

GROWER FIELD GUIDE, June 1997

The Cashmere warehouse is up and occupied again, the crew there is happy to be back home. Thanks to our loyal customers for their patience while we were operating out of temporary quarters.

It has been raining more or less lightly for the past 24 hours (Memorial Day Monday) while I am writing this. The insect and plant growth stage differences between locations continue to expand with time and different local weather conditions, making specific recommendations very difficult. If I have been too general or completely missed your situation, check with your local Northwest Wholesale warehouse for further information or give me a call.

I have freely copied and adapted information from various Research and Extension personnel and publications plus the experiences of the Fieldstaff at Northwest Wholesale for the information presented in this Grower Field Guide. Any errors in presenting that information are entirely mine, please notify me of any errors so that they will not be repeated.

All material usage information supplied in this bulletin is believed to be in compliance with current labels. It is the responsibility of the grower to insure that use of any material is in compliance with the label on the product in his possession! All material rates in this bulletin are based on dilute applications at 400 gallons per acre unless otherwise noted.

If you find the information in this bulletin interesting and useful and are not on our mailing list, please fill out a request form at any Northwest Wholesale warehouse. I am asking for acreage information to help determine actual pesticide usage. This may become useful to the industry in the future when we have to document actual usage versus usage assumed by a bureaucracy in Washington DC.

All of the monitoring aids mentioned in this bulletin and research information on most of the insects and diseases mentioned are available through any Northwest Wholesale warehouse.

Herbert A. Teas, Field Services Manager.

Telephone, 509-662-2141, Toll free, 800-874-6607 E-mail, nwwinc@nwi.net

Container Recycling

Northwest Wholesale is expanding its participation in the container recycling program this year. On **August 1**, we will take containers at **Oroville** from 8 AM to 11AM, then at Tonasket from 1 PM to 4 PM. On **September 4**, we will take containers at **Chelan** from 8 AM to 12 Noon.

There are several other opportunities to return empty plastic containers for recycling in Chelan, Douglas and Okanogan counties this season including two sponsored by the Washington Farm Bureau at the **Wenatchee Tree Fruit Research Station**, the first on **July 28**, 8 AM to Noon, the second on **September 10**, 8 AM to Noon.

Return Bloom

Post bloom apple thinning conditions were good this year in most locations, warm weather and rapid growth, return bloom should not be a major concern. Even the Red Delicious which I expected to be difficult to thin because of the light and uneven bloom are reported to be thinning very well. In some cases without any thinning materials being applied.

If you have a situation where you are concerned about the amount of bloom you may have next year you can help with an application of Ethrel. If you are dealing with Red Delicious or don't want any additional thinning, wait until cell division is generally over at 6 - 7 weeks after full bloom. Other varieties may be sprayed earlier than that without materially affecting the shape if you want additional thinning.

Apply **Ethrel** @ 1 - 1 ½ pints per 100 gallons plus 1 pint of **Regulaid** and ¼ pint of **Tech-Flo MG**. Wet the trees to an easy drip, 200 gallons per acre is probably adequate in most orchards, less volume may be used on smaller trees. Application under slow drying conditions will increase the absorption of the Ethrel. Use the lower rate of Ethrel if temperatures are expected to exceed 85° in the three days following application. Do not use on low vigor trees, small fruit and no growth will be the result. On very high vigor young trees you want to bring into bearing a second application should be made 10 days later.

Bitterpit

Bitterpit is generally considered to be more of a problem in light crop years. Red Delicious will certainly qualify this year, at least on many trees. The good growing conditions early in the season make me believe that we will have large fruit. Hot weather in July and August will add the stress factor that contributes to bitterpit development. Plan on three to five applications of calcium chloride to alleviate as much of the problem as possible.

Consistent annual programs of calcium sprays seem to build a reserve in the tree that helps lessen the severity of bitterpit in subsequent years. You should maintain a consistent program of at least three calcium chloride spray per year even in low risk years.

Calcium Management

It has been recognized for more than 50 years that calcium is an important element for reducing fruit disorders and improving fruit quality of apples and pears. To better understand calcium behavior the following points must be considered.

Calcium soil reserves are usually adequate, but will not be readily available in low soil pH values (soil balance).

