

GROWER FIELD GUIDE August 2008

Cherry harvest is all but over in the Wenatchee Valley. I have talked to many cherry growers and there is one common factor with all of them. There weren't many cherries. I think the average of what I have discussed with growers in the Wenatchee area is 1 to 1 ½ tons per acre! I know there are some higher out there, but feel lucky if you are one of them. I can't remember back to a year that tonnage was that low for the whole area. With that said, one can only move forward! Apples are growing and the pear crop continues to look good. Codling moth pressure is building with second generation on the move and Psylla pressure is light to moderate. The weather is moving into the summer pattern and heat is in the forecast.

I want to continue the program that we have been working with for the past few years in regards to summer fertilizer. Many of you have seen great results with this application and we want to continue that success.

The theory is to apply it just after the tree's response to shortening day length has stopped most terminal growth but the weather is still warm enough to drive vigorous transpiration. The goal is to have most of the nitrogen captured by the tree quickly (a couple of weeks) and moved via the transpiration process to the above ground tree structure and stored for early spring cell division, i.e., fruit growth. Mid August to early September is probably the 'sweet spot' during the year for this to be accomplished. Nitrogen before mid August may result in prolonging or restarting vegetative growth, after the first week of September transpiration slows dramatically with cooler temperatures and shorter days. After the first of October in all but the very warmest locations, i.e., lower Columbia Basin the response is probably not much different than a dormant application. Most of the nitrogen captured by the tree will stay in the roots and not be available to the above ground part of the tree until late in the cell division time period. In the cooler locations from Wenatchee and north, that threshold could well be mid September. What has brought on this rant is observing many growers in mid to late September picking up their 'summer' nitrogen. For more detailed information see "Why Summer Nitrogen" on pages 2 and 3.

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.

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Container Recycling

Ok! This is redundant from year to year, but Herb said it best when he said that a picture is worth more than words.

We want to continue to accept pesticide containers at any time on the honor system but we need your cooperation to do it. It seems some of you are in a hurry or getting a bit careless about cleaning up the jugs before you bring them in, we're finding more containers with caps and full labels on each time the chipper comes around. The containers must be clean (no dried chemical residue, staining is OK), dry inside, caps and labeling removed (glued on paper label OK). See the examples in the photo on the next page.



If you're generating lots of empty jugs and need to store them briefly, here's an easy way to do it. After you've rinsed them and removed all of the excess labeling (plastic sleeve and booklets, etc; glued on paper label is OK.) put them upside down in an old apple bin. They will drain clean and stay dry and clean even if you have to leave them in the orchard under the sprinklers for a while. No second rinsing or draining needed with this method. Just load the bin and bring'em in.

I've also seen the jugs strung on twine like fish on a stringer. Works for us as long as you keep them dry while you're waiting to bring'em in.

Why Summer nitrogen?

Researchers have given us lots of information in the past few years about how mature trees utilize the nitrogen you apply and give it back to you either as fruit in the bin — or prunings on the orchard floor. When you apply the nitrogen will have an influence on your fruit verses wood harvest ratio.

To sustain growth there must be a continuous supply of nitrogen at the location where cell division is taking place. The most rapid cell division of the year takes place early in the spring when the soil is cold and root activity is minimal. This is when the maximum size and shape of the fruit will be determined. The nutritional energy required to sustain early season cell division (growth) must come from what was stored in the bark, cambium, etc during the previous season. Later in the season after the soil has warmed and root activity has increased, nitrogen in the soil becomes available for growth. But by then most of the fruit cell division has taken place and this nitrogen coming late to the party will be utilized to grow wood. Fine if you want more tree, not so fine when you're trying to produce high yields of good quality fruit.

Your mission is to get the tree to utilize as much of the nitrogen as possible for fruit growth. You can do this by timing the application to late summer (mid August to mid September). Most mature fruiting trees cease terminal growth by mid-August. After this time you can safely apply moderate amounts of nitrogen without restarting growth.

