Tree Fruit IPM Advisory

Weekly Orchard Pest Update, Utah State University Extension, **May 4, 2012**

News/What to Watch For:

- Apple powdery mildew may become an issue with the higher humidity; watch apple leaves for new lesions as the temperatures warm.
- Fire blight risk shown below; only applies to areas where apples or pears still have latent blooms
- San Jose scale crawlers will be active in June in northern Utah; we will report on spray dates as they get closer, southern Utah should treat for scale some time between May 19 and 24 (Washington County) or the last week of May (Grand County)
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Insect and Disease Activity/Info

APPLES/PEARS

Codling Moth

Codling moth flight is in full swing, and we now have dates to start sprays in all Utah locations that we monitor. Remember that this is the last season that you can use Guthion (in general, only 1 spray allowed). Below is a list of codling moth insecticide options for large orchards and backyard trees.

Options for larger orchards:

Altacor (rynaxypyr): Altacor has been shown to have excellent control of both first and second generation codling moth. Washington State University (WSU) research has shown that it also kills eggs. It should be applied at first egg hatch and lasts 14 days.

Assail (acetamiprid): In WSU studies, Assail performed similarly to Imidan (and almost as well as Guthion). Assail is primarily a larvicide, but WSU found that Assail is also highly toxic to codling moth eggs. Assail lasts approximately 14 days and has a PHI of 12 hr, and 7-day PHI. Good coverage is essential. Michigan State University (MSU) reports that the higher rate on the label is most effective, especially for the second generation. This is a fairly broad spectrum product (neonicotinoid).

Belt (flubendiamide): Belt has the same mode of action as Altacor, but is not rated as effective.

Calypso (thiacloprid): Calypso is similar to Assail in mode of action, efficacy against codling moth, and mammalian toxicity, but has a 30 day PHI. The application rate at the high end works best. This is a fairly broad spectrum product (neonicotinoid).

Clutch (clothianidin): WSU field trials found that Clutch, which works against newly hatched larvae, is not a highly effective material for codling moth.

Delegate (spinetoram): Like Altacor, Delegate is very lethal to codling moth larvae. Field testing at WSU and MSU showed that Delegate provides excellent control of first and second generation larvae. The larvae must consume the material to die. It lasts 14-21 days depending on codling moth density and rate. A program rotating Delegate and Altacor has shown to be as effective as Guthion.

Esteem (pyriproxyfen): Esteem is an insect growth regulator and it has activity primarily against the eggs. WSU found that in order for it to be effective, the insecticide must be present BEFORE eggs are laid. Therefore, Esteem should be applied at the petal fall stage. This may not be a good product for locations with high populations, but could be a good supplement to mating disruption.

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Intrepid (methoxyfenozide): Intrepid is also an insect growth regulator. WSU studies found that if a larva survives an Intrepid spray, the subsequent adult will not be able to reproduce, which is considered a sublethal effect. Intrepid must be ingested by larvae to have a toxic effect. Intrepid has strong ovicidal activity whether applied after eggs are laid, or if eggs are laid on residues. Intrepid lasts about 14 days.

Backyard Growers

When choosing your material, be sure to look on the label for the "active ingredient" name (the name shown in bold below), and also make sure that apple and/or pear is listed as a crop on the label.

Ortho Max Fruit & Vegetable (**acetamiprid**): This is a good option for backyard growers. It lasts approximately 14 days and is very effective against codling moth larvae and eggs.

Green Light, Gardens Alive Bull's Eye, Monterey Garden Insect Spray, etc. (**spinosad**): Spinosad is a low toxicity product that is soft on beneficials. It must be applied every 7-10 days, and is moderately effective.

Sevin (**carbaryl**): Carbaryl is a broad spectrum insecticide with good efficacy against codling moth and many other pests. It lasts 14 days for heavy populations, and possibly up to 21 days in areas of light infestations. It is a fruit thinner, so using carbaryl 4-6 weeks after petal fall will cause fruit drop. It is toxic to natural enemies and honeybees, and can cause spider mite outbreaks.

Spectracide Triazicide Once and Done (**gamma-cyhalothrin**): This product is a pyrethroid, and is effective, but kills beneficial insects and may result in a spider mite outbreak or other problem. It lasts about 14-21 days.

Malathion: Malathion is a broad spectrum insecticide that has good efficacy against codling moth, but must be applied every 7 days. Not all malathion products are the same, so be sure to read the label for application information.

