. Recommended for use by WSU



apple maggot tunneling and dimpled fruit

HortSense web site. Monterey Garden Insect Spray (.5% Spinosad) is a new agricultural chemistry introduced into the homeowner market. It is a safe fast-working easy-to-use product.

### **Insecticides - Intrepid**

A bioassay showed that residues of Intrepid caused high mortality of developing codling moth eggs. In 2001 a single test indicated that oviposition timing provided better suppression of fruit injury than the more traditional egg hatch timing. Therefore, Intrepid has the unique ability to kill codling moth larvae as well as eggs as they develop. While we never rely upon a single test it does appear that Intrepid provides slightly better suppression of codling moth used as an ovicide. Either approach requires 2 or 3 cover sprays to achieve adequate control and Intrepid should always be used as part of a mating disruption program.

### **Insecticides - Assail (acetamiprid)**

Initial tests with Assail indicate the product was very active against codling moth. In fact, Assail performed more like Imidan and to some extent Guthion than any new insecticide researched in many years. Assail can be applied at the same timing as Guthion and Imidan with 2 to 4 applications per generation starting at egg hatch, providing control of codling moth larvae. New evidence shows that when Assail is applied topically, it's highly toxic to codling moth eggs.

A good strategy would be to limit Assail applications to one generation per year. Assail is the first chloronicotinyl registered on apples and pears that is primarily limited to codling moth. A low toxicity rating allows more flexibility with Assail than the organophosphate insecticides that it will replace. Growers should limit the number of chloronicotinyl applications in a season.

### **Insecticides - Calypso (thiacloprid)**

Calypso has been approved for use on apples and pears to control a wide range of insect pests. It belongs to the neonicotinoid class of insecticides (Provado, Actara, Assail) and offers systemic activity. Comparatively safe on beneficials. Do not apply more than 16 ounces per acre per year. Allow at least 7 days between applications.

*(continued on page 20)*

## Pests *(continued from page 19)*

### Insecticides - Diamond

Diamond is the next generation of benzoyl urea growth regulators. It inhibits chitin synthesis and embryogenesis, which makes its mode of action unique. Diamond's primary target is the codling moth's egg stage; however it is also effective against pear psylla. Evaluations of field-aged residues indicated Diamond was causing more than 90% suppression of egg hatch 35 days after application. Field trials indicated that a season-long Diamond program (3 applications per generation) reduced codling moth fruit injury 85-95% compared to untreated control. In these trials, Diamond was applied before the onset of early egg laying with repeat applications at 14-day intervals. Diamond is probably the best ovicidal alternative currently available for summer use.

### Traditional insecticides

(Guthion, Imidan, Sevin, Warrior, Danitol and Asana) are highly toxic by contact, pests have developed resistance and these are "restricted use" pesticides. Just by walking across residues of these products, a codling moth larva can be killed. The newer insecticides (Assail, Calypso, Intrepid, Rimon and Proclaim [Proclaim is not yet registered for use on tree fruit crops] have very little contact activity. Their main effect comes when the codling moth larva ingests the insecticide as it tries to enter the fruit. Some of these products allow more "stings" (shallow, unsuccessful entries) than traditional insecticides since the codling moth larva doesn't die until

after it has partially or completely entered the fruit. This is more of a problem in the second codling moth generation when scars left by "stings" are more evident.

The following sources can provide one or more of the products mentioned. This is by no means a complete list.