The weather is still quite warm; the tree is maintaining a high respiration rate. It will quickly pick up the nitrogen following a light irrigation. And, because there is very little cell division taking place the nitrogen will be stored in the bark and cambium throughout the tree, readily available for cell division (read that as fruit growth) next spring.

If you delay the nitrogen application until late September or after the first of October, the response will be more like a dormant application. Immediate pickup will be reduced, less will be stored in the top of the tree available for spring growth, more will be potentially leached by winter moisture.

Some benefits of summer nitrogen

Less nitrogen is required. Loss from leaching will be virtually eliminated if you don't overwater after the application. By using 2/3 to 3/4 of the amount you usually apply dormant or early spring you should be able to maintain equal or better tree vigor and fruit production. If you apply by hand you can easily vary the amount from tree to tree as soil and tree vigor changes.

Application through your sprinkler irrigation system is a low cost, effective practice and keeps the tractor out of the block before harvest.

Excessive vegetative growth should be easier to control resulting in a more productive fruiting wood in the tree canopy.

No detrimental effect on winter hardiness has been found. Some research has found that fruit buds with good nutrient reserves are the most winter hardy.

I notice more light colored orchards every year. I think economics are changing us from generally over using nitrogen to trying to get by on as little as possible. Overall, less nitrogen is a good trend that will improve color and storage ability, but we can't grow good fruit on light soils and frequent irrigations without some additional nitrogen. Ask your fieldman if your trees need more nitrogen. Better yet, take a leaf sample.

CAUTIONS; Nitrogen applied to late red coloring varieties such as Fuji, Braeburn or Pink Lady much more than 30 days before harvest may affect color development. Mechanical broadcast may cause impact damage to low hanging fruit.

Leaf Sampling

Leaf sampling may be utilized either to help diagnose unusual conditions in the orchard or for long term monitoring of nutrient level changes and variations. Your purpose will determine how you should take the sample.

For nutrient monitoring purposes you should be very consistent in your procedures. Take the sample as near the same time each year as possible, nutrient levels change with the growth stage of the crop. Take them from the same location in the orchard; you may have more variation across soil types and irrigation management than you will from year to year. Do not mix samples from different varieties, strains of varieties, or rootstocks. Take the sample from trees of similar age and vigor and from the same general area of each tree, i.e. don't sample high on one tree, low on the next, etc.

Take fully developed leaves from current years extension growth that is positioned at a 30° - 70° angle. To reduce the possibility of contamination take the uppermost fully expanded leaf on the extension growth if the last nutrient or fungicide application was less than 30 days ago. Be sure to note on the submission form to the lab what materials have been applied, this will alert them to possible contamination if some of the elements test unusually high. The potential of sample contamination will be high from trees that are not growing well.

Recognize that there may be appreciable differences in nutrient levels from year to year on healthy trees because of tree growth, crop load and the weather conditions.

Diagnostic sampling may be done any time it is needed. Take the healthy sample that you will be comparing with as you would for a monitoring sample, i.e. same variety, rootstock, size etc. The samples being diagnosed should be from the leaves that are showing the symptoms, regardless of the location on the tree or the overall tree vigor. Deficiencies may only be occurring in certain stages of tree growth, i.e. sample the problem, not the tree. Caution: leaves that are yellow and nearly ready to drop may not accurately reflect the mineral levels of the tree. If this is your situation, sample the nearest green leaves.

If the soil has not had a complete analysis in the last 2 or 3 years in the problem block, it should be tested as part of your correction process.

APPLES

Codling Moth

The three percent egg hatch timing for traditional control occurred during the first and second week of July in all but the latest districts. The 5% hatch level was reached the second and third weeks of July for growers with only light pressure. Pre harvest intervals of the various control materials must be taken into account for the rest of the year, harvest begins in August for Bartlett pears and some of the earlier apples. Very low pressure or good control of the first generation may let you skip controls now. If you had moderate pressure or didn't control the first generation well, watch the trap numbers closely now, the second generation is always worse than the first!