Calcium moves into the tree passively with water movement only on new roots, directly behind the growing tip before the bark suberizes (active root growth needed).

Calcium moves in the tree with water to the actively transpiring leaves bypassing the less actively growing fruit (nutrient sink).

Calcium concentration in the fruit drops as the fruit enlarges (dilution).

Calcium may move out of the fruit to the growing tips under stress conditions (removal).

Calcium can not compete with excess Potassium or Magnesium in the tree (antagonism).

Calcium applied foliar will be absorbed into the fruit just below the peel, it will not move through to the other side of the fruit (coverage).

Calcium applied foliar throughout the season has been proven more effective in reducing bitter pit and cork spot than either early or late season applications alone (frequency).

Calcium Chloride moves through the apple cuticle faster than any other formulations of calcium that were tested lab (efficiency).

Considering the points of calcium behavior above, how do you manage your orchard for the best long term benefits from calcium?

Maintain a soil pH of 6 - 7.5, test your good soils about every three years, test any soils under a corrective program every year.

Promote early season root growth by letting your soil warm up as soon as possible in the spring, do not irrigate until the shallow rooted cover crops are showing distress then only irrigate long enough to rewet the soil profile, do not waterlog the root zone with long irrigation sets, especially on heavy soils.

Don't promote vigorous shoot growth on bearing trees. Highly vegetative trees have an excessive number of growing points that will always win any competition with the fruit for calcium.

Maintain adequate soil moisture during hot weather. Soft vegetative growth stressed by heat will draw moisture from wherever it can get it, including the fruit. Some calcium will go with the moisture, it won't come back.

Do not apply Potassium or Magnesium fertilizers unless soil or tissue sample indicate a need. Both materials compete with calcium for a place at the dinner table and will win the competition.

Calibrate your sprayer to insure uniform coverage of the fruit throughout the tree. Removing vigorous growth from the center of the tree early to mid-summer will aid spray coverage for both calcium and pesticides, remove some of the competition for calcium by growing points and help improve the finish on red coloring varieties of fruit.

Begin adding calcium to your cover sprays as soon as the fruit begins to size and continue as close to harvest as possible.

First Generation Codling Moth

The first covers were being applied in the early areas by the third week in May. Rain was persistent over the Memorial Day weekend at least in the Wenatchee area, sprays applied prior to the weekend will not provide coverage more than 7 - 10 days and must be repeated. The first generation will last at least 7 weeks this year, with the shortened residual from the first cover being rained on, you will need three covers for generation long protection.

The second cover and third covers, applied at 18 - 21 day intervals after the schedule described above, must take into account a higher possibility of needing control of aphid and possible leafroller (see post bloom leafroller section). Leafminer should be considered separately if possible (see leafminer section). Spider mite populations should be monitored, most orchards are well controlled by predatory mites, but surprises should be avoided whenever possible. **(see spider mites)**

Aphid control is **Provado** @ 3 - 5 oz. per acre with 2 - 4 oz. of **Silwet** per 100 gallons, the higher rate of Silwet normally lets you use the lower rate of Provado. If leafroller control is needed, **Penncap M** will control both Codling Moth and Leafroller but may cause increased pressure from leafminer.

If you are not familiar with most of the predator insects in your orchard, **PNW 343, Beneficial Organisms Associated with Northwest Crops** has good color pictures of some the critters you need to know. It's available at cost at your NWW warehouse.

Post bloom Leafroller

Larval development seemed very slow this year. Many fieldmen reported that they couldn't find leafroller in blocks that they generally considered to be problem areas until a week or more after bloom. The weather warmed up and Volia!!, there they were. The warm weather in the post bloom period also should have helped the performance of any BT sprays that were applied during that time period.

Now is a very good time to assess how much control you may need during the rest of the year. Remember the female Leafroller does not fly very far from where she emerges so low pressure populations are usually very spotty, you must look at several location in the orchard to determine what you have. If you had damage last year that is the place to look first! Less than the best control of the overwintering generation (you could still find an occasional larva or pupa) means that you will probably start controlling the first summer generation with the second cover codling moth spray sometime in June. If you achieved very good control (you can see where they were but can't find any live ones) your potential for damage is probably closer to the second generation of codling moth in July.

