UTAH PESTS News

Utah Plant Pest Diagnostic Laboratory and USU Extension Vol. IV, Spring 2010

The Importance of Native Bees for Farms

Approximately 75% of the world's flowering plants require animal pollination, including two-thirds of all crops. In 2000, about $20 billion in North American agricultural production was made possible by bee pollination, and roughly $3 billion worth was provided by native (wild) bees.

Fig. 1. Blue orchard bee pollinating apple.

Fig. 2. Bumble bee pollinating tomato.

Many people believe that honey bees can provide all of the pollination services that plants need. However, there are 50% fewer managed hives today than there were in 1950, and those remaining are threatened by pests, diseases, or a combination of factors known as Colony Collapse Disorder. As a result, native bees are becoming increasingly important in agriculture. Unfortunately, according to a recent report by the National Research Council, all pollinators are in decline as a result of habitat loss, deterioration, and fragmentation, in addition to the adverse effects of pesticides.

Wild bees provide at least four benefits to agricultural crops including:

- supplementing or replacing pollination services of commercially managed bees
- increasing efficiency in managed pollinators (e.g., in the presence of native bees, honey bees are more likely to move between rows, thus cross-pollinating)
- pollinating plants that are not effectively pollinated by honey bees
- increasing productivity of self-pollinating plants

Native bees supplement pollination provided by honey bees, increasing yields and profit. Pollination is increased not only because the number of pollinators is increased, but also because, in many cases, native bees are more efficient. For instance, when colder, wetter weather prompts honey bees to remain in their hive, mason bees and bumble bees are actively foraging. Also, an individual native bee exhibits more foraging behaviors than a honey bee. For example, honey bees tend to forage for either nectar or pollen. A nectar-foraging honey bee

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News Highlights

NEW *UTAH PESTS* **FACT SHEETS**

The following can be found on our Web site:

Bed Bugs: For Homeowners

Bed Bugs: For Pest Control Operators

Lilac-ash Borer

www.utahpests.usu.edu

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UtahState University COOPERATIVE EXTENSION

is not likely to contact the anthers of many orchard blossoms, and therefore is unlikely to pick up or transfer much pollen. However, a mason bee, such as a blue orchard bee (*Osmia lignaria*) (Fig. 1), forages for both pollen and nectar, and is likely to contact the anthers of every orchard blossom it visits. Buzz pollination by bumble bees (*Bombus* spp.) is another example of increased efficiency due to foraging behavior. Bumble bees vibrate their flight muscles within a flower, causing the anthers to release pollen (Fig. 2). This behavior promotes cross-pollination and increases fruit size and yield in many plants, such as tomatoes and peppers.

Some flowers are shaped in such a way in that they are inefficiently pollinated or avoided by honey bees. Alfalfa is an example of the latter situation, and the alkali bee (*Nomia melanderi*) is a highly efficient pollinator of this plant (Fig. 3). Some native bee species have evolved as pollinator specialists for certain crops, such as squash bees (*Peponapis* spp.) for cucurbits.

Additionally, native bees provide a level of "insurance," should honey bee populations decrease or become unavailable. The greater the diversity and abundance of native bees, the more likely pollination will occur in an area despite a decline in honey bee populations. A diversity of native bees also protects against pollination deficiency should one of the native bee populations fluctuate.

Some farming operations may benefit monetarily by advertising that they are "pollinator-friendly," which fits with sustainable agriculture practices. Management that promotes native pollinator populations improves farm aesthetics, which can be advantageous for small farms that frequently conduct tours or allow customers to pick their own fruit.

Native bees are valuable to crops. The benefits of native bees can be maximized with a little awareness and some easy modifications of farm management practices. The 2008 Farm Bill contains several programs which provide monetary support for growers that implement conservation plans, including practices that promote native bees. In future articles, I will discuss these programs, as well as what you can do to encourage native bees to thrive on your farm.

-Cory Vorel, USU CAPS Coordinator

Fig. 3. As an alkali bee (*Nomia melanderi*) "trips" an alfalfa flower, the flower's keel hits the bee's backside. Honey bees don't like this, and instead, they sneak in from the side of the flower to get nectar. Alkali bees are not bothered by the tripping flower, and so are more likely to collect pollen.

References:

Cane, J. and L. Kervin. 2009. Gardening for Native Bees in Utah and Beyond. Utah Pests fact sheet.

James, R. and T. Pitts-Singer, eds. 2008, Bee Pollination in Agricultural Ecosystems; Oxford University Press, New York.

National Resource Council of the National Academies. 2007, Status of Pollinators in North America; National Academies Press, Wash., D.C.