Don't forget that the bins you are stockpiling for harvest probably have codling moth larva attached to them that will emerge and proceed to the nearest tree to mate and lay eggs. You have the option to keep that border covered or hang traps to monitor and cover as needed. You might consider using an attract and kill material (Last Call) in the immediate border to remove as many male moths as quickly as possible and reduce the number of mated females. Contact your fieldman or the nearest warehouse for details on use and placement.

Materials available for use: Assail, 7 day PHI; Calypso, 30 day PHI; Guthion 50WP (6 lbs. per season max.), 14 day PHI; Imidan 70 WSB, 7 day PHI,

Leaf Miner

If you have made it through to early August without needing to spray for leaf miner, you probably have a good level of predator control. If the new mines of this generation are a lot easier to see than the last and have you concerned, get out your hand lens and a pair of tweezers and start looking for predator larva or pupa in the mines before very many of the leaf miner emerge. 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 1/2 to 2/3 of the size of the leafminer larva. If you can find 50% or so of the mines occupied by some stage of the *Pnigalio* predator wasp, they should control the next generation before it reaches the tissue feeding stage unless you do something to destroy them.

If you decide that spraying is necessary, understand that complete control is impossible because of the overlapping of the generations. You do not need complete control this late in the season. Leaf miner eggs laid after mid August shouldn't develop mature mines until late September when the weather will be cooler and sun bleaching less of a problem. Adequate control is possible by spraying for the adult leaf miner just about peak (50-60%) emergence with either **1% mineral spray oil** or **1 pint of Vydate L** per acre. The oil seems to destroy their ability to fly. No flying, no mating equals no more eggs. These materials may be combined with MIRACALsp or Calcium Chloride and leaf roller or codling moth materials as needed.

Leafminer are sometimes a problem on Cherries after harvest. My experience with Cherries is that they will drop leaves much faster than an apple tree; to avoid substantial leaf loss the control threshold has to be lower. **Use the 1-% oil** targeting the flying moths. **Success** at 6 to 8 oz. per acre with 1- % oil and thorough wetting will control the sap feeding stage if you notice them before the mines become visible from the top of the leaves.

Leaf Roller

Mid July is normally when the adult moths of Leaf Roller begin to fly with the larva hatching mid to late August. This is the one that you don't really notice until harvest — then you spot fruit with pinholes in the bin and wonder what happened. If you could see rolled leaves in the centers and tops of your trees in late July, you should be concerned about possible damage from a second generation. This generation does not migrate to the tips of the terminals as the first generation does and by the time you accidentally notice it's presence — the damage is already done.

There is no reliably accurate timing method for this generation because of the potential for a BT delayed overwintering generation, possible wind dispersion from upwind blocks during first generation, and the natural overlapping of the first and second generations in your orchard.

Success (spinosad) is working very well at 6 ounces per acre; **Intrepid** at 12 to 16 ounces per acre, **Proclaim** at 4 ounces per acre works well too. All work well with oil, 1 gallon per acre concentrate, or 1% dilute. Coverage must be good; 100 gallons per acre may not be adequate on full sized trees. These materials may be combined with MIRACALsp, (up to 3 lbs/100 gallons), Guthion, and Ziram or Thiram as needed.

Leafhopper

The second generation of Leafhopper usually becomes noticeable in mid August. Not only are they a nuisance for the pickers, the excrement from a large population will speckle light colored fruit. Heavy dew or light showers will wash some of this into the stem bowl of the fruit and look like sooty mold from an aphid infestation. Some warehouses will cull for this condition in Golden or Granny Smith.

Sevin 4F @ 3 pints per acre will give you control. If sprayed too early the population may rebuild either from continued emergence or flight from adjoining blocks.