Unfortunately there is no reliable method of trapping to monitor for either population levels or emergence timing for small (20 - 30 acre) locations. Unlike the female Leafroller the male will move long distances in response to a pheromone lure, the catch in your trap could be from any one of your neighbors. Keep looking for the first larva to begin showing up on the back of terminal leaves in the upper center of the trees.

It is very time consuming to search for newly hatched Leafroller larva in the center of the tree. My method is to walk slowly along the row looking at the upper terminals against a bright sky. Any thin spot in the leaf caused by the feeding of the young larva will be very easy to see, down to match head size. You need to carry a pole pruner or some other means of getting some of the terminals down where you can examine them, there are other conditions and insects that will tatter or make holes in the terminal leaves. A Leafroller larva will have a shelter of webbing built against one of the major veins of the leaf before it is large enough to roll the leaf. When you find these it is time to begin your control program.

San Jose Scale

This pest is usually first noticed at harvest in isolated locations by the red spotting on the fruit or at pruning when the overwintering scales are noticed on the bark of the tree. The crawler stage may be spread to other trees by the wind, being carried on the feet of birds, on orchard equipment or even on the clothing of workers.

The best approach to orchard protection is to prevent scales from becoming established. This can be done by treating the orchard annually before bloom (delayed dormant oil & Lorsban) when buds are beginning to open and

good spray coverage of the tree can be achieved. Summer sprays directed at the crawler stage help protect the fruit but usually do not control infestations. For this reason they are a supplement to the early season sprays, not a substitute.

It is difficult to sample for population density or potential for fruit infestation. If damage was noticed the previous harvest or reported on the cull analysis from the warehouse you should consider summer control until damage is no longer found. The crawlers of the first generation time closely with the second codling moth cover in mid to late June, a cover of **PennCap-M** @ 1 gallon per acre is usually sufficient protection for a light infestation. If the problem is serious apply a second cover of **Lorsban 50WP** @ 3 lbs. or **Diazinon 50WP** @ 5 lbs. 14 days later.

Spider Mites

Only a minority of the apple orchards in North Central Washington have to control for spider mites in any given year, sometimes we forget to watch for the critters until the damage begins to show in July and early August.

By June you should be able to find some European red mite scattered throughout the tree. Look on the older leaves. If you easily find leaves with several adults, many eggs and very few or no predators, monitor on a weekly basis until you decide who is going to win, the good guys or the bad guys.

The twospotted mite and the McDaniel mite populations will start in the center of the tree as they move up from the orchard floor and then out onto the branches as the population develops. Just a few predators will control a relatively large population of these mites, but if you find more than just a few adult mites per leaf you should also monitor them on a weekly basis.

There are two major predators of spider mites in the orchard, the most common is the **Western predatory mite** (*Typhlodromus occidentalis*). It feeds on spider mites and rust mites. The egg is oval, transparent when laid but turns translucent white after a couple of days. When populations are low early in the season most eggs are laid singly on the back of the leaf along the mid vein. The oval eggs are easy to distinguish from the eggs of the McDaniel or twospotted mites, which are round, smaller and laid randomly on the exposed areas of the leaf. When twospotted or McDaniel populations are high, predator eggs will be laid among the mite eggs and in the webbing. The body of the mature adult is broad at the rear and tapers toward the head. They are opaque white unless they have feed recently then they take on the color of the prey. They avoid direct sunlight and will be found on the back of the leaves, usually sheltered against the mid rib of the leaf.

The other major predator of mites is *Zetzellia mali*. It feeds mostly on rust mite and European red mite. It may not be able to control high populations of mites but will maintain control of low populations if not disturbed by toxic pesticides. The eggs are round, lemon yellow and smaller than spider mite eggs. The adult is lemon yellow to reddish and slow moving. It is almost oval but more pointed at the rear and slightly smaller than a spider mite.

There are no absolute numbers for deciding at what levels to spray for mite control, experience is the best guide. Weather, time of year, tree vigor etc., are all factors to consider. If you can see that the predator mite population is building, enduring a slight bronzing of the foliage should not affect the crop, especially with a light crop, and should result in establishing or reestablishing fully integrated mite control.

