



UTAH PESTS News

Utah Plant Pest Diagnostic Laboratory and USU Extension

Vol.VII, Spring 2013

Spring Cleaning with an IPM Eye



Every year, nuisance pests are commonly submitted to the Utah Plant Pest Diagnostic Lab. Many of these pests, including boxelder bugs, hobo spiders, paper wasps, black widows, carpet beetles, Indian meal moths, clothes moths, carpenter ants, mice (the list goes on and on), can be eliminated or minimized by exclusion, sanitation, and cultural practices. While spring cleaning your home, take steps to minimize structure-infesting pests using integrated pest management (IPM).



Whitney Cranshaw, CSU, bugwood.org

Plugging holes in outdoor equipment, furniture and play structures can help minimize the presence of paper wasps and other pests.

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UTAH PESTS SAYS GOODBYE TO BEE SPECIALIST

Extension Bee Specialist and USU Cooperative Agriculture Pest Survey Coordinator, Cory Stanley-Stahr, and her family, have moved to Florida where Cory has accepted a coveted post-doctoral position with University of Florida in the honey bee research and Extension lab. We wish her the best!

Future honey bee inquiries should be directed to your county bee inspector. For contact information and more resources, [click here](#).

House Exterior/Yard

IPM starts with prevention. Outside the home, inspect all screens, door sweeps, weather stripping, windows, foundation cracks, and other openings where pests may enter and repair the problem or seal the opening. It is also good practice to caulk or repair cracks in driveways, patios, and where hardscape meets the foundation. Seal gaps where electrical, cable, and gas or water lines enter the home.

Maintain a 2 to 3-foot buffer between the foundation and plants to prevent nuisance pests. Tree and shrub limbs that are close to the home can form bridges for ants and other pests to invade. Prune those close limbs so that there is at least a 1 foot gap to the house walls and roof. Pull mulch away from the house foundation 3 to 6 inches and minimize mulch depth to 3 inches to deter mice and ants. Make sure that mulch around plants is not touching the bark to prevent long-term plant health issues. Areas under decorative stones, yard gnomes, and other favorite lawn ornaments can provide

quality sites for hobo spiders, ants, and other pests. Consider reducing yard clutter as much as possible.

To prevent paper wasps from building nests in unwanted areas, plug holes in lawn furniture, siding, play equipment, and fencing. Look for wasp nests and destroy immediately to keep them from becoming larger throughout the summer. In lawns, sandy areas are prime habitat for many solitary bees and wasps. If sandy areas and ground-nesting insects are an issue, consider replacing the sand or dirt with grass, or cover with horticultural fabric and mulch. Be wary of spiders and stinging/biting insects in water and electrical boxes.

Changing exterior lighting from the traditional bulbs to sodium vapor bulbs (the yellow ones) will go a long way to reduce insects attracted to the home at night, reducing insects coming into the home, and minimizing the presence of spiders which feed on those insects.

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Carpenter ants and termites love wood. If you have a wood pile, make sure it is as far away from the home as possible. Ants, termites, and hobo spiders can live in wood piles and then invade the home. This is especially true of wood piles kept directly against outside walls. If you have stumps or dead or dying trees on the property, monitor them for pests and take action if necessary.

Clean out your gutters. Backed-up gutters can dam water during storms and create moisture issues in roofs. This can make otherwise undesirable wood material attractive to pests like carpenter ants.

Inside the Home

Pantry pests were common in 2012, especially carpet beetles, Indian meal moth, and clothes moths. When cleaning the pantry this spring, check all stored food for the presence of moths and beetles and their immature forms. Infested food should be discarded. Newly purchased food should be stored in air-tight, pest-proof containers made of clear plastic with locking lids. This will prevent access to food for many pests now, and in the future. Remember that some pests can chew right through packaging materials. Any improperly sealed food is susceptible to invasion.

Scrub the pantry while looking in hidden nooks and crannies for moths, beetles and larvae. Pantry shelving should ideally



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Indian meal moths, **top**, are one of Utah's most common food-infesting pests. Various types of carpet beetles, **bottom**, can be found indoors infesting food or animal-based products. Improperly stored food is a common place for carpet beetle populations to grow and spread to other food items.

be made of metal, with the shelving composed of metal grates. This dissuades pests from hiding in shelving and from accessing food. If replacing shelving is not feasible, consider caulking small cracks and crevices in shelving to eliminate harborage sites.