Spider Mites

August is the month that spider mites will peak and begin to decline. You can usually see some leaf discoloration by late July if you are going to have a problem. Predator populations will also build quickly if they have been maintaining a low-level population on the rust mite. **Summer Oil @ 1% dilute** should provide good suppression with little or no predator disruption. This will also destroy adult leafminers and suppress leafhopper nymph if they are emerging. For “out of control” mites a second application may be needed 10 to 14 days later. Two-spotted mites that have entered the overwintering stage, i.e., beginning to turn orange have proven resistant to control by oil, maybe because they aren't actively feeding? Calcium Chloride may be added up to 3 lbs. per 100 gallons.

Acramite (PHI 7), **Agrimek** (PHI 28), **FujiMite** (PHI 14), **Nexter** (PHI 30), **Vendex** (PHI 14) and **Zeal** (PHI 28) are available if immediate control is needed. Apply **Acramite @ ½ to 1 lb.** per acre, **Agrimek** at 10 – 12 oz. per acre, **FujiMite** at 2 pints per acre, **Vendex** at 2 lbs. per acre, **Zeal** at 2 – 3 oz. per acre.

Stink Bug

There are several species of this insect, two species (conspense and conchuala) have been found to cause the most damage in apples and pears. Overwintering adults generally feed on mullein plants early in the spring, moving onto bitterbrush to lay their eggs for the summer generation. (This is already done for this year, happened mostly in late May to mid June.) Adult stinkbugs have been found in the orchards in the spring, it is not known if they cause damage at that time or not. Researchers have told me that they cannot successfully propagate in the orchard, so they will either move out or die.

Late in the summer the new adults return to the mullein at the orchard borders, from there moving into the orchard to feed on the maturing fruit. Timing has varied from year to year; we don't know the development thresholds for this insect yet.

The orchards most at risk are near or bordered by natural areas that grow mullein and bitterbrush. The visible damage will resemble bitterpit except that it will be located mostly on the top half of the fruit; bitterpit is usually on the bottom half. The sunken area is green to brown, not brown to black and the corky tissue under the injury is light colored. The stinkbug damage in the orchard is generally concentrated in the border rows, rather than scattered across the block.

If you are at risk or have been damaged in the past, there are traps available to help you time the movement into the orchard. They should be placed in the crotch of a tree near the exposed border. The trap should make good contact with the bark on the tree to allow the stinkbug to have easy access to the baited trap. The stinkbug can crawl out of the trap if given enough time so check the traps frequently. A catch of 3 per week is considered light, 10 per week indicates probable damage and control measures should be used.

Bitterpit

Late summer applications of calcium chloride on expanding fruit are very beneficial in alleviating bitterpit and improving storage quality, especially in years with some lightly cropping trees. Combine with other materials where possible (no zinc or copper; **Ziram** is OK). Apply 6 lbs. per acre @ 100 gallons per acre, 3 lbs. per 100 gallons if spraying dilute or combining with oil. Drying conditions should be good, they normally are in August, and keep the application temperature below 80-85°.

MIRACALsp is 30% soluble calcium without the nitrate or chloride associated with most of the materials we have been using for the past several years. We have not found any material that it may not be tank mixed with yet. If you are using something unusual and exotic, test it first.

Perennial Canker, Apple Scab

Older trees that have a lot of pruning scars or have had winter damage in the past could easily harbor Perennial canker. The fruit should be protected if it is to be stored more than short term. Any orchard with an apple scab infection this year should also be protected against a fall infection that may develop later in storage. Control measures for either of these should be applied by mid August before the fall rains begin. For fruit that will be harvested in late September, a second application should be made in early September.