National Resource Council of the National Academies, Status of Pollinators in North America Report in Brief (pdf)

The Xerces Society

a. 2008 Farm Bill: Benefits to Crop Pollinators.
b. Farming for Pollinators: Native Bees and Your Crops.
c. Farming with Pollinators: Increasing Profit and Reducing Risk.
d. M. Vaughn, M. Shepherd, C. Kremen, and S. H. Black (2007), Farming for Bees: Guidelines for Providing Native Bee Habitat on Farms.

General Bee Information:

There are about 4000 species of native bees in North America, and about 900 species in Utah. A lot of these bees are unfamiliar to many of us. Unlike honey bees, native bees are not aggressive and are unlikely to sting. Even if they do sting, they do not have much venom, and it is not very painful.

Most native bees do not live in colonies; exceptions include bumble bees and some sweat bees. Instead they are solitary, with each female creating her own nest and providing for her own young. About 70% of native bees are ground-nesting, digging tunnels in exposed earth. Many other native species nest in pre-existing cavities in wood, such as soft-centered twigs (e.g., raspberry canes) or the tunnels that beetles leave behind in logs.

There are also about 45 species of bumble bees in the U.S. Bumble bees are social, but do not have persistent colonies, as honey bees do. Bumble bee queens establish new colonies every year in small cavities, such as abandoned rodent burrows. These colonies die off in the fall.

ENTOMOLOGY NEWS AND INFORMATION

Lilac-Ash Borer: A Common Pest of Ash Trees

The lilac-ash borer (*Podosesia syringae*), belongs to a group of insects known as the clear-winged moths (Sesiidae), which fly during the daytime and have partially transparent wings. They are abundant in Utah, and most ash trees in the state have been attacked at one time or another.

Larvae feed primarily in the trunks and larger limbs of lilac, ash, and privet, and occasionally attack related plants in the family Oleaceae. They initially feed beneath the bark and then move into the sapwood. Larvae enlarge their galleries as they grow, frequently pushing frass (sawdust-like excrement) out of the entrance hole. Completed galleries may be over 12 inches long and 1/3 inch wide. Full grown larvae are about 1 inch long and white with a brown head (Fig. 1). They overwinter in the heartwood.

Fig. 1. Lilac-ash borer larva (*Podosesia syringae*) in a gallery.

In spring, larvae cut an emergence hole in the bark, leaving a thin flap of tissue over the hole. Pupation occurs within the gallery, and when development is complete, the pupa wriggles through the protective flap, and emerges as an adult moth. Reddish-brown pupal cases are left protruding from the plant after moth emergence (Fig. 2). Adults emerge around early April in southern Utah, and mid May in northern Utah. They will continue to emerge for 6 weeks. Adults resemble the common paper wasp in color, size, and shape (Fig. 3).

Soon after emergence, females emit a pheromone to attract males for mating. Within an hour of mating, they begin to lay eggs in cracks, crevices, and bark wounds. A single female can lay about 400 eggs. Eggs hatch within 14 days, and larvae bore into the plant. There is one generation each year in Utah.

Fig. 2. Pupal skin of a lilac-ash borer extruding from a hole in an ash tree.

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Lilac-ash Borer, continued from previous page

Fig. 3. Adult lilac-ash borer.

To properly time preventive sprays, it is important to determine when moths begin to emerge. Traps baited with clearwing moth pheromone lures will attract male moths from long distances, and do not need to be hung near an active infestation. Trees should be protected soon after first trap catch.

Alternatively, lilac-ash borer emergence can be predicted by tracking cumulative growing degree-days (GDD), calculated from daily maximum and minimum temperatures. Table 1 summarizes approximate monitoring and treatment dates for north, central, and southern Utah, using historic data. Preventive trunk sprays begin at 507 GDD after January 1, and should continue, according to the reapplication interval stated on the insecticide label until 1369 GDD. For more details, see the lilac-ash borer fact sheet.

Insecticides used in managing lilac-ash borer kill the egg or newly hatched larva, so are considered preventive. Options include permethrin (insecticide group 3A*), bifenthrin (group 3A), and endosulfan (restricted use; group 2A). Imidacloprid (Merit, group 4A), a systemic insecticide often used for borer control in trees, is ineffective against lilac-ash borer and should not be used for this insect pest.

Non-chemical methods for managing lilac-ash borer include:

- Reduce plant stress by properly watering, fertilizing, and planting.
- Diversify the landscape by planting non-host trees and shrubs that are adapted to Utah's climate.
- Prune older branches near the tree base (fresh pruning wounds are prime egg-laying spots; avoid pruning prior to moth flight).
- Remove severely infested trees from the property before adults emerge, or cover logs with thick plastic.
- Paint trunks of newly planted trees white or apply white tree wrap in the winter/spring to reduce wounding from sunscald.