Don't forget about dog food, bird seed, and other possible food sources. Often,

Buffalograss as a Drought-Tolerant Turf

By Dr. Paul Johnson, Associate Professor in Department of Plants, Soils, and Climate. He specializes in evaluating and developing sustainable turfgrasses for the Intermountain West, organic golf course management, drought management in Utah, and turfgrass variety trials. Learn more about his research and projects [here](#).

This article is reprinted with permission from Utah IPM Turf Advisory, Spring 2013 edition.

Buffalograss (*Bouteloua dactyloides* or *Buchloë dactyloides*) as turf is a top contender in helping to make ornamental landscapes sustainable, both from an irrigation standpoint and general management practices. It is one of the few turfgrasses that is native to North America.

Buffalograss is a species native to the short grass prairie of the North American Great Plains. It is a warm-season grass species (a very important detail that is discussed later) that has a vigorous stoloniferous growth habit (grows laterally with runners). It has a unique blue-gray to green color, with soft, relatively fine leaves that pass the “barefoot test” in summer. Male and female flowers are borne on separate plants. Male flowers grow above the leaf canopy, creating a naturalized look, and female flowers are little burs hidden down within the leaves.

The main selling point for buffalograss is in water-wise settings. Compared to cool-season grasses used in Utah, buffalograss can provide actively growing and green turf with half the irrigation—provided it can root deeply. For example, during a typical two week period in July when most grasses need approximately 2.5 inches of irrigation, buffalograss only needs 1.4 inches. That amount of moisture can be applied once in two weeks rather than once each week. In fact, too much irrigation will encourage weeds and cool-season grasses that may out compete the buffalograss over time.

The savings in irrigation comes at a price—buffalograss has a relatively short growing season. Since buffalograss is a warm-season grass species, it needs warm temperatures to grow. Northern Utah is on the edge of buffalograss adaptation where it typically starts greening up in April and begins going dormant in September. When dormant, it is completely brown. In southern Utah, it will have a longer growing period, similar to bermudagrass. While it's growing, buffalograss can



Buffalograss makes a beautiful, blue-green lawn that can look naturalized when left to flower, or more turf-like when mowed. The drawback is that when temperatures are cool, the grass goes dormant, at which time it cannot tolerate heavy traffic.

tolerate quite a bit of traffic, but when dormant, excessive traffic will damage it. Buffalograss will survive without any supplemental irrigation, but the green growing period will be shorter.

To establish buffalograss, it is best to start with a tilled and somewhat firm soil, devoid of cool-season grasses like

continued on next page

Buffalograss as turf, continued from previous page

Kentucky bluegrass or tall fescue and weeds. The initial planting could be from seed or plugs. Seeding will result in a naturalized looking turf with a mixture of male and female plants while plugs will create a thicker turf. The timing for both methods is between the end of May and the middle to end of July.

Managing buffalograss requires less work than other grasses. Some nitrogen fertilizer is beneficial, usually 0.5 to 1 lb N/1000 sq. ft (one typical application in May) per year for a lush turf. Buffalograss is very adaptable to a range of mowing heights. It produces a very formal turf if mowed below 2 inches, even as low as ¾ inch, performs well at an average lawn height of 3-4 inches, or can be left unmowed and will grow to a height of 6-8 inches for more of a prairie look. Weeds can be controlled by hand-pulling or using pre-emergent herbicides for annuals. Usually weeds can be prevented by keeping the turf thick and healthy

While buffalograss is a great turf for water-wise landscapes, it is not appropriate for all turfgrass applications, mainly because of its short growing period. But in those areas where dormant grass in spring and fall is acceptable, where minimizing water use is a priority, and where a “native look” to the landscape is preferred, buffalograss is an excellent species to grow and enjoy.

Spring Cleaning, continued from page 2

people store these items in the garage where they can become easily infested. Infestations from these items can spread into the home and pantry. Be sure to properly store bird seed and pet food in air-tight, lid-locking containers.

Some pests like to destroy items made of animal products, like wool sweaters, blankets, carpets, or animal mounts. Check all wool and animal-based items for the presence of insects. As with food, animal-based clothes should be stored in air-tight containers to prevent infestation. Animal mounts should be monitored on a regular basis for pests.

Vacuum and clean around baseboards where human and pet hair, dead insects, and other debris can accumulate. Other places to carefully clean are vents, window sills, sliding-door jams, couch cushions, and bathrooms. While cleaning, remember to keep an eye open for water leaks and repair as needed. Moisture in homes encourages and sustains infestations of

Industry News

New IR-4 Pesticide Registrations (Nov 2012 to Feb 2013)

The USDA Interregional-4 Project supported development of tolerances for the following pesticides on specialty crops of interest to Utah. Once crop tolerances are established, product manufacturers can pursue federal registration with the U.S. EPA. Always check product labels for registered sites before using.