Use **Ziram 76 DF @ 8 lbs. per acre. Ziram is compatible with MIRACALsp or Calcium Chloride and K-Salt.**

Sunburn

If you didn't start your sunburn protection program in late June or early July before the possibility of heat damage, it's probably too late to be cost effective. If you did begin a program you need to keep it up until the probability of heat damage is past i.e., early to late September depending on variety, location and topography. Dr. Schrader (WSU Wenatchee) has established a threshold of 85 degrees for the initiation of heat damage in apples. See the July GROWERS FIELD GUIDE for more complete details.

Harvest Management

Retain has demonstrated the ability to delay harvest maturity up to two weeks and maintain better firmness in storage when properly applied. Watercore development is also delayed. Color may be increased because of the longer time on the tree and possible better coloring conditions later in the season. **Retain** does not cause or create color! In fact, if treated and untreated fruit is harvested on the same date; the untreated fruit will normally have better color development.

Valent BioSciences is continuing to work with different surfactants but has not found any materials that work as well as an organosilicone such as Silwet L-77 or Silgard 309 at .10% (13 oz. per 100 gallons of water). If the weather is above 90 degrees, reduce the surfactant to .05% (6 oz. per 100 gallons of water). To minimize foaming add the surfactant to the tank last, use the least agitation possible. If a defoamer is required, (not recommended) add it to the tank before the surfactant is put in and use the least amount possible. The defoamer lowers the effectiveness of the surfactant.

Valent BioSciences is recommending 100 gallons per acre to minimize runoff and maximize the benefit from the product. It must be applied before the beginning of ethylene production in the tree, normally 4 weeks prior to harvest for long-term storage. If your normal harvest schedule is for common storage and utilizes two NAA applications, apply Retain 5 ½ to 6 weeks before **your** normal harvest.



APRICOT

Peach Twig Borer

I have no experience in monitoring or treating Peach Twig Borer in Apricots after harvest. If you had a serious infestation at harvest there will be another generation in early August. An application of **Success** or **Intrepid** will reduce the numbers for next year, I don't know if that is an advantage or not, you will need to carefully time the appropriate covers next year anyhow. PTB will not do any material damage to a healthy apricot tree during the remainder of the year. (See Peach/Nectarine for timing and control details)

Shothole Borer

August through mid September will be the peak of Shothole borer activity. Patrol apricot, peach, nectarine and cherry blocks on a weekly basis. Check all of the weak and stressed trees; look in particular for yellowing and dropping leaves that involve only a portion of a tree that otherwise appears normal. Look

closely for a small (1/4 to 3/8"long), dark colored beetle moving around on the bark and 1/16" entrance holes in the area around bud scars or the base of lateral limbs. A small number of entrance holes can cause leaf drop on a fairly large limb and they are hard to find on rough dark bark. Sometimes a tendril of sap will be oozing out, which makes them much easier to find.

When you find attacking Shothole beetles in the orchard, treat immediately with **AzinphosMethyl**, (not on cots) **Diazinon 50WP**, or **Thiodan 50WP** (you are limited to 6 lbs. per year of Thiodan). Residual control of Shothole Borer is poor, new populations will continue to be attracted to weak or damaged trees but do limited feeding on the surface of the tree. Continue to monitor on a weekly basis and repeat the control as necessary. The Shothole beetle is active until early October.

Your best defense is to continue to remove the weak and dead trees and burn them as soon as you notice them. If you can't burn them immediately, stack them away from the orchard (they are still attracting beetles) and be sure they are burned before next March to destroy the overwintering larva.

CHERRY

Clean up spray

The post harvest spray to reduce the overwintering populations of Cherry Fruit Fly should already be on except in the latest districts. Apply 1/4 - 1/2 pint of **Dimethoate 400** per 100 gallons of water. Use as much spray as you need to get the trees fully wet and dripping easily. Concentrate applications will increase the risk of leaf drop. The best timing is 7 to 10 days after final harvest, the application must be made before the fruit hardens or drops. If you harvest for freezer, spray the next day if possible, clean up the boxes and ladders later. Two pints per acre has shown to provide good control, do not use more than 4 pints per acre per year of Dimethoate 400. Combining with oil has proven safe and effective, see the next article. **Provado** is also effective as a clean-up spray. The rate is 4 to 8 ounces per acre, but stay at the upper end for the best results.

