Tree Fruit IPM Advisory

Weekly Orchard Pest Update, Utah State University Extension, **June 15, 2011**

News/What to Watch For:

- Codling moth spray timings updated in table below and peach twig borer spray timings added for some locations.
- Aphid populations are spiking now and are very high this year due to the long and warm fall of 2010.
- Continue to watch peach fruits for powdery mildew lesions as the fruit starts maturing.
- It's time to start checking your sweet cherry fruits for a salmon blush color and if so, begin sprays for western cherry fruit fly.

Insect and Disease Activity/Info

APPLES/PEARS

Codling Moth

Most locations in the Wasatch Front should have applied their first cover targeting the first hatch of larvae, although we just added dates for Alpine and Tremonton. The table below lists the dates of "greatest egg hatch". At this short window of time, most of the eggs for the first generation are hatching. Therefore, we list this time period so that you can assure that you have "fresh" coverage of insecticide on your fruits. If you applied your first spray of the season early, or if you are using a product with a short residual period (the time it lasts on the fruit), then you may need to make sure your fruit is protected during the period of greatest egg hatch with fresh residue.

We also included the date for the end of egg hatch for each area. With all this information on hand, you can then plan all your remaining sprays for this first generation. Find the date of the end of egg hatch, and make sure your last spray will protect your fruit up until that date (i.e., at most 7, 14, or 21 days before depending on the product you're using).

One note about materials: some pesticides behave differently in our high pH water. Imidan, for example, lasts up to 3 weeks, but breaks down very quickly in water that is higher than a pH of 5, and requires the addition of a buffering product which can be found at most ag supply stores. There is more information about pesticides and pH in the April 9, 2008 newsletter called "Effect of Water pH on Pesticides".

We will report on the start of the second generation in a few newsletters. Typically, there is a "lag time" of about 3-5 days between the end of the first generation and the start of the second.

Rosy Apple Aphid

Aphids of all species (except woolly apple aphid) are starting to build now, including rosy apple aphid. This insect is more of an issue in backyard trees, but can sometimes build in commercial orchards. By late July, most fruit tree aphids will have moved out of their host tree onto summer weed hosts. Feeding by rosy apple aphids will curl leaves; produce large amounts of honeydew, and cause distortion and stunting of apple fruit. If rosy apple aphids are a problem now, treat them with Assail, Provado (commercial growers), horticultural oil or insecticidal soap (backyard growers) before they damage leaves and fruit.

San Jose Scale

This armored scale insect attacks a wide variety of hardwood trees, including all fruit trees. In Utah, it is most common on apple. It can be found feeding on twigs, scaffold branches, and fruit. They are often difficult to see with the naked eye; a 10-20x hand lens helps. They feed by sucking sap from plant tissues.

continued on next page

Insect and Disease Information, continued from previous page

We always recommend a dormant oil spray to help knock down the scale population. Ideally, the oil will smother the overwintering nymphs, whose protective "covering" is not as developed as adults. Overwintering adults will survive the dormant oil spray, and young nymphs laid by mated females (called crawlers) will need to be treated. Adult females produce approximately 200 crawlers each. Crawlers are bright yellow, and slow moving. They walk or are windblown to new sites to settle on twigs or fruit, insert their mouthparts, and feed for the remainder of their lives. Once they form their hard outer covering, they are more resistant to pesticides.

If the scale population is allowed to build on a tree, effects include reduced tree vigor and a decline in yield. It is primarily a problem in standard-sized, poorly pruned trees.

Treatment of first generation crawlers at 600-700 degree days after codling moth biofix is the best option for larger infestations (which for most places on the Wasatch Front will be sometime between July 2 and 6; for colder areas, July 10-14). Use the hand lens or double-sided tape to watch for crawlers to be sure.

Options for treatment (this will be included on the spray table in a later newsletter, as well) for commercial growers: Esteem, Diazinon, Centaur, Leverage, Tourismo, Imidan; for backyard growers: 1% horticultural oil, neem oil, Sevin, Malathion.

Leafhoppers

Leafhoppers (white apple and rose) are now showing up some apple trees. There are two generations of leafhopper per year. Although the first generation is fairly small, and foliar damage is rarely noticed, the second generation density in late summer can be quite large. Apple trees can tolerate a large population (more than 6 nymphs/leaf) before any damage occurs to fruit, but hopping and flying insects can be a nuisance during harvest.