Insecticides:

- Fenpyroximate (Fujimite) on cucumber, snap bean, fruiting vegetables, and pome fruit
- Flonicamid (Beleaf) on low-growing berries, cucumber, and rapeseed
- Pyriproxyfen (Esteem, Distance, Knack) on herbs, low-growing berries, caneberries, pome fruit, fruiting vegetables, and bulb vegetables
- Thiacloprid (Calypso) on stone fruits
- Zeta-cypermethrin (Fury, Mustang) on barley, buckwheat, oat, rye, and pistachio

Fungicide:

- Fluazinam (Omega) on melon, pepper, and eggplant

many pests.

In general, keep clutter to a minimum, especially in the garage where widow spiders and many other pests like to hide. If clutter can't be eliminated, try storing smaller items in larger, air-tight containers to reduce the complexity of the clutter.

Without applying any pesticides, the above techniques can go a long way to eliminate or minimize the presence of Utah's most common structure-infesting pests. Even better than the short-term bandage of pesticides, integrated pest management practices will provide you with long-lasting and effective pest prevention well into the future. Happy spring cleaning!

-Ryan Davis, Arthropod Diagnostician

First Report of Impatiens Downy Mildew in Utah

In fall 2012, fall downy mildew was discovered for the first time on garden impatiens (*Impatiens walleriana*) in Utah. The disease is relatively new to the U.S. It was first found in California in 2004 and then in Delaware in 2009. It is now present along the east coast from New England to Florida, and in several midwest states. Downy mildew of impatiens is caused by the fungal-like organism *Plasmopara obducens*. The disease is specific to *I. walleriana* and balsam impatiens (*I. balsamina*) and will not affect other ornamentals.

After impatiens are infected, the disease progresses quickly, killing the plants within 3-4 weeks. The initial symptom is yellowing of the leaves, which can be overlooked as a disease indicator because nutrient deficiency looks similar. However, white fluffy mycelium and spores will be visible on the undersides of the leaves. In the advanced stage of infection, leaves will drop from the plant, seemingly overnight, leaving behind green stems.

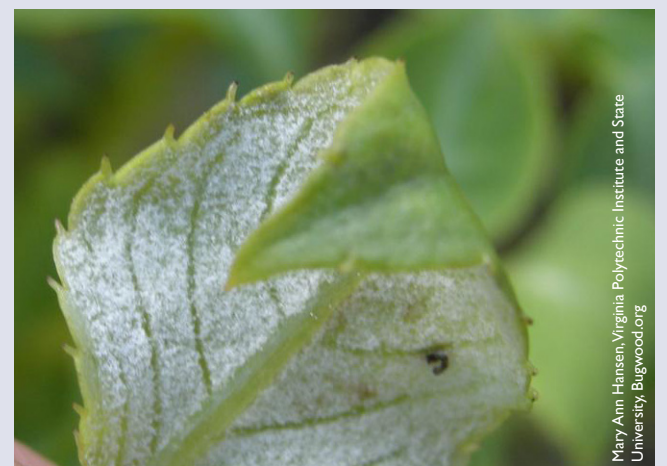
The plant damage may be mistaken for deer or rabbit feeding, but it is important to confirm the damage before replanting new plants in the same soil. This can be done by looking for fallen leaves on the ground and inspecting them with a dissecting microscope or a strong hand lens. The mycelium and spores on the fallen leaves will infect new impatiens plants that are planted in the same spot, repeating the disease cycle.

Plasmopara obducens thrives in humidity and is spread by splashing water and wind. The spores of the pathogen overwinter in the soil where infected impatiens grew. The disease may also be spread by infected plants purchased at garden centers. Symptoms usually appear 7-14 days after infection, so plants may initially appear healthy.

Management of downy mildew is difficult. Treatment with fungicides in landscape settings has yielded mixed results. (Fungicides are effective in greenhouses.) The best method is to remove infected plants from the garden bed or greenhouse and throw them in the trash or burn them. (The spores will survive composting.) Also gather fallen impatiens leaves because the pathogen can survive there as well. New impatiens plants should not be planted in the same location where infected plants have been for 2 to 3 years. Due to the host specificity of *P. obducens*, other ornamentals can be planted in the location without any problems. There are no resistant *I. walleriana* or *I. balsamina* varieties. The only commonly planted impatiens that have **not** been affected are New Guinea impatiens and SunPatiens.