Mites & Mildew post harvest

Interest in controlling mildew post harvest is high. The objective is to prevent the formation of cleistothecia (the overwintering spore form) and reduce the population pressure next year. Both post harvest sprays and pre-leaf drop sprays will do this. Neither program will lessen the need for an aggressive, properly timed program the following spring!

Mineral Spray Oil @ 1%, 200 gallons or more per acre will kill the mildew that it contacts and control most mite populations. Timing is important, the overwintering cleistothecia (those little black pepper spots in the mildew colony) begin forming very soon after Lapin harvest especially if the weather is hot. They are immune to almost everything including oil. Coverage is absolutely essential; oil must contact the mildew to have any effect. Several fieldmen have frequently reported good mildew control in the bottom 2/3 of the orchard, but poor control in the top 1/3 of the orchard at harvest time. That pattern is indicative of poor coverage. You must drive slow enough to let your sprayer fan completely displace all of the air in the center of the tree with the spray mist. In a mature orchard that has not been suckered, 1 1/2 mph should be considered the absolute maximum speed to travel. Repeat in 14 days if either mildew or mites are still active. Oil and Dimethoate have been combined post harvest on all varieties and elevations for the past several years with no problems. This is an excellent post harvest combination.

If you don't use oil post harvest and still want to take a bite out of the overwintering cleistothecia, apply **Lime Sulfur** at 10 gallons per acre just before the leaves begin to fall. Do not mix this with a fall nutrient program.

Pruning for mildew control

August is also a good time to see where the excessive shade is in your cherry orchard and do something about it. Look first where you haven't had to worry much about weed control for the past few years because of shade. A few large saw cuts made now when it is easy to see where the problem is will pay dividends in less mildew next year and more large, high quality fruit lower in the tree. If you can't easily see through the brush into the top center of the tree, your sprayer can't put your fungicide there either!

Shothole Borer

If you do summer pruning, shred the prunings to prevent infection by Shothole borers. Fresh prunings in mid August are very attractive to Shothole. If the wood is too large to shred, haul it away from the orchard so it won't attract Shothole beetles into the orchard. Burn the wood before next April to destroy the overwintering larva.

Sanitation is still the best control. Remove weak limbs, winter damaged trees and destroy the wood. Shothole borers frequently introduce *Cytospora* fungus into the tree resulting in damage far beyond the physical wound.

The growing and preharvest season sprays keep them under control; we usually don't notice them until late July or mid August depending on the district. Chemical control is difficult and frustrating, there is continuous movement into the orchard and the

limited surface feeding renders control from chemical residual ineffective. *See APRICOT - Shothole, for monitoring and control methods.*

PEACH/NECTARINE

Continue to monitor for mites, especially if you used Asana post bloom. **Acramite, Nexter, Vendex, Envidor** or **summer oils** are registered materials. With different varieties of fruit ripening the rest of the season, timing of a spray could be difficult. Summer oil (0 day PHI) has been used on a limited acreage for mite suppression and control of mildew on the foliage with no problems. Time necessary mite control to the young nymph, adult two-spotted mites are difficult to control with oil. Acramite has a 3 day PHI, Nexter 7 days, Vendex 14 days, Envidor 7 days, Oil 0 days.

Peach Twig Borer

The second generation will be flying by now in the early areas. Egg hatch begins the last week of July and peaks about mid August in the Wenatchee Area.

Pheromone traps that were used for the first generation need new bottoms for monitoring the second flight. There are three generations per year. If you did not trap and want to time a spray for protection from the second generation, pick up a copy of the DEGREE DAY DEVELOPMENT TABEL FOR PEACH TWIG BORER at the NWW warehouse nearest you.