Look for leafhoppers by examining leaves for typical damage (a yellow stippling pattern along the leaf veins) and turning them over to see nymphs. (Nymphs will remain on leaves while adults will fly away when disturbed.) You may also notice cast skins, which are left behind after molting.

Growers who are using acetamiprid (Assail, Ortho Max) for codling moth should see leafhopper control, too. Otherwise, consider Belay or Actara. (Leafhoppers are usually not serious for residential growers.)

Fire Blight

If any infections happened during bloom in areas of the Wasatch Front, they would be showing up by now. Remember that if you can stay on top of new infections early and prune them out, you will prevent problems in the future. Prune out wilted shoots by cutting back into healthy wood the same length as the wilted shoot itself or 12-18". (I.e., don't just prune or pick off the dead shoot; the bacteria travel through wood beyond the symptomatic tissue).

Insect and Disease Information, continued from previous page

STONE FRUITS

Peach Twig Borer

Only a few areas along the Wasatch Front have reported catching peach twig borer, and starting sprays for those locations are provided in the table below. We recommend the earlier timing if you know you have a large population, or had moderate to significant damage last year, and the later timing if you had very little damage last year. Sprays for the first generation will protect shoots from being attacked while later sprays will protect fruit from being attacked. Continue to keep shoots and fruit protected every 7, 14, or 21 days (depending on product used) until harvest.

Larvae of this pest prefer to feed on succulent tissue inside twigs. Feeding on fruit is the "second best option" when twigs become hardened off and unpalatable. Therefore, the first generation will bore into succulent terminal twigs (hence, its name) while later generations move on to the ripening fruit.

Greater Peachtree Borer

No peachtree borer moths have been trapped yet, so it is not yet time to start trunk sprays. We expect to see moths around July 4 (last year the first catch was June 10!). Adults lay eggs on the lower 12" of the tree trunk or on nearby soil, and larvae bore into the tree and feed on the cambium. They pupate in spring, and when they emerge, they sometimes leave their pupal case stuck in the tree.

For residential growers, when it is time to spray, you would use products that contain permethrin or bifenthrin (Bonide Eight, Ortho Bug-b-Gone, Green Light Borer Killer, Bonide Borer-Miner Killer, Enforcer Outdoor Insect Killer, Hi-Yield Broad Use Including Gardens; Lilly Miller Multi-Purpose Insect Spray, Spectracide Bug Stop).

For more information, see the greater peachtree borer fact sheet.

Western Cherry Fruit Fly on Sweet Cherries

Treatment for western cherry fruit fly—the worms in the fruit—should begin soon on sweet cherries. The recommendation is to protect fruit when it has begun to develop a salmon blush color, and we noticed this was the case on some sweet cherries in southern Utah County. Be sure to start your sprays based on the development of fruit on your own trees. Look at the fruit in the sunniest places, and toward the tops of the trees. Trees under stress will also often have fruit

that ripens more quickly than others so pay close attention to these special situations and time insecticide sprays accordingly.

Western cherry fruit fly is a serious pest of tart and sweet cherries. Although residential growers can "tolerate" several wormy cherries, please keep in mind that a commercial growers' crop can be rejected by the processing plant if worms are detected. If residential trees are adjacent to commercial orchards, it would be helpful if they were treated for cherry fruit fly.

There is an excellent product called GF-120 that is used by many growers across the country with great success (in Washington, they use this product almost exclusively). If you have a heavy infestation, it will take 1-2 seasons of use to bring 100% control with this product, especially if you can get as many nearby neighbors to use it as well. It contains a bait that attracts the fly to eat it, and the active ingredient is called spinosad. Spinosad is a metabolite from the naturally occurring soil bacterium, Saccharopolyspora spinosa. GF-120 must be applied every 7 days, but complete coverage is not necessary. Although it is expensive, it is available for purchase by residential growers at larger ag supply chains.

Cherry Powdery Mildew

Cherry powdery mildew can be a serious disease of cherries, particularly tart cherries, because it can reduce photosynthesis which may affect the subsequent year's crop. We noticed small infections starting to show up in Davis County. It is not necessarily all the rain that is causing the fungus to spread,

Insect and Disease Information, continued from previous page

but the humidity that comes with it. Cherry powdery mildew overwinters as resting spores in fallen leaves, on the orchard floor, or in bark crevices. It needs 90 percent humidity and temperatures between 50-78 F for infection to occur. Leaves, fruit, and fruit pedicels can all become infected.