Mary Ann Hansen, Virginia Polytechnic Institute and State University, Bugwood.org



Mary Ann Hansen, Virginia Polytechnic Institute and State University, Bugwood.org

Impatiens infected with impatiens downy mildew will not survive. The "green stick syndrome" is a common appearance of infected plants, but the surest diagnostic characteristic is the white fruiting structures on the undersides of the leaves.

-Claudia Nischwitz, Extension Plant Pathologist

Protecting Raptors from Rodenticides

Raptors and owls primarily feed on gophers, voles, and mice in Utah. A lethargic and meandering rodent that has fed on anticoagulant rodenticide bait is a prime target for birds of prey. Unfortunately, the bait on which the prey fed often kills the predator.

Second-generation anticoagulant rodenticides are non-selective, acutely toxic, and persistent. But they are also slow acting (3-7 days). Rodents can continue ingesting the bait beyond a lethal dose, and when death or near death occurs, they may contain 20-40 lethal doses of the active ingredient.

Raptors and wildlife that are exposed to anticoagulant rodenticides through feeding on poisoned prey are killed in the same manner as the target pest. The chemical prevents the enzyme that allows for synthesis of Vitamin K. Vitamin K is essential for blood clotting, and without it, death by uncontrolled internal bleeding occurs.

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Dale Surton-HSF Nature Photography



birdsarecool.blogspot

RODENTS

cause significant losses on agricultural lands. Managing rodents through the use of anticoagulant baits can have detrimental impacts on non-target animal species, including birds of prey.

Forage losses on Utah ag lands



55% of managed gophers and voles are killed by poison baiting in Utah.

65% of homeowners have used some form of rodenticide.

90% of rodent control products sold are baits.



\$90 million

is spent on rodent control products every year

During one 4-month breeding season, adult and young birds of prey feed voraciously.

Barn Owls



3,000
rodents

Red-tailed Hawks



1,000
small mammals

Kestrels



500
voles

80% of the secondary poisonings of raptors are caused by rodenticides

Protecting Raptors, continued from previous page

Both California and New York veterinarians have surveyed for anticoagulant ingredients in the blood and organs of dead raptors and other wildlife. Of the species tested, anticoagulants were found in 79% of fishers, 78% of mountain lions, 70 to 81% of owls, and 49 to 92% of raptors.

Due to the high number of poisonings reported each year—including to humans and pets—as well as the documented misuse of rodenticides by homeowners (improper dosage and placement), EPA has cracked down on residential use of second-generation anticoagulant ingredients. In 2011, they cancelled sales of loose bait and pellets of brodifacoum, bromadiolone, difenacoum, and flocoumafen, to homeowners. (d-Con products that contain brodifacoum are still available until administrative hearings of EPA against the manufacturer, Reckitt Benckiser LLC, which began in February 2013, are complete.) The remaining rodenticide baits containing the above active ingredients are still available in bulk quantities or in preloaded, tamper-proof bait stations.

Predators, scavengers, and pets are no less poisoned if they eat rodents that consumed bait from bait stations or loose pellets. Even when baits are used indoors, poisoned rodents can move outdoors where they can be fed upon. Poisoned rodents are at greater risk of being captured as prey than healthy animals. Rodents that ingest anticoagulant baits are weakened but still active for up to 7 days, facilitating the ability of predators to capture them.

Gophers and voles cause extensive agricultural losses and are nuisance pests. But they should be managed so that non-target poisonings are avoided. Where possible, single- and multiple-entrance snap traps or other humane devices should be used before rodenticides. If a rodenticide must be used, these active ingredients are somewhat safer for raptors: bromethalin, vitamin D3, chlorophacinone, warfarin, or warfarin sodium salt. Baits should always be in protective boxes, and never used during nesting season, when adult raptors could potentially feed poisoned rodents to their young and to each other.

EPA provides a list of [home-use rodenticides that are safer for humans and wildlife](#), and information on [managing rodents in the home](#).

-Marion Murray, IPM Project Leader

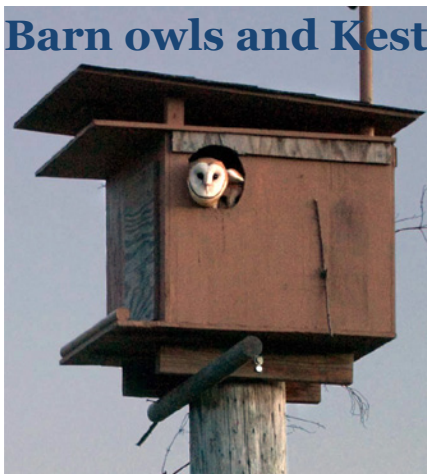
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Rattner, B.A., et al. 2011. Acute toxicity, histopathology, and coagulopathy in American kestrels following administration of the rodenticide diphacinone. Environmental Toxicology and Chemistry. 30: 1213–1222. doi: 10.1002/etc.490

Albert, C.A., et al., 2010. Anticoagulant rodenticides in three owl species from western Canada, 1988–2003. Archives of Environmental Contamination and Toxicology. 58:451–459.