Leafminer

(mostly repeated from May)

This is a mostly cosmetic, sometimes pest. This year you have it, next year you don't. The first generation is usually unnoticed unless populations are very high. Most of the egg laying is done on the primary leaves, the rapid expansion of the foliage covers these before the mines become visible from the top of the leaf. The second generation will be more visible as the female prefers to lay eggs on the young expanding leaves of the growing shoots. By the time this generation has reached the late tissue feeding stage (the mines are tenting up), parasitism should be easy to find unless Lorsban was used at pink for Leafroller or PennCap M has been used second cover for codling moth and San Jose scale in previous years. You can tolerate 4 - 6 mines per affected leaf at this stage if you can find either parasite larva or pupa or dead leafminer pupa in 25% or more of the mines and will not be using a material that will destroy the parasite population. Full chemical control is difficult after the second generation because of the overlapping of generations and resulting mix of all development stages later in the season.

If you determine that control is necessary you have two methods of using **Vydate** that will give you good control. The method that I prefer because it will preserve most of the predator population requires close attention to the life stage of the leafminer. When a majority of the adult leafminers have emerged (60% or more) and egg laying is beginning, apply 1 pint of Vydate per acre either dilute or concentrate. Properly timed this will kill the emerged adults and greatly reduce the number of eggs available to build the next generation. It will not kill the egg or any larva in the leaf. The parasitic Pnigalio wasp will be just beginning to emerge and most of them will survive to attack the eggs that were laid plus the eggs of the remaining 40% or less of the leafminers yet to emerge. If you have any quantity of parasites very few of the leafminer larva will survive long enough to form a mature mine. Once you have achieved integrated control of leafminer it may be several years before you have a problem with them again if you are careful with the use of Lorsban and PennCap. **Malathion Methoxychlor** @ 2 qts. per acre may be used in the same manner and will give you some leaf hopper control if they are present.

Monitor the leafminer from the back of the leaf. The eggs are very small, nearly transparent and lime green. As they hatch the larva will begin to tunnel in the leaf making a thin white line beginning at the edge of the egg and rapidly expanding into an easily visible white spot. The mine will not be visible from the top of the leaf until the tissue feeding stage and the leaf begins to tent up. To search for the Pnigalio larva you must open the mine. A pair of tweezers works well for this. The Pnigalio larva is white to cream colored and spindle shaped. It feeds on the exterior of the leafminer larva and is easy to see with a hand lens. The Pnigalio pupa begins a very light gray and darkens to a shiny black, it is $\frac{1}{4}$ to $\frac{2}{3}$ of the size of the leafminer larva. If you open flat mines and find discolored or very lethargic leafminer larva, that is a pretty good indication that the Pnigalio wasp is active in the orchard.

The other method is the standard timing of waiting until the earliest hatching larva of the new generation begin to enter the tissue feeding stage then apply 1 quart of **Vydate** per acre. This is strong enough to kill all stages of the leafminer except the tissue feeders but will also destroy the Pnigalio wasp which will be mostly emerged by this time. This could also increase problem with integrated mite control by reducing the population of predatory mites.

If you need aphid control at second cover time and would like to increase the chances of predator control of leafminer, using **Provado** at 2 ounces per 100 gallons with **Silwet** (a silicone surfactant) at 1 ounce per 100 gallons in enough volume to wet the tree to an easy drip will suppress a leafminer population by killing most of the sap feeding stages and allowing a high number of the Pnigalio wasp to survive.

Grape Mealybug in Apples

Very little research has been done on the second generation of mealybug in apples, I could not find any published articles in my files. The insect biology supplement to the 1992 WSU Spray Guide noted that there may be a complete second generation on apples beginning in early to mid July.

If you have a population in your orchard you probably know about it from previous fruit damage or the presence of the cottony overwintering egg masses. Begin to monitor the suckers originating from spray sheltered areas of the tree in late June and early July to time the emergence of the crawlers and direct the sprays against this stage. It seems that you can only kill what is contacted by the spray, you will probably need two applications 10 - 14 days apart to control this second generation. The larger, wax covered stages are not controllable.

Sevin, Guthion, Imidan, Lorsban, Diazinon all seem to give adequate control if the insect is contacted by the material. Rotate materials to delay insect resistance.