1. Gempler's Inc., 100 Countryside Dr., PO Box 328, Belleville, WI 53508; 608-424-1544
2. Great Lakes IPM, 10220 Church Rd. NE, Vestaburg, MI 48891; 800-235-0285
3. Harmony Farm Supply, 3244 Gravenstein Hwy, No. B, Sebastopol, CA 95472; 707-823-9125
4. Ladd Research Industries Inc., 83 Holly Court, Williston, VT 05495; 800-451-3406,
5. Olson Products Inc., P.O. Box 1043, Medina, OH 44258; 330-723-3210
6. Scenturion Inc., P.O. Box 585, Clinton, WA 98236; 360-341-3989,
7. IFM, 1422 North Miller St. #8, Wenatchee, E 98801 (800) 332-3179
8. Gardens Alive, 5100 Schenley Place, Lawrenceburg, Indiana 47025 (513) 354-1483
9. Raintree Nursery 391 Butts Road, Morton, WA 98356 (360) 496.6400
10. All-World Scientific, 5515 186th Pl SW, Lynnwood, WA 98037 (425) 672-4228 [ammonium acetate]
11. Ladd Research, 83 Holly Court, Williston, VT 05495 (800) 658-4961
12. Seven Springs Farm, 426 Jerry Lane NE, Check, VA 24072 (800) 540-9181 [Surround]
13. Peaceful Valley Farm Supply, 125 Clydesdale Court, Grass Valley, CA (888) 784-1722
14. Wilson Irrigation. & Orchard Sup., 1902 S. 11th St, Union Gap, WA 98903, (800) 232-1174.
15. Apple Corps, P. O. Box 13554, Burton, WA 98013, (206) 463-6113 [Japanese apple bags]
16. Wilbur Ellis 1519 14th St. NW, Auburn, WA 98001, 800 275-6920

## Good Fruit Grower

Extension renewal - renew or place an order for Good Fruit Grower. Subscriptions begin in July. The WCFS group subscriptions are discounted to \$17 instead of the \$30 regular subscription price because we send one check from WCFS which pays for all subscriptions. Check out their website: <http://www.goodfruit.com/>. Make your check payable to Western Cascade Fruit Society (WCFS), noting on the check that it's for Good Fruit Grower. Mail your check and coupon to: Patti Gotz, WCFS Treasurer, 1007 NE 71st St., Seattle, WA 98115. We must have your check by May 15th.

### Sign Me Up For A Good Fruit Grower Subscription

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Mail to: Patti Gotz, WCFS Treasurer, 1007 NE 71<sup>st</sup> St., Seattle, WA 98115



## Nest in Tree Saves Cherries

by Steve Herje, NAFEX online discussion

*Steve grows cherries in Lone Rock, WI. He made an observation on how a robin helped save his cherry crop without nets.*

A possible solution to the cherry-eating bird problem might be to encourage a bird to nest in the trees. Counterintuitive, perhaps, but two years ago a robin nested in my cherry tree. It kept every other bird away, yet touched none of the cherries as far as I could see. Last year I lost my blossoms to frost, so no cherries formed. This year, I may put a robin nesting platform in the tree and give the robins another chance to save my cherry crop.

## Rebuilding Afghan Orchards

by John Machacek, Mar 22, 2005, Ithica Journal

The New York Partnership for a Green Afghanistan is sending 80,000 trees to Afghanistan initially and will provide experts to help rebuild Afghan fruit farms, nurseries and woodlands destroyed by nearly 25 years of war. "Acres of scorched earth and dried fields stand where Afghans once cultivated flourishing orchards and vineyards and the country struggles to feed its population," said New York University professor M. Ishaq Nadiri, a senior economic adviser to Afghanistan President Hamid Karzai. The State University College of Environmental Science and Forestry in Syracuse also donated 10,000 willow trees that can be used as a fuel and bio-energy crop.

## WCFS Member "50 words or less" Ads and Announcements

Here are the simple rules for submitting free ads:

*You must be a WCFS member.*

*All words (item description, name, address, etc) must be 50 words or less.*

*Ads can be for your business, personal items, swapping of scionwood, announcements, etc.*

*You can repeat ads in future BeeLines, but you must submit them each time to the editor.*

That's enough rules for now.

Lazy J Tree Farm between Sequim and Port Angeles accepts yard waste and sells screened fine, medium and course compost. (360) 457-5950.