Barn owls and Kestrels May be Enough to Manage Rodents



The barn owl and kestrel make a one-two punch against rodent pests on farms and ranches. They do not compete with each other for territory, and barn owls feed at night while kestrels

feed during the day. They can be attracted to farms and ranches with properly placed and managed nest boxes, which will not only help control rodents, but also help maintain the population of these important species.

The barn owl feeds voraciously on gophers, voles, and mice. In the spring during nesting, a family may consume 10 to 12

gophers per night. The barn owl population in the West is dwindling due to lack of nesting sites. Barn owls are not territorial with each other, so as many as 4 to 6 owl boxes can be used per 50 acres.

The kestrel is a small hawk that is an excellent predator of mice, voles, and large insects. Kestrels will return to maintained nesting boxes year after year, but are highly territorial.

See the NRCS/Hawk Watch/USU publication on [attracting birds of prey](#).

-Marion Murray, IPM Project Leader



Dormant Sprays 101

Spring is the time to plan and begin your pest management program for fruiting and ornamental trees and shrubs. Many pests overwinter on woody plants in various life stages (egg, larva, fungal spores, etc.), and as they become active in the spring, they are vulnerable to treatment with a dormant spray. The spray could be oil alone, oil plus insecticide, or a fungicide. This treatment timing is important and effective because:

- they are selective and environmentally friendly,
- they help prevent certain pest outbreaks when applied properly,
- individuals of the problem pest are all in the same life stage, such as an egg or larva, making them easier to target,
- pests are easily accessible,
- most natural enemies (insects and mites that prey upon pests) are not yet active, and so their populations are not harmed.

WHAT IS DORMANT OIL? The most common dormant oil is petroleum-derived, and may also be referred to as horticultural oil, superior oil, supreme oil, paraffinic oil, and other names. This term describes a class of high quality oils formulated for agricultural use. Other oils, such as vegetable-derived oils, can also be used for a dormant oil spray. Any oil applied in early spring should be mixed with water to a concentration of 1.5 to 2% for best results. The same oil product may be applied in the summer, but should be mixed to a concentration of no greater than 1% to prevent plant injury.

WHAT ARE THE CHARACTERISTICS OF PETROLEUM-DERIVED OIL?

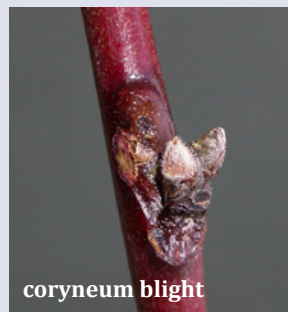
1. Horticultural oils on the market today are considered “narrow range oils,” which means that the oil has been through two distillation stages, resulting in oil that has high insecticidal properties and low potential for plant injury.
2. They are made from crude oil that is high in paraffin. Paraffinic oil comes from wells in the eastern U.S. and Texas. Studies have shown that paraffinic oils have the best insecticidal properties.
3. The unsaturated hydrocarbons have been removed. These compounds were found in older oils and were responsible for plant injury. The term for oils low in unsaturated hydrocarbons is “unsulfonated residue.” The safer oils usually have a UR value of 92% to 97%.

4. The label for oils will provide a variety of information:
 - a. percent oil content (usually 98-99%): the oil may be listed as “mineral,” “petroleum,” or “paraffinic.”
 - b. minimum UR value: 92% or higher to reduce risk for plant injury.

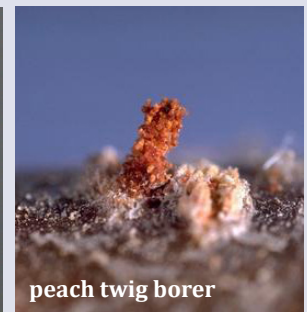
HOW DO OILS KILL PESTS? Oils kill pests primarily by smothering, and work best on soft-bodied insects. Insects require oxygen to live, and oil plugs the insect’s air-exchange system, causing slow suffocation. Oil works best on insect and mite eggs just before they hatch because their oxygen requirement increases.

WHICH PESTS DO DORMANT SPRAYS TARGET?