Horticultural **oil**: Oil at the 1% rate can be used during the egg laying stage at the beginning of each generation (for example, 7-10 days after full bloom for first generation) to kill eggs. It only kills by contact (has no residual activity), so another material should be used 7-14 days later.

AzaMax, Azatin (**azadirachtin**): These products are softer on beneficial insects and mammals, but not as effective on codling moth.

Bt (*Bacillus thuringiensis*), pyrethrum/pyrethrin, insecticidal soap, and neem oil, are not effective against codling moth.

Fire Blight

Keep a watch out for new fire blight infections on flower/fruit clusters in the next few weeks and remove them to prevent further spread into the wood. This is especially important in orchards or backyard trees with a few sporadic infections.

Ignoring even a few infections for one to two seasons can lead to a long road to tree recovery. Young trees and orchards (less than seven years) should also be carefully monitored because the bacteria that enter through blossoms can move rapidly through tissues into branches, scaffold limbs, and rootstocks.

Location	Risk
Cache County	LOW through May 8 HIGH May 8-11
Carbon, Uintah Counties	HIGH through May 8
Box Elder, Davis, Salt Lake Counties	LOW to May 7 HIGH
Iron County	CAUTION-HIGH through May 10
Utah, Tooele Counties	CAUTION through May 8 HIGH-EXTREME May 8-11
Wasatch County	CAUTION through May 6 LOW May 7-8 HIGH May 8-11

CAUTION: Wetting at this point is not likely to lead to infection, except within a few yards of an actively oozing canker. Continue to closely monitor the fire blight forecast, and consider applying antibiotic if HIGH/EXTREME risk is forecast in three or four days.

HIGH: Outbreak may occur if blossoms are wetted, no matter the blight history of your orchard. Apply antibiotic within 24 hours before or after the wetting event.

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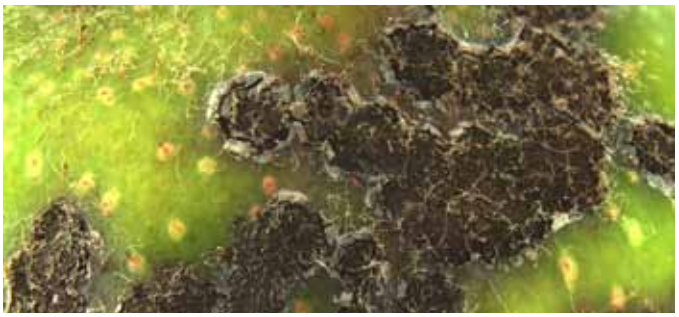
Apple Scab



Apple scab is very uncommon in Utah, but it was found sporadically last year. It is a disease that thrives in cool, moist conditions, which occurred in 2010 and 2011. So you may see some symptoms like the ones shown above on foliage and fruit, if this disease was present last year. It spreads when temperatures remain in the 50s with at least 11 hours of constant rain.

A hot dry summer is predicted, which will prevent spread, and we are not recommending any fungicide treatments at this time unless you had an outbreak in your orchard last year. Some options include Procure, Rubigan, Vanguard, and Topsin.

STONE FRUITS

Coryneum Blight

We continue to see shot hole lesions on leaves of peach and apricot. Shot hole (or coryneum blight) initially infects leaves, and later in the season, infects fruit as well. New fruit infections in fruit appear as small purple lesions.

Cool, wet weather contributes to spread. All that is needed is about 6 hours of moisture (plus the presence of the pathogen) to cause new infections.

Most of the warmer areas are past the shuck-split stage for peaches, but if your trees have not passed that stage, you can use Bravo (chlorothalonil), Abound, Captan, Ziram, or Pristine. Otherwise, treat when rains occur.

For residential growers, Captan is really the only option after shuck split stage, and this fungicide works best when applied before the rain, as a preventive.

Brown Mites

Brown mite is a mite that we first started seeing sporadically in orchards in 2009. They do best in cool, moist weather, so the past 4 springs have been good conditions for their spread. A low population of brown mites–especially at this time of year–can actually be beneficial in that they would serve as a source of food for predatory mites, helping the predatory mite population to increase. Then, when spider mites become more active in the hot, dry weather, they can be controlled by the predatory mites. We have seen low populations in Cache and Davis Counties.