The earliest infections are found on leaves near the crotches, on the lowest, interior twigs (where humidity is highest). These infections then serve as inoculum for future infections that can be repeated throughout the summer.

Sprays are recommended as soon as the first lesions are spotted, and continued until growth hardens off (every 2 weeks for most fungicides). Prompt sanitation (removal of infected leaves) will help tremendously, too.

PRODUCTION INFORMATION

Thinning Peaches

Peaches will set far more fruit than the tree can carry to harvest. Thinning the extra fruit is very important not only to get a good crop of fruit this year, but to get a decent crop next year. Excess fruit that remains too long on the tree will impact fruit size, formation of flower buds and crop potential for the following year, and overall tree health. An overload of peaches greatly reduces the tree's carbohydrate reserves and can also affect the tree's ability to withstand disease and winter injury. Branch breakage can also occur from the weight of too many peaches.

Proper thinning ensures an even production of flower buds from year to year and provides larger fruit size. Although fruit will naturally drop from the tree ("June drop"), the amount is insufficient to assure optimal fruit size. Natural drops typically stem from unfertilized seed, cold injury, competition between fruit, or excessive shading.

Start thinning peaches approximately 40 days-4 weeks after full bloom, or when peaches are the size of a robin's egg. Remove fruit either by hand or, on taller trees, hitting unwanted fruit with children's plastic bats, rubber hoses, or other soft object. (Hand thinning is the optimal option.) When thinning, pick off the smallest fruits as well as any that are misshaped or damaged. Then adequately space the remaining fruits. Space fruits about 3 to 5 inches apart along a shoot. A moderate-sized peach tree should only produce 100 to 150 fruits on the entire tree.

Insect and Disease Information, continued from previous page

Safe Application of Pesticides

Storage

- Always store in their original container and keep the label.
- Always store pesticides out of children's reach -- preferably in a locked cabinet.
- Garden sheds and greenhouses are not ideal for storing pesticides as they can get very hot in summer or cold in winter. Pesticide products are best stored at an even temperature.

Pesticide label

- Read the Label before making any applications.
- The label will explain how to use the product safely and any special precautions you need to take. For example, you may need to keep children and pets out of treated areas, or you may need to wait for a certain length of time before eating the fruit or vegetables you have treated. The label will also tell you whether you need to wear special clothing, gloves, dust masks, etc.

Mixing pesticides

- Pick an area where you will mix pesticides and keep pets and children away from this area.
- Never make up more than you will need on that day.
- Do not be tempted to add extra pesticide/product to make it stronger – this isn't necessary and could even damage the plant or lawn that you are treating.
- Never store pesticides that you have mixed and not finished using. Concentrated pesticides that have been diluted and stored may not work as well when you next use them, and more importantly, it is illegal to store pesticides that are unlabelled and not in their original container for safety reasons. Remember to only dilute enough for that day's use.

Applying the pesticide

- Before applying, remove pets and children and all their toys, from the area. Keep children and pets away until the pesticide has dried or as long as is recommended on the label.
- Wear appropriate clothing as directed on the label.
- Wash your hands after applying before you do anything else and change and wash your clothes.

Disposal of unwanted pesticides

- Whether you've diluted it or not, never pour pesticides down a drain or any other water drainage system (e.g. sink or toilet) because of the risk of contaminating water and harming wildlife. (It is also illegal.)
- Pesticide containers that have held concentrated product (i.e. requiring dilution before use) should be rinsed three times. Get rid of rinse by adding to your diluted spray solution. The empty container can then be placed in household waste.
- Empty pesticide containers that have held Ready-to-Use product (i.e. trigger sprays) can be disposed of directly into your household waste.
- Utah Dept. of Ag. and Food sometimes holds pesticide collection programs to keep hazardous products out of landfills and combustors.

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

Pest	Host(s)	DD/Monitoring Action
Apple powdery mildew	apple	Look for small white lesions on new foliage
Codling moth	apple, pear	Egg-hatch approximately 2 weeks after emergence
San Jose scale	apple mostly	Treat crawlers in late June/early July
White apple leafhopper	apple	Look for nymph and adult activity on undersides of leaves
Green peach aphid	peach, nectarine	Look for colonies on peach and nectarine
Peach twig borer	peach, nectarine, apricot	Moths typically start flying in early to mid June; treatment is 1-2 weeks later
Black cherry aphid	cherry	Watch terminals for leaf-curling and feeding
Cherry powdery mildew	cherry	Look for small white lesions on new foliage near the base and interior of the tree

Degree Day Accumulations and Pest Phenology, through June 14.