APRICOT

Peach Twig Borer (PTB)

The first PTB catch in the Wenatchee area for 1997 was at Baker Flat about the 17th of May. If you have monitored for PTB and have a catch date, please call myself or Tim Smith at Cooperative Extension so timing models can be run for your area. Report your first catch to me or your local Northwest Wholesale warehouse and we will update you weekly on the progress of the current generation. Check with the counter at your nearest warehouse to see what areas have models being developed. The alternative is to apply Sniper 21 days before you expect to pick the fruit.

Perfection Spot

Perfection Spot is aggravated by rain, past history has a strong bearing on how much protection you may need. **Rally 40WP** @ 5 ounces per acre works well on Perfection Spot, combine it with **Captan 50WP** @ 5 lbs. per acre for Coryneum Blight or Alternaria.

You are reading this too late to be of immediate value, but by way of example the Memorial Day weekend was a perfect example of conditions that are favorable to Alternaria (Apricot Freckle) Perfection Spot, and Coryneum Blight. If you have had any of these in past seasons and did not protect the fruit either immediately before or after that weekend, you will probably see them again this year.

Correction

A correction to my statement last month that “Apricots rarely support aphids, if you find areas of honeydew spots glistening on the leaves this early in the season it is an indication that you may have Mealybug, check the leaves, twigs and fruit in and above the honeydew area.”

The aphid portion is correct, but I failed to mention that this condition can also be caused by two other situations, the only way to distinguish what is happening is to spend some time with a insect lens. This was impressed on me when I was called to help find the cause of some honeydew spots on apricot leaves in a vigorous, well cared for orchard.

The pest other than Mealybug that can do this is Lecanium scale. This is usually controlled by early season sprays or pre harvest twig borer sprays and is not usually found in high numbers in commercial orchards.

A non-pest situation that will also cause honeydew spots on the leaves is a vigorous, well irrigated orchard under moderate weather. There are small nectaries on the leaf petiole that are quite active, especially on actively growing terminals. They will produce small droplets of nectar that do not totally evaporate under moderate conditions and will drop through the tree creating the appearance of insect feeding. It is harmless and will disappear as the terminals harden off or the weather becomes warmer. Cherries, peaches and nectarines also have nectaries at the same location but I have not observed them to be active enough to create this situation.

CHERRY

Cherry Viruses

It is rare not to find anywhere from a few to several trees in a block of cherries more than 20 years old that are just not doing well. In most instances the trees are infected with one or more viruses. There are several cherry viruses, some quite dangerous to the future production of the block. Cherry Mottle leaf, Cherry Rasp leaf and Cherry Twisted leaf are the viruses that I see most. The best time to patrol your orchard for virus symptoms is after shuck fall and before there is enough mildew on the leaves to distort them and confuse identification of a virus. It becomes difficult to identify viruses after harvest except for extreme symptoms.

There are two genetic disorders, Crinkle leaf and Deep Suture, that can be found by noticing abnormally shaped leaves and fruit. These disorders may be pruned out if they don't affect large portions of the tree or top worked in young blocks.

Extension Bulletin 1323, **Field Guide to Sweet Cherry Diseases of Washington** is a good reference to help you identify these disorders plus some others that I haven't mentioned. It may be seen at any Northwest Wholesale warehouse. Copies are available at NWW and Cooperative Extension.

Mildew

Every thing that I said about weather and cherry mildew in the last issue came true in spades over the Memorial Day weekend. It was a Gran Mal infection period, at least in the Wenatchee area. If you were not covered shortly before and/or immediately after the rains, you can expect trouble before harvest is over, especially on Rainiers.

There are two new materials available at mid season, **Orbit** and **Elite** both of which have effect on Brown Rot. Rotate them into your program for resistance management. If the temperature is below and is expected to remain below 90° for the following 5 to 7 days, tank mix with Microthiol Sulfur or Sulforix. None of the materials being used are systemic, if the foliage has not been directly sprayed it is open season for any new mildew spores that lands on it.

Continue to protect yourself at infection periods. Once mildew is established on the foliage and fairly easy to find, 7 to 10 day intervals must be maintained into harvest, especially on the Rainier variety.

Cherry Fruit Fly

Emergence of the first fly typically happens about the same time as GA is applied as the fruit becomes light green to straw colored. The potential number of Cherry Fruit Fly increases as the fruit ripens, peaking during or shortly after Bing harvest. Many markets have a zero tolerance for fruit fly infested fruit so a rigorous prevention program is required. The list of acceptable materials is very short.