Common pests of woody plants in Utah that can be targeted with a dormant spray include many aphids, European red mite, rust mites, leafroller caterpillars, peach twig borer, scale insects, shothole borer, apple mildew, apple scab, and coryneum blight.



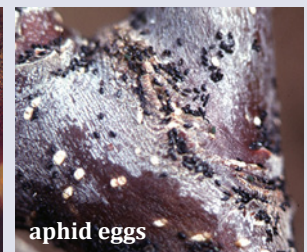
coryneum blight



peach twig borer



pear psylla eggs



aphid eggs

CAN OTHER CHEMICALS BE ADDED TO OIL TO MAKE IT MORE EFFECTIVE?

Oil alone is often inadequate to kill high populations of overwintered pests, so a supplemental insecticide may be needed. Pear psylla is a pest that is best managed by adding a synthetic pyrethroid, lime sulfur, or kaolin clay to the oil spray. And adding the insect growth regulator, pyriproxyfen (Esteem), or the organophosphate, chlorpyrifos (Lorsban), to the oil spray for scale insects also increases its efficacy. For rust mites, carbaryl (Sevin) plus oil, or sulfur alone at can be effective.

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Fear No Weevil

Spring 2013 is off and running and warm temperatures are quickly increasing insect activity. The billbug, a complex of weevil species in turf, has spent the winter primarily as an adult. Overwintering typically occurs in sheltered sites around the edges of turf where there might be leaf litter and woody debris, and also in thatch where they can be buffered from the winter conditions. Insects are poikilotherms (or “cold-blooded”), meaning their body temperature fluctuates with ambient temperatures. Once it warms up, insect metabolic and enzymatic activity begins to speed up. As temperatures start to exceed 65°F, adult billbugs become active and make their way to turfgrass where they will feed and deposit eggs. We can use adult activity to our advantage and monitor weevils to better predict when or if to manage.

Visual observation of adult billbugs making their way into turfgrass is doable in a home setting, but it is not all that practical on a larger scale or in recreational areas. Instead, pitfall traps can be used to monitor activity. Billbug adults rarely fly, and play possum when disturbed, so they easily get caught in pitfall traps. Traps can be as simple as digging a hole so that a chosen container fits snug in the soil with no side gaps. Billbugs crawling into an area will drop into the cup without being able to escape. Pitfall traps are a useful monitoring tool but it is important to note that this is not an effective control method. In addition, pitfall traps collect ground-dwelling organisms (wolf spiders, millipedes, worms, and many insects) so identification at a basic level will be needed to distinguish pest and non-pest. In turf, predatory ground beetles and spiders are common and beneficial. Checking these traps regularly early in the spring will help to evaluate the start of billbug activity and increasing activity of adults as more are collected from week to week.

We can pair pitfall trapping with degree day models that predict insect activity based on maximum and minimum temperatures and the temperature at which an insect begins activity in the spring (lower developmental threshold). As a certain number of degree days (or heat units) are accumulated, we can predict the occurrence and activity of an insect for which a model has been developed.

A model for bluegrass billbug was developed in Ohio and has been used elsewhere but it has not been specifically validated in Utah. The model is calculated from a base temperature of 50°F and relies on a March 1 start date. If you have not visited the [Utah TRAPs website](#), this is a good way to follow degree days for many locations in Utah. On the site, select



Solo-type cups or deli cups, **top**, are good examples of pitfall trap containers. The rim of the container should be even with the soil surface, otherwise insects will bump into the rim and walk away. The slightly more complex linear pitfall trap, **bottom**, uses a PVC pipe with a slot running the length of the pipe and a capturing cup at one end. This trap design covers more area and is useful for larger turf areas like golf courses.

the closest weather station on the map, then the growing degree day (GDD) model (base 50), and select a March 1 start date. According to the Ohio model, first activity of adults was recorded between 280 and 350 degree days with 30% of first adult activity occurring between 560 and 624 degree days.

Combining these monitoring tools can be useful in making management decisions. Some have used these methods to target active and incoming billbugs with border treatments

continued on next page

Weevils, continued from previous page

of pyrethroid or organophosphate products. Preventive products (e.g., Acelepryn, Arena, Merit, and Meridian) are often used for turf insect management and target newly emerging larvae from eggs deposited in turf stems. Pairing monitoring strategies with preventive applications is important for improving efficacy.

Given the drastic differences in temperature and degree day accumulation from year to year in Utah, as in 2011 (cooler) versus 2012 (warmer), applications too early or late will not be as effective. Too early, and there will be less residual product left, and too late will not allow enough time for these products to enter the plant so that emerging billbug larvae can ingest it as they feed. As larvae become larger, they are less susceptible to these applications and how quickly they develop will be, in part, dependent on temperature.