Click here for information about degree days.

County	Location	Codling Moth (1st Generation)			Peach Twig Borer (1st Generation)		
		DD (post biofix)	% Moth Flight	% Egg Hatch	DD (post biofix)	% Moth Flight	% Egg Hatch
Box Elder	Perry	215	42	0	no biofix yet	---	---
	Tremonton	71	8	0	no biofix yet	---	---
Cache	River Heights	183	36	0	no biofix yet	---	---
	Smithfield	143	25	0	no biofix yet	---	---
Davis	Kaysville	232	47	1	no biofix yet	---	---
Grand	Castle Valley	719	99	89	no biofix yet	---	---
Iron	Cedar City	217	44	0	no biofix yet	---	---
Salt Lake	Holladay	286	55	4	no biofix yet	---	---
	West Valley City	286	55	4	15	1	0
	West Jordan	223	46	1	no biofix yet	---	---
Tooele	Erda	134	21	0	no biofix yet	---	---
	Tooele	163	29	0	no biofix yet	---	---
Uintah	Vernal	272	53	0	no biofix yet	---	---
Utah	Alpine	148	25	0	no biofix yet	---	---
	American Fork	147	25	0	no biofix yet	---	---
	Genola	238	50	2	no biofix yet	---	---
	Goshen	161	29	0	no biofix yet	---	---
	Lincoln Point	216	43	0	82	7	0
	Lindon	211	42	0	no biofix yet	---	---
	Payson	215	42	0	no biofix yet	---	---
	Santaquin-West	183	36	0	no biofix yet	---	---
	West Mountain	203	41	0	no biofix yet	---	---
Weber	Pleasant View	219	44	0	13	1	0
Wasatch	Heber City	84	11	0	no biofix yet	---	---
Wayne	Capitol Reef	280	54	4	no biofix yet	---	---

Spray Timing

The table below shows two options for the first spray of the first generation. **Option A** may provide a slight cost savings, and can be repeated at the beginning of the second generation. It uses horticultural oil (1%) to target eggs before they have started to hatch. The second spray will then be about 7-12 days later, and will coincide with the period when eggs would normally be rapidly hatching. **Option B** is the traditional date to start sprays--when the eggs start hatching.

Good residue (insecticide) coverage is important at this timing. After the first insecticide spray has been applied, continue to apply your chosen material(s) at the interval provided on the label.

		Option A		*Option B*	Maintain Protection of Apples Through:	
County	**Location**	***Apply Oil (200 DD)***	***Apply delayed 1st cover (350 DD)***	**Traditional Start Date (1% egg hatch)**	**Period of Greatest Egg Hatch (340-640 DD)**	**Keep Fruit Protected up To: (1020 DD)**
Box Elder	Perry	past	---	past	June 20 - July 5	July 23
	Tremonton	June 21	June 29	June 23	June 29 - July 12	July 28
Cache	River Heights	past	---	past	June 24 - July 10	July 27
	Smithfield	June 18	June 27	June 20	June 25 - July 10	July 27
Davis	Kaysville	past	---	past	June 18 - July 2	July 18
Grand	Castle Valley	past	---	past	May 29 - June 12	June 26
Iron	Cedar City	past	---	past	June 20 - July 5	July 22
Salt Lake	Holladay	past	---	past	June 14 - June 28	July 13
	West Valley City	past	---	past	June 14 - June 28	July 15
	West Jordan	past	---	past	June 18 - July 1	July 21
Tooele	Erda	June 17	June 26	June 18	June 22 - July 5	July 21
	Tooele	June 16	June 24	June 17	June 22 - July 5	July 20
Uintah	Vernal	past	---	past	June 18 - July 4	July 23
Utah	Alpine	June 18	June 26	June 20	June 20 - July 10	July 26
	American Fork	June 17	June 25	June 18	June 22 - July 6	July 23
	Genola	past	---	past	June 18 - July 3	July 19
	Goshen	June 16	June 24	June 17	June 21 - July 5	July 22
	Lincoln Point	past	---	past	June 20 - July 4	July 21
	Lindon	past	---	past	June 17 - June 30	July 17
	Payson	past	---	past	June 19 - July 2	July 19
	Santaquin-West	past	---	past	June 21 - July 5	July 21
	West Mountain	past	---	past	June 18 - July 2	July 19
Weber	Pleasant View	past	---	past	June 18 - July 2	July 18
Wasatch	Heber City	June 22	July 2	June 24	July 1 - July 18	August 8
Wayne	Capitol Reef	past	---	past	June 15 - June 27	July 13

Spray Timing

Peach Twig Borer, First Generation: We have caught moths in a few locations; those are noted below. Dates for other locations should be included in next advisory.