Erik's Edible Orchard, 162 Creekside Drive Sequim, WA 98382, 360-683-6684  
www.olyphen.com/orchards  
Fruit Trees-Berries-Figs-Syrup

Free offer - Seeds of 'Nana' dwarf pomegranate. May come true from seed, or may not. Nana survives outdoors to zone 7. For experimenters. 15 seeds each to the first 3 requests. My seedlings germinated in 1-3 months. Mark Lee (425)776-8048, markl@nytec.com

SEWER - Need help from someone with a large bandsaw who can cut/slab cedar beams into smaller lumber. Ten, old growth sections about 8 foot long and 10 inches square. Clark Petersen, Renton 425-226-1211, or petersenclark@comcast.net.

On becoming 89 on June 11th and fit as a bull fiddle, always inquisitive, undeniably straightforward, a lover of nature, a true friend and a believer in the good of all men, NOFC wishes Lyle Francis Robert Knudson, a.k.a. Rex, King of Denmark, "Tillykke med Fødselsdagen."

The Guru Gardener. Expert Advice and Services. Steve Whitcher, Horticultural Consultant  
Fruit Tree Pruning and Care, Disease & Insect Control  
Plant Problem Diagnosis  
ISA Certified Arborist, (253)536-2898,  
master@gurugardener.com, GuruGardener.com

Mason Bees - Removing Mason Bee pests ensures success with Mason Bees. This is easy with **Beediverse Products** and cleaned Mason Bees. Read "Pollination with Mason Bees" and find out more about these hardworking critters. Call 1-800-794-2144 for the nearest store location or check out our website, Beediverse.com, or see you at the 2005 WCFS events. Dr. Margriet Dogterom

Congratulations to Peninsula Fruit Club members George Boggess, and Muriel and Don Lowery, newly voted Life Members of WCFS. We thank you for your many years of service to the Society.

Lots of grape stuff to see in Milton. Want to meet other grape growers/wine makers in area. Will be back briefly around June 10th. 1009 Iris St. #8, Milton, 98354 charchemish@yahoo.com, David Johnson

## Notes from the Editor

by Mark Lee, BeeLine Editor

An interesting development in this issue of the newsletter is the introduction of the BeeLine's first columnist. Dr. Roger Eichman has a passion for science and experimentation. I received a message in my inbox from Roger one day that listed his latest achievements and plans for the future. I forwarded it to a fellow club member for review, and it came back to me with the title "The Mad Scientist". That is what his friends call him, and it makes a great title, so why not? That is the story behind the start of the first column. I heard that Roger is busy writing material for his piece for the next issue. Welcome Dr. Roger Eichman.

The WCFS Forum is having a problem again. Some people send e-mail in HTML format. When the messages are archived for future reference, our forum host strips out any HTML content. This means that any messages sent in this format are not readable in the archive. There is apparently nothing that can be done to change this. The only way to have our forum discussions saved is to make sure that messages are e-mailed using plain, unformatted ASCII characters. In Microsoft products, this format is called Plain Text. Please use Plain Text.

I don't think many will notice, but the Membership Application form on the back cover of the newsletter has changed for the first time in a long time. It seems like forever that the form has included a Member Survey, "Circle each of the fruits you currently grow...". It turns out that no one has been using this information recently. It was decided to replace the survey with a box about joining the online discussion group, the WCFS Forum. Also, our Society is growing, so space is also needed to make room for additional checkboxes for new chapters that are coming in our future.

As editor of the newsletter, I get a little space each issue to talk about things that matter to me. This time I want to mention the foliar spraying technique that Dr. Eichman talked about in the Spring 2005 BeeLine. I applied a liquid plant food to my blueberries and pluots as the blossoms began to open this spring. What a difference it has made. The blueberries have been loaded with healthy looking blooms. The fruit set was good. For the first time, my pluots have set a number of fruits also. I'm a believer. Thanks Roger.