-Ricardo Ramirez, Extension Entomologist

Pitfall trap modifications

1. Add a sleeve insert in the trap for quick monitoring (works well with solo-type cups where the rim is removed and slipped into the soil-bound rimmed cup)
2. Poke small holes through the bottom of the container for water drainage
3. Add a protective cover that sits just above the trap to shelter from water
4. Add a wire mesh cover so small animals don't eat the insect sample

References:

Murray, M.S. 2008. Using degree days to time treatments for insect pests. Utah State University Extension Fact Sheet. IPM-05-08.

Shetlar, D.J. and J.E. Andon. 2012. Billbugs in turfgrass. Ohio State University Extension Fact Sheet. HYG-2502-12.

GENERAL PEST MANAGEMENT NEWS AND INFORMATION, continued

Dormant sprays 101, continued from page 8

Note that some pesticides, including some formulations of sulfur, are incompatible with oil, so carefully read all product labels before mixing and applying to plants. Liquid formulations of pesticides, such as emulsifiable concentrate (EC), are most compatible with oil due to their ease of mixing.

WHAT ABOUT DORMANT SPRAYS FOR DISEASES?

Fungal pathogens such as coryneum blight and peach leaf curl can be treated with a dormant spray of copper, chlorothalonil (Bravo), thiram, or ziram. Apple mildew can be treated with trifloxystrobin (Flint), lime sulfur, triflumizole (Procure), myclobutanil (Rally), fenarimol (Rubigan), and other fungicides.

WHEN IS THE IDEAL TIME TO APPLY DORMANT SPRAYS?

This will depend on the plant being sprayed as well as the target pest. For a few pests, the dormant spray should be applied while the buds on the plant are still tight (3 to 4 weeks before they typically start to swell). Pear psylla on pear trees, and coryneum blight and peach leaf curl on peach, nectarine, and apricot, are all active before bud break. Pear psylla adults spend the winter outside of pear orchards, returning to mate and lay eggs before buds begin to swell. A dormant spray will reduce the number of psylla adults, and eggs laid on buds.

The time to spray for most other pests that overwinter on trees is anytime during the period between bud swell and leaf emergence (i.e., when flower buds are exposed and/or when less than ½ inch of leaf is exposed). This period at bud break is called delayed-dormant, and may vary from tree to tree or location to location. At that time, insect and mite eggs begin to hatch, caterpillars emerge from hibernacula (overwintering structures), and other overwintering insects and diseases become active and more susceptible to pesticides.

HOW IS THE SPRAY APPLIED? Because oil sprays kill by suffocating pests, thorough coverage of limbs and buds—until it begins to drip off—is critical for effective control. The tree limbs should look dark and slightly oily after the spray is applied. Thoroughly cover all limbs, but do not spray the lower trunk because beneficial predatory mites overwinter there and oil sprays can kill them.

For more information on dormant sprays, see [Dormant Oil Demystified](#) by M. Murray, [Insect Control: Hort. Oils](#) by Cranshaw and Baxendale, and [Winter Pest Management in Backyard Fruit Trees](#) by P.M. Geisel and D.C. Seaver.

-Diane Alston, Entomologist,
and Marion Murray, IPM Project Leader

In the National News

DECLINE IN PINE BEETLE-KILLED TREES

The U.S. Forest Service reports that the number of trees being killed by pine beetles is now beginning to decline. The main reason is that most of the existing trees are already infested. In 2010, the infested area covered 9.2 million acres of public and private land in western states. Two million acres are infested in Idaho, down 63 percent from 2010 to 2012. It is estimated the decline will continue since the pine beetles are running out of suitable hosts from infestations and wildfires, or that very cold weather may kill a large portion of the beetles.

ASIAN NEEDLE ANTS MARCHING IN

The Argentine ant has invaded vast areas of the U.S. due to its territorial behavior and ability to create huge "supercolonies", displacing native species and changing ecosystems to suit its needs. Up until now, this ant has been one of the most successful invaders. But it has met its match in the Asian needle ant. The Asian needle ant has begun to displace the Argentine ant—a species that will normally not tolerate any other ants. North Carolina State University researchers observed that the Asian needle ants expanded their territory from 9% of the sites they are studying to 32%, in just 3 years. This is the first documentation of another ant species taking territory from the Argentine ant. The Asian needle ant, found from Alabama to New York to Oregon, has a highly venomous sting.