(If you had moderate to severe PTB damage last year, use the earlier spray date; if you had very little PTB damage last year, use the later date to start sprays. These two dates correspond to 300 and 360 degree days after biofix, or 5% and 16% egg hatch. End of egg hatch, where you should "keep fruit protected up to" is at 800 degree days.

County	Location	***Start Sprays (300 DD:*** large population/heavy damage)	***Start Sprays (360 DD:*** small population/little to no damage)	**Keep Fruit Protected Up To: (800DD)**
Box Elder	Perry	---	---	---
	Tremonton	---	---	---
Cache	River Heights	---	---	---
	Smithfield	---	---	---
Davis	Kaysville	---	---	---
Grand	Castle Valley	---	---	---
Iron	Cedar City	---	---	---
Salt Lake	Holladay	---	---	---
	West Valley City	June 27	June 30	July 17
	West Jordan	---	---	---
Tooele	Erda	---	---	---
	Tooele	June 24	June 27	
Uintah	Vernal	---	---	---
Utah	Alpine	---	---	---
	American Fork	---	---	---
	Genola	---	---	---
	Goshen	---	---	---
	Lincoln Point	June 26	June 29	July 17
	Lindon	June 26	June 30	July 17
	Payson	---	---	---
	Santaquin-West	---	---	---
	West Mountain	---	---	---
Weber	Pleasant View	June 28	June 30	July 17
Wasatch	Heber City	---	---	---
Wayne	Capitol Reef	---	---	---

Spray Materials - Residential Applicators

Note that these treatments are only recommended if you know you have the particular pest in your trees. We recommend learning about specific pests, and scouting your trees at least once/week.

Target Pest	Host	Chemical	Example Brands	Comments
Codling moth	apple, pear	*Conventional*		**acetamiprid**: every 14 days **carbaryl**: every 14 - 21 days **malathion**: every 7 days **gamma-cyhalothrin**: every 14 days **bifenthrin**: every 14 days **hort. oil**: lasts 5-7 days for killing eggs; use at beginning of each generation; apply at 1% rate only when temperatures are below 80; follow up with a different product **spinosad**: every 7 days **codling moth virus** can only be purchased online
		carbaryl	Sevin, Bonide Fruit Tree Spray, etc.	
		acetamiprid	Ortho Max Flower, Fruit, and Veg.,	
		malathion	Malathion	
		gamma-cyhalothrin	Spectracide Triazicide	
		bifenthrin	Ortho Max Lawn and Garden Insect Killer	
		Soft/organic		
		hort. oil (1%)	Many products	
		spinosad	Green Light, Gardens Alive Bull's Eye	
		codling moth virus	Virosoft, Cyd-X	
Aphids	all fruit trees	carbaryl	Bayer Advanced	start with a single application
		bifenthrin	Ortho Bug-B-Gone	
		malathion	Bonide, Malathion	
		neem oil	Green Light	
		permethrin	Lilly Miller	
Powdery mildew	apple, cherry	bayleton	Bonide	do not apply lime sulfur when temperature is over 75 degrees F. **Neem oil** and **Kaligreen** are organic options
		lime sulfur	Lilly Miller	
		propiconazole	Ferti-Lome	
		neem oil	Garden Safe	
		potassium bicarbonate	Kaligreen	
Coryneum blight	peach, nectarine	captan	Captan	If your fruit has not passed shuck split stage, use chlorothalonil, otherwise, use **captan** if necessary; **Neem oil** is organic, but provides only poor-fair control
		neem oil	Various brands	
Peach twig borer	peach, nectarine	*Conventional*		see comments under Codling Moth **permethrin**: every 14 days; this ingredient is becoming less available in stores **Surround**: every 3-5 days; works to repel, not kill insects; only moderate control; must purchase online
		acetamiprid	Ortho Max Flower, Fruit & Veg	
		carbaryl	Sevin, Bonide Fruit Tree Spray, etc.	
		malathion	Malathion	
		permethrin	Basic Solutions Yard & Garden, Bonide Eight	
		Soft/organic		
		spinosad	see 'codling moth' above	
		kaolin clay	Surround	
Western cherry fruit fly	cherry	carbaryl	Sevin	start applications when fruit in sunniest locations develop a salmon blush **spinosad**: every 7 days
		malathion	Malathion	
		pyrethrin	Concern Multi-Purpose	
		spinosad	see above	

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Spray Materials - Commercial Applicators

The options provided below are not all-inclusive and are not endorsements of USU. Please check the label before mixing.