If you know what the total Codling Moth degree-days **since March 1 for your area** are, subtract 405 from that total to determine what the approximate PTB degree-days are.

If you are working from the degree-days **since Codling Moth biofix**, subtract 205 to arrive at the same stage.

Guthion or AzinphosMethyl has a 21-day PHI, Imidan 70W and Success have 14-day PHI; Intrepid has a 7 day PHI.

Shothole Borer

See APRICOT - Shothole, for monitoring and control methods.

PEARS

Codling Moth

The second generation is at or near peak egg hatch in all but the very latest areas by the time you get this. Pre harvest intervals of the various control materials must be taken into account the rest of the year, harvest begins in August for Bartlett pears. If you had very good control of the first generation or very low pressure on the first generation you may be able to skip controls now. Continue to monitor your traps closely, especially on the borders. If you had moderate pressure watch the trap numbers closely now, maturing pears seem to be more attractive to the second generation than the green fruit was to the first generation. It doesn't take many escapes from the first generation to make a mess of your packout just before harvest.

Assail 70WP, 7 day PHI; Calypso 4F, 30 day: Guthion 50WP, 14 day PHI; Imidan 70 WSB, 7 day PHI.

Psylla

Psylla control problems after the first of August become frustrating because of the long PHI on some materials. The 28-day pre harvest interval on **Agrimek** rules it out by late July or very early August for most growers. **Actara** has a 35-day PHI for any rate over 2.75 ounces per acre, 14 days for rates below 2.75 ounces. **Assail** used for codling moth control will also control psylla, but slowly. This late in the year the Psylla are usually present in many stages, **Mitac** (PHI 14 days) works most reliably on early instars during hot weather. **Nexter** (PHI 7 days) will need ¼% to 1-% summer oil to give reliable control. **Provado** (PHI 7 days) combined with up to 1-% oil will provide control of the first two instars, maybe some of the third if the weather is hot. If nothing fits the schedule well, you can attempt to manage the honeydew with multiple applications of **Surround**. Tree washes using detergent or **Regulaid** keep the honeydew flattened out or dried up so the sooty mold does not develop and mark the fruit. The smaller instars of Psylla are also normally destroyed.

Overwintering Pear Psylla have been increasing in numbers the past two or three years. Pear growers in Oregon and organic growers in NCW have used an immediate post harvest Lime and Sulfur or micronized sulfur application to reduce the overwintering Psylla and control Rust Mite. I will include that program in the September issue.

Spider Mites

(See Spider Mites in the apple section.)

Storage Decay

Control of storage decay begins in the orchard with prevention and sanitation. The prevention part consists of at least one application of **Ziram 76DF** early in August before the fruit lenticles begin to open. If the block has a history of decay, preharvest weather is wet, or the block is slated for long-term storage, a second application should be considered. Apply at 8 lbs. per acre. The preharvest interval for Ziram on pears is 5 days with the exception of Bosc, and then it is 16 days. **Ziram may be combined with MIRACALsp or Calcium Chloride and K-Salt if desired.**

The second part is sanitation and prevention of fruit injury at harvest. Be sure there are no mummified fruit in the bin prior to placing new fruit in it. Tip the bin over to be sure all of the small grit is out of it. A pear lying on a grain of sand will be a cull by packing time. Harvest bins should always be placed on grass, gravel or a paved surface to prevent contaminated dirt from the orchard floor from being dropped into a lower bin of fruit during the stacking and hauling operation. During the stacking and loading operation at the orchard, take the time to remove all of the sod, dirt and rocks that are being carried on the bin runners *before* you stack them up. Trying to clean up a bin of fruit by removing a wad of sod and dirt that has dropped into it is somewhat like trying to clean up after a broken feather pillow by hand; it can't be done in the time available. The boxes of fruit saved by decay prevention will pay for a few additional hours of labor at harvest.