Diazinon AG500 should **NOT** be used on any light colored cherries or dark cherries that will be exported, many warehouses do not want any use of Diazinon on cherries. For local marketing or home use, Diazinon AG500 will make material rotation easier. The preharvest interval (PHI) is 21 days.

Guthion 50WP, Guthion 3F, Sniper or any other azinphos methyl must have a 14 day interval between sprays. Guthion 3F has a 7 day PHI, all other forms of azinphos methyl have a 14 day PHI.

Sevin (carbaryl) in all forms has a 1 day PHI, but using this material may increase your risk of post harvest mite infestation, don't use it more than once if you can avoid it, but remember control of Cherry Fruit Fly is essential to protect the value of the crop, mite problems can be solved later in the season.

Pyrenone is a good fly killer but it does not have any residual control. Initial coverage must be complete. The application rate must be reduced to 80 to 100 per acre to keep the cost reasonable. Harvest may continue without interruption. Consider this material to be the equivalent of an aerial ULV malathion.

I have received several questions about **Penncap M** on cherries, it is **NOT** labeled and therefore not legal.

Control of Cherry Fruit Fly is based on the life cycle. It requires approximately 7 days to emerge, mature and begin to lay eggs. The ideal control schedule is to apply a material every seven days after the first fly emerges with the goal of not allowing any of the flies enough time to mature and begin laying eggs. When infected fruit has been discovered at the packing house it has also usually been determined that the coverage interval has been extended to 10 to 12 days because of poor weather or harvest work. Keep your coverage on time and complete until all of the fruit is harvested, then apply a clean up spray to insure that you start off the next year clean again.

Clean up spray

To reduce the overwintering population of Cherry Fruit Fly apply $\frac{1}{2}$ pint of **Clean Crop Dimethoate 400** per 100 gallons of water in a dilute spray (trees fully wet and dripping easily) 7 days after final harvest. Concentrate applications will increase the risk of leaf drop. For best result the application must be made before the fruit hardens or drops (no more than 2 days of post harvest catch up sleep allowed, sorry about that). The rate for Clean Crop Dimethoate 400 is reduced in comparison with Clean Crop Dimethoate 267, perhaps leaf drop will be reduced also. Do not use more than 4 pints per acre per year of Dimethoate 400. **Clean Crop Dimethoate is the only Dimethoate that has a cherry label!**

Vaporgard

(repeated from May)

I have worked with Vaporgard on cherries for the past seven years and personally would not grow a cherry crop without using it. The benefits that I have seen are as follows; increased fruit size (5% to 7%), rain is blown out of the trees easier than untreated trees, rain cracking is reduced under slight to moderate conditions. When rain cracking is severe there is no material difference between treated and untreated. The fruit finish remains bright after application and does not dull in storage. Treated and untreated fruit picked, hydro-cooled, held in storage and independently evaluated weekly for 4 weeks in 1996 was indistinguishable after the first week, but the treated fruit was rated as the most attractive at weeks 2, 3, and 4. I have had one grower tell me that he felt he had less wind marking on his Rainier cherries than the neighbor when he used Vaporgard in multiple applications. Subjective, but possible.

There are some serious cautions that must be considered to use Vaporgard successfully. Vaporgard may not be tank mixed with any pesticides, the material must be applied separately. The fruit must be clean when the material is applied. Mildew must be well controlled and the use of heavy residue sprays such as Microthiol Sulfur stopped at least 14 days before any Vaporgard application. A dirty cherry treated with Vaporgard can **NOT** be cleaned up at the

warehouse. Rubigan, Rally, Guthion 3F, Benlate and Sevin 4F have not caused residue problems in orchards using multiple Vaporgard applications in the month prior to harvest, nor has there been any apparent change in the ability to control mildew and cherry fruit fly, nor has any detrimental effect on the tree been observed.

The most consistently beneficial programs I have observed are one gallon per acre applications at about the same time as the GA treatment, followed by another 1/2 gallon 2 weeks later, and a final 1/2 gallon about 10 days after that. There is no preharvest interval required. Complete and uniform coverage of the fruit and foliage is needed, don't use less than 200 gallons per acre. Single application programs should be made 7 to 10 prior to harvest or just before anticipated rain. The material cures with about 1 hour of bright daylight and is completely rainfast after that. Vaporgard will not set up anywhere inside the sprayer that is not exposed to bright daylight but the outside of the machine will be very difficult to clean.