Target Pest	Host	Example Brands	Chemical	Amount per acre	REI	Comments
Codling Moth	apple	Altacor 35WDG	chlorantraniliprole	3.0-4.5 oz	4 h	
		Assail	acetamiprid	1.7-3.4 oz	12 h	
		Belt SC	flubendiamide	5 oz	12 h	
		Delegate 25WG	spinetoram	6-7 oz	4 h	
		Imidan 70W	phosmet	3.5-5.3 lbs	3 d	
		Voliam Flexi	thiamethoxam +chloran-traniliprole	4-7 oz	12 h	
Rosy apple aphid	apple	Assail	acetamiprid	1.7 oz	12 h	apply post bloom only if scouting shows that this pest is present
		Clutch	clothianidin	2-3 oz	12 h	
		Beleaf	flonicamid	2-2.8 oz	12 h	
		Provado	imidacloprid	4-8 oz	12 h	
		Calypso	thiacloprid	2-4 oz	12 h	
Pear psylla	pear	Assail	acetamiprid	1.7-3.4 oz	12 h	oil alone is also effec-tive, or add oil to one of these products
		Centaur WDG	buprofezin	34.5-45 oz	12 h	
		Delegate	spinetoram	4-7 oz	4 h	
Powdery mildew	apple	Kaligreen	potassium bicarbonate	2.5-3 lb	4 h	apply starting at open cluster stage and repeat every 7-14 days if nec-essary
		Flint	trifloxystrobin	2-2.5 oz	12 h	
		Rally	myclobutanil	5 oz	24 h	
		Procure	triflumizole	8-16 oz	12 h	
		Pristine	pyraclostrobin + boscalid	14.5-18 oz	12 h	
		Rubigan	fenarimol	12 oz	12 h	
Peach twig borer	peach, nectarine	Belt	flubendiamide	3-4 oz	12 h	reapply based on pro-tection interval until harvest
		Altacor	chlorantraniliprole	3.0-4.5 oz	12 h	
		Delegate	imidacloprid	4.5-7.0 oz	12 h	
		Imidan	phosmet	4.25 lbs	12 h	
		Voliam Flexi	thiamethoxam+ chloran-traniliprole	4-7 oz	12 h	
Powdery mildew	peach	Adament	tebuconazole+ trifloxys-trobin	4-8 oz	4 h	monitor fruit and leaves for powdery mildew and only apply if neces-sary; chance of fruit infection decreases after pit hardening
		Abound	azoxystrobin	11-15 oz	12 h	
		Orbit, Tilt	propiconazole	4 oz	4 h	
		Pristine	boscalid+ pyraclostrobin	2-2.4 oz	12 h	
Coryneum blight	peachers, nectarine, apricot	Captan	captan	see label	24 h	
		Pristine	boscalid+ pyraclostrobin	10.5-14.5 oz	12 h	
		Ziram/Thiram	ziram	6-8 lbs	48 h	
Western Cherry Fruit Fly	cherry	Altacor	chlorantraniliprole	3.0-4.5 oz	4 h	start applications when fruit develops salmon blush color on top of yellow and continue until harvest
		Assail	acetamiprid	5.3-8 oz	12 h	
		Delegate	spinetoram	4.5-7 oz	4 h	
		GF-120	spinosad+bait	10-20 oz	4 h	
		Provado	imidacloprid	6-8 oz	12 h	
Powdery mildew	cherry	Abound	azoxystrobin	11-13 oz	4 h	
		Pristine	boscalid+ pyraclostrobin	10.5-14.5 oz	12 h	
		Quintec	quinoxyfen	7 oz	12 h	
		Rally	myclobutanil	2.5-6 oz	24 h	
		Rubigan	fenarimol	6-12 oz	12 h	