*Mark Lee*

### BEELINE EDITOR

Mark Lee 425-776-8048  
22423 98th Ave W; Edmonds, WA 98020  
markl@nytec.com

BeeLine dates to remember:

#### **Spring issue**

submit by Feb 1, in mail by 3rd week of Feb

#### **Summer issue**

submit by May 1, in mail by 3rd week of May

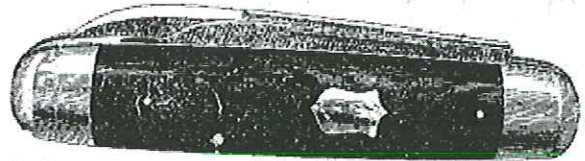
#### **Fall issue**

submit by Aug 1, in mail by 3rd week of Aug

#### **Winter issue**

submit by Nov 1, in mail by 3rd week of Nov

Write, email, or phone your article, comment, suggestion, question to Mark Lee <markl@nytec.com>. All submissions welcome, some may be edited for length and spelling or grammar. Permission to copy from the BeeLine is granted with attribution.



## Grapes

*(continued from page 13)*

### **Soil type preferred by the root louse**

The ideal soil type for phylloxera is a heavy cracking clay soil. Sandy soils are unsuitable for the root louse to navigate in. They may survive in them, but seldom seem able to thrive.

### **Precautions to prevent the spread of this pest**

The best thing to do as home gardeners is to become familiar with the physical appearance of the pest and get positive ID on any suspect plant. Do not move old Vinifera or Labrusca rooted vines from older plantings! Cuttings are pretty safe if they are clean and free of soil. The hybrid vines are far more resistant to root pests including phylloxera and if you want to be safe, it is a good alternative.

For those who wish to grow Vinifera for quality wine, it may be worth a few extra dollars to order grafted vines from a certified nursery. A few of the popular rootstock types include S0-4, Kober 5-BB, 3309 and 1616, but I've not kept up on the latest in rootstocks.



## Grow an Edible Playhouse from a Weeping Mulberry

by Thersa Knutsen, Raintree Nursery on-line catalog  
[Http://raintreenursery.com/kids.htm](http://raintreenursery.com/kids.htm)

Shape a Weeping Mulberry into a wonderful playhouse for your children and grandchildren. Not only can the tree be shaped to make a living, private playhouse with plenty of room for the neighboring kids but delicious edible fruit will form each summer that is only visible from the inside of the tree. When the fruit turns purple it is fully ripe, however the kids might eat it when it's still red and tart.

After planting the Weeping Mulberry, tie the central leader to a stake to keep it growing up until it reaches the height you would like it to start weeping from, perhaps 5-6' or up to 12'. Spread straw or leaf mulch under the tree.

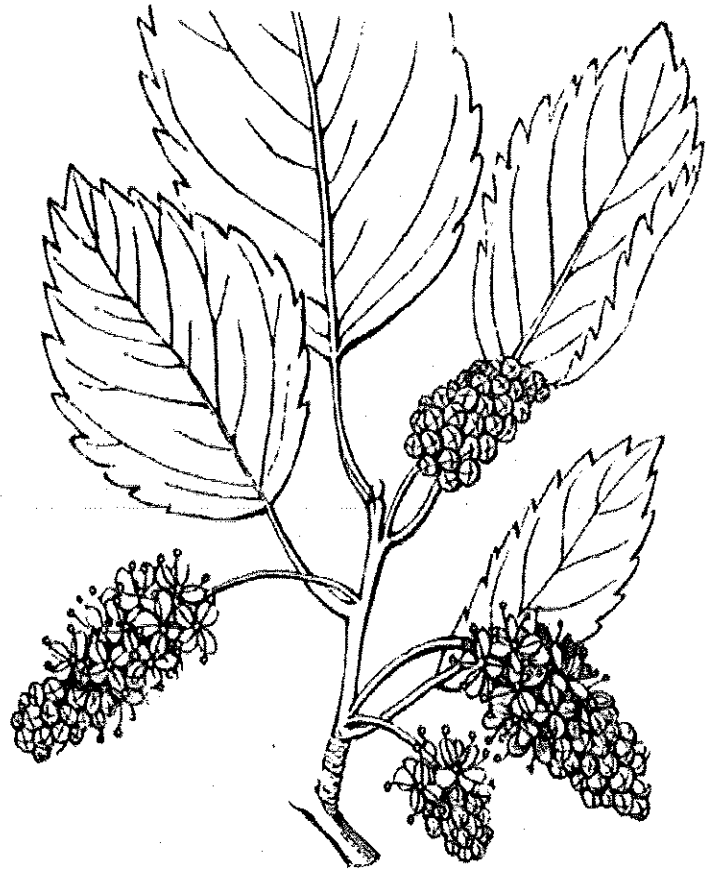
Year 2: In the early spring cut the top back to the desired height to encourage branching, assuming the tree grew tall enough the first year. If the tree did not grow tall enough, wait one more year or until the desired height has been reached. Most of the new branches will tend to grow out a bit, and then down. After a number of years it will form a 'dome roof' under which the children can play.