NEW MONITORING TECHNIQUE FOR EMERALD ASH BORER

The emerald ash borer (*Agrilus planipennis*) has been devastating the population of ash trees for the last 20 years, moving from Michigan to parts south and east in the U.S. Detecting or monitoring populations of this invasive pest is difficult when infestations are new or when densities are low. Emerald ash borer does not appear to use pheromones to mate. Instead, males find females by visual cues from her iridescent body. Pennsylvania State University entomologists report in the *Journal of Bionic Engineering* that they have created a decoy emerald ash borer that lures the male borer into a trap. The decoy beetle is made by a process of layering polymers with different refractive indexes to create the desired iridescence, and then stamping the resulting material into the mold.

IPM LOWERS ASTHMA RATES

Boston health officials surveyed residents in Boston Housing Authority dwellings and found that asthma reports dropped by nearly half between 2006 and 2010. This is due to integrated pest management practices implemented by the Housing Authority and Boston Public Health Commission. Such practices as promptly removing trash, fixing leaks, sealing cracks, removing clutter, and educational programs have reduced pest infestations and the need for chemical control. Reported asthma symptoms dropped from 23.6% in 2006 to 13% in

2010 in city housing, but in other low-income housing where no intervention has occurred, asthma rates remained unchanged.

SIDE-EFFECTS OF GENETICALLY MODIFIED PLANTS

A team of researchers led by Jörg Romeis from the Agroscope Reckenholz-Tänikon Research Station found that genetically modified cotton plants containing a gene of Bt (*Bacillus thuringiensis*) are more susceptible to attack by other insects. Romeis found that the Bt cotton does not use its "defense system" when fed upon by other insects, such as aphids, as compared to non-Bt cotton. This finding may partly explain why cotton fields in China and other areas are experiencing significantly more pest problems. Genetically modified cotton is grown on over 80% of all cotton fields in the world.

CORN ROOTWORM RESISTANT TO GENETICALLY ENGINEERED CROPS

The EPA Insect Resistance Management team announced that in certain parts of the U.S. Corn Belt, corn rootworm is now resistant to genetically modified corn containing a gene of *Bacillus thuringiensis* (Bt). Corn rootworm can be a devastating pest of corn, feeding on roots and weakening a crop. The GM corn was first marketed by Monsanto in 2003. The company has agreed to initiate several actions and changes related to the registration of GM products containing the Bt toxin to address the resistance issue.

Useful Publications and Websites

- **Everything About Peaches** is not a new website, but worth mentioning. The site provides both technical and popular information for commercial and backyard growers.
- **Handbook of Turfgrass Insects** second edition contains all aspects of turfgrass insect management with color photos, insect life stages, life cycle charts, and distribution maps.
- **"Pollinator Protection"** information and resources that inform applicators on the proper use of pesticides in relation to protecting honey bees.



Welcome to New CAPS Coordinator

We welcome Lori Spears to the Utah Pests team as the USU Cooperative Agricultural Pest Survey (CAPS) coordinator. Lori grew up in Ogden, UT and completed her B.S. in Anthropology at Weber State University. Lori received her PhD in ecology at USU, where she examined how sagebrush architecture affected spider communities and insect prey abundance. During her spare time Lori enjoys hanging out with friends and family, spending time with her dogs, and volunteering for Four Paws Rescue. She looks forward to working with growers and county extension agents across the state.

Calendar of Events

April 24, ONLINE: Cover Crop Mixes: Getting the Cover Crop You Want, archive.constantcontact.com/fs140/1109295883063/archive/1112371127916.html

July 21-25, 26th International Congress for Conservation Biology (ICCB), Baltimore, MD, www.conbio.org/Activities/Meetings

July 22 - 25, American Society for Horticultural Science 2013, Palm Desert, CA, www.invasivespeciesinfo.gov/news/calendar.php

August 4 - 9, 98th Ecological Society of America Annual Meeting, Minneapolis, MN, www.esa.org/meetings/upcomingmeetings

August 10 - 14, 2013 American Phytopathological Society Annual Meeting, Austin, TX, www.apsnet.org

August 11 - 24, Planning and Implementing Sustainable IPM Systems, Corvallis, OR,
<http://oregonstate.edu/conferences/event/ipmplanning/>

This two-week course offered by the Integrated Plant Protection Center at Oregon State University, includes seminars, discussions, and case studies to help participants will build their capacities to work with farmers to plan and implement sustainable integrated pest management programs. The course will employ innovative teaching and learning methods that maximize participation and engagement, and draw upon data and experiences with real farms and farmers. Attendees will specifically address the challenges of implementing IPM in systems that are subject to novel, invasive pests and systems experiencing the increasing uncertainties associated with climate change.

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