The brown mite (*Bryobia rubrioculus*) overwinters as an egg that looks similar to the European red mite, and can occur on all fruit tree species. They are thought to feed at night, and hide on twigs during the day. There are at least 3 generations per season. Damage is similar to two-spotted spider mites: stippled leaves.

In some areas of Utah County, we have seen very high numbers. If necessary, this pest can be treated with any miticide.

Upcoming Monitoring/Insect Activity

Pest	Host(s)	Monitoring Action
Apple powdery mildew	apple	Look for small white lesions on new foliage
Codling moth	apple, pear	Egg-hatch begins approximately 2 weeks after biofix
San Jose scale	apple mostly	Crawler emergence early June; treat in late June
White apple leafhopper	apple	Look for nymph and adult activity on undersides of leaves
Cherry powdery mildew	cherry	Look for small white lesions on new foliage near the base and interior of the tree
Western cherry fruit fly	cherry	Hang traps in late May; first flies in early June; treat when fruit develops salmon blush color
Peach twig borer	peach, nectarine	Hang traps in late May; first flight early June

Spray Timing

Codling Moth, First Generation

Most residential growers should start sprays at the "traditional start date," unless you choose to use horticultural oil at 200 Degree Days (DD), in which case, you won't need to apply your main insecticide for several weeks, shown under "Option A, 350 DD"

County	Location	Option A		Option B
		Apply Oil (200 DD)	Apply First Cover (350 DD)	Traditional Start Date (220 DD, 1% egg hatch)
Box Elder	Perry	May 12	Date is after May 24 (actual date reported later)	May 14
Cache	River Heights	Date is after May 24 (actual date reported later)	Date is after May 24 (actual date reported later)	Date is after May 24 (actual date reported later)
	Smithfield	date reported later	date reported later	date reported later
Davis	Kaysville	May 13	date reported later	May 16
Grand	Castle Valley	April 30	May 11	May 1
Iron	Cedar City	May 17	date reported later	May 20
Salt Lake	All Regions	May 8	May 21	May 9/10
Tooele	Tooele	May 12	date reported later	May 16
Uintah	Vernal	May 17	date reported later	date reported later
Utah	Alpine	May 12	date reported later	May 15
Utah	American Fork	May 12	May 27	May 14
	Genola	May 12-13	date reported later	May 15
	Orem	May 9-10	May 22	May 13
	Payson	May 16	date reported later	date reported later
	Santaquin	May 13	date reported later	May 16
Weber	Pleasant View	May 13-14	date reported later	May 16
Wasatch	Heber City	Date is after May 24 (actual date reported later)	Date is after May 24 (actual date reported later)	Date is after May 24 (actual date reported later)

Spray Materials - Commercial Applicators

Please look up spray material options in the ***2012 Utah-Colorado Tree Fruit Production Guide.*** If you do not have a copy and would like one, contact marion.murray@usu.edu. You may also access spray options at the guide's companion website at **intermountainfruit.org**.

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. Products are listed by Conventional (usually broad-spectrum pesticides that are effective, but harmful to beneficial insects), or Soft/Organic (not as effective, but safer for environment and humans). Products are listed in order of efficacy.

Target Pest	Host	Chemical	Example Brands	Comments
Codling moth	apple, pear	*Conventional* carbaryl acetamiprid malathion gamma-cyhalothrin *Soft/organic* hort. oil (1%) spinosad codling moth virus	 Sevin, Bonide Fruit Tree Spray, etc. Ortho Max Flower, Fruit, and Veg., Malathion Spectracide Triazicide Many products Green Light, Gardens Alive Bull's Eye, Monterey Cyd-X	**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 F; follow up with a different product **spinosad**: every 7 days **codling moth virus** can only be purchased online
Powdery mildew	apple	*Conventional* bayleton propiconazole *Soft/organic* lime sulfur neem oil potassium bicarbonate	 Lilly Miller Ferti-Lome Bonide Garden Safe Kaligreen	do not apply lime sulfur when temperature is over 75 degrees F, and do not mix with oil or apply after or before oil
Fire blight	apple, pear	streptomycin oxytetracycline	Ferti-Lome Mycoshield	Do not use antibiotic unless necessary; apply **streptomycin** within 24 h of a wetting event only if fire blight was present last year; **oxytetracycline** within 12 hr.
Coryneum blight	peach, apricot	captan	Captan	use as a preventive before a rain

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