If you would like to develop the roof more quickly, construct a frame work to support the new branches so they grow out (or better somewhat up and out) 2-3' or up to 6' before weeping down, creating a wide 'cave' underneath. Remove any branches on the main trunk that are lower than the crown area you are developing.

Year 3: In the spring head back last year's new growth to about 12" (if not using the support system) or to the outer edge of the support system (last year's growth that tended to go more upwards and didn't reach the edge could be headed back to about 12"). The new growth will tend to arch out a bit and then down. Some shoots may arch over the middle, rather than out, keeping some of those will help develop a thicker canopy over the top.

Year 4: In the spring head back 1/2 of last year's new growth to about 12" (if not using the support system) or to 4-6 buds. Be sure to enjoy the fruits that ripen this year during the summer (some of the best picking is from within the 'cave' that is beginning to develop).

After year 4: Each spring thin out growth that is older than 2 years, especially from the underneath side of the



*Morus alba.*

canopy. Fruit is produced on both last year's and current year's growth, enjoy the tasty fruit each mid-summer.

Ultimately the area under the playhouse canopy will be too shaded for grass to grow, you may want to keep it mulched with straw, or some other material that is comfortable to crawl around on.

### A Fruit Joke

A young neighbor told an older neighbor that he shouldn't plant apple trees at his age - 70 - because he'd be 80 before they started bearing. The old neighbor said "So, how old will I be in 10 years if I don't plant these apple trees?"  
 - based on a true story.



**Western Cascade Fruit Society**

1007 NE 71<sup>st</sup> Street  
Seattle WA 98115-5636

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E-MAIL \_\_\_\_\_ PHONE ( ) \_\_\_\_\_



**CHAPTERS:** (Check or circle which Chapter you're joining, with annual dues per household...)

- North Olympic  Olympic Orchard  Peninsula-Kitsap ..... \$20.00 Annual Dues
  - Member-at-Large ..... \$20.00 Annual Dues
  - Seattle Tree Fruit (includes monthly Newsletter) ..... \$30.00 Annual Dues
  - Tahoma ..... \$17.00 Annual Dues
  - Piper Orchard ..... \$15.00 Annual Dues
  - Donation: Western Washington Fruit Tree Research Foundation/Mt. Vernon ..... Amount \$ \_\_\_\_\_ Gift
- \$ \_\_\_\_\_ TOTAL

WCFS Forum



Would you like to be a part of the WCFS Forum, an on-line discussion group at

<http://lists.ibiblio.org/mailman/listinfo/wcfs?>

Yes  No

Tell me more



Give this form and a check to your Chapter Treasurer or mail to:  
WCFS Treasurer, 1007 NE 71st Street, Seattle WA 98115-5636