Birds

Bird Shield was introduced last year, we still need to learn how to use it most effectively. Some growers reported good repellency, others did not feel that they gained much. The material smells and tastes like concord grapes, the birds do not like it. The flavor breaks down in bright light and must be completely undetectable before you harvest the fruit. 7 to 10 days are needed for this to happen. The following paragraph is from the label.

Blueberries, cherries and table grapes; Mix one part Bird Shield Repellent with 99 parts of water. Agitate well before application. Apply mixture with a commercial or back-pack sprayer, hand-held hose or pressurized applicator. Begin application when fruit begins to ripen or birds begin feeding on crop. Thoroughly wet all fruit and foliage until solution runs off surfaces. Apply every 6 to 8 days or when odor can not be detected. Repeat as necessary to maintain repellency. Harvest 6 to 8 days after last treatment or after all odor or taste of the product has dissipated (whichever occurs last). Do not apply this product to wet surfaces. Repeat treatment if heavy rains occur within 24 hours of application.

PEACH/NECTARINE

Green Peach Aphid

I've gotten several calls for post bloom control of Green Peach Aphid. I haven't been able to determine if Asana was not applied at dormant or if the timing was late, or if the material is not as effective as it has been. Whatever, if you have applied a post bloom Asana for control of Green Peach Aphid, be very alert for mite population increases during June and July.

Mildew/Coryneum Blight

The Memorial Day weekend weather means that nectarines and the mildew prone varieties of peaches will have needed mildew control before you read this. I hope you used **Rally 40WP** @ ounces per acre tank mixed with 10 lbs. of **Microthiol sulfur** immediately after the rain. The first visible indications of a **Coryneum Blight** infection on the fruit will be a watery looking spot, some with a tendril of ooze curling out of it as the disease progresses. Ziram is a good protectant, use 5 lbs. per acre applied before the disease is established. Use two **Captan 50WP** applications @ 5 lbs. per acre 10 - 14 days apart if you can see the disease developing on the fruit.

Peach Twig Borer (PTB)

See the Apricot article for information on monitoring Peach Twig Borer. The control timing if you don't use the model on Peach or Nectarine is 7 to 10 days later than on Apricots because there is no need for a pre harvest interval at this time of the year.

PEARS

Depending on temperatures the first generation of Codling moth lasts for 6 - 8 weeks. A second cover will be needed 18 - 21 days after first cover, sooner if good rains fell shortly after application (Memorial Day weekend?). This is the time to be concerned about the summer generation of Mealybug also. **PennCap M** @ 1 gallon per acre works well to control both Mealybug and Codling Moth and may be tank mixed with **Calcium Chloride** @ 4 lbs. per acre. The alternatives are **Guthion 50WP** or **Imidan 70WSP** at maximum rates. Guthion is the stronger Codling Moth material. Add a calcium material.

Mites and Pear Psylla should not be a problem if you applied either a petal fall or first cover Agrimek. If you are in a wait and monitor mode the chances of foliage damage increases with heat, don't let your guard down. **Pyramite** or **Mitac** should be good alternatives for mid summer control of Psylla, **Vendex** or Vendex plus **Apollo** will be need with Mitac if mites are a target.

Fire Blight

Secondary bloom on Bartlett begins 2 - 3 weeks after petal fall and continues for up to a month. Monitor the daily temperatures and compute your risk by using the **CougarBlight** model. Managing your risk in this manner will save you time and money verses 'just in case' spraying. It will also preserve the use of the only currently effective material by slowing resistance development. Copies of the CougarBlight 97F are available at any NWW warehouse.

There was one or more fire blight infection periods during mid May, by early June weekly orchard patrols are in order. All visible strikes should be pruned out at least 1 to 4 feet (yes, feet) below the visible damage depending on tree vigor, age, susceptibility etc., and removed from the orchard. Carry a spray bottle of bleach (one part bleach, 4 parts water) with you to sterilize the pruning tools. The cutting surface should stay wet for at least 1 minute for adequate sterilization, it will be very corrosive to the metal.