-Ryan Davis, Arthropod Diagnostician

* Each insecticide is classified in a group, and to prevent resistance, the user should rotate between groups.

References:

Potter, M.F., and Potter, D.A. University of Kentucky College of Agriculture. Insect Borers of Trees and Shrubs.

Table 1. Management actions based on the lilac-ash borer phenology model (Potter and Timmons) for three regions in Utah. Growing degree-days (GDD) and calendar dates are based on weather station data (climate.usu.edu/pest) from 2004 - 2007. For more information on degree days, see the "Using Degree Days to Time Treatments for Insect Pests" fact sheet.

Host: Lilac, Ash, Privet	GDD*	Management Action	Average Date in North Logan (range)	Average Date in Salt Lake City (range)	Average Date in St. George** (range)
Before first emergence	200	put out traps	May 12 (May 4 - May 20)	April 25 (April 6 - May 2)	March 30 (na)
First capture of males	304	no action	May 21 (May 16 - May 30)	May 5 (April 26 - May 18)	April 4 (na)
10% capture of males	507	1st spray	June 11 (June 4 - June 20)	May 20 (May 10 - May 30)	April 14 (na)
50% capture of males	930	spray	July 6 (July 2 - July 14)	June 16 (June 12 - June 27)	May 10 (na)
90% capture of males	1369	end sprays	July 25 (July 20 - Aug. 3)	July 4 (June 29 - July 12)	May 29 (na)

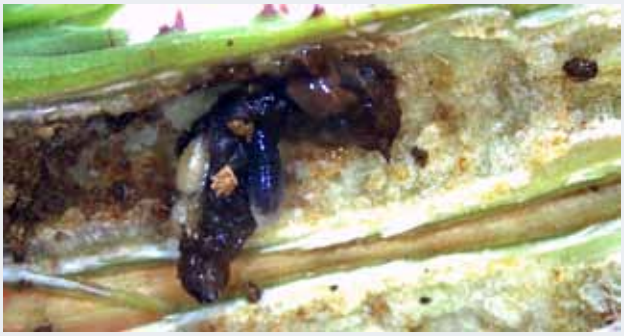
*GDD accumulated since January 1, using a lower threshold of 50°F. **St. George includes weather data only from 2004, so is not a true average.

Undergraduate Research in Entomology

Raspberry Horntail Overwintering Behavior

Raspberry horntail is a cane-boring pest of raspberry causing cane wilt and injury, and yield loss. We examined raspberry horntail behavior and development from fall through early spring, and larval parasitism in two summer-bearing varieties of raspberry.

'Killarney' and 'Cowichan' raspberry canes with suspect infestation were collected from a farm in Laketown, Utah in fall 2009. Canes were dissected to observe horntail larval parasitism, stage of larval development, and status of overwintering chamber construction. A second set of 'Cowichan' canes were exposed to winter-to-spring temperature simulation for 4, 6, and 8 weeks to satisfy insect chilling requirements.



Horntail larva parasitized by a wasp.

Conclusions:

- *In September, parasitism of horntail larvae was greater in 'Killarney' than 'Cowichan' canes*. Seasonal growth of 'Killarney' was slower than 'Cowichan', which may have resulted in delayed larval development in 'Killarney', and thus, greater parasitism in those canes late in the season.
- *Horntail larvae formed overwintering chambers higher above the base in 'Cowichan' than 'Killarney' canes*, probably due to the faster growth rate and greater height of 'Cowichan' canes. In addition, horntail larvae were larger in 'Cowichan' canes, probably because of this variety's higher nutritional quality and earlier maturity.
- *At least 8 weeks of chilling was required for 10% of the horntail larvae to pupate and develop to the adult stage*. This low rate of overwintering survival suggests that more than 8 weeks is required for horntail development.

Further studies will evaluate overwinter survival following longer chilling exposure, and degree-day requirements for adult emergence to determine optimal timing for prevention of springtime cane infestation.

-Bret Butterfield, USU student, and
Diane Alston, Entomologist

Using Killing Stations for Cherry Fruit Fly

The Western cherry fruit fly (WCFF), *Rhagoletis indifferens*, is an economically important pest in cherry orchards in Utah. One of the safest and most effective treatments, an attract-and-kill product (GF-120, containing spinosad), has drawbacks, including multiple application requirements and limited rainfastness. In collaboration with Dr. Jaime C. Pinero of the University of Hawaii, we sought to determine the effectiveness of GF-120 "killing stations" in various colors and baits.

This project compared GF-120 killing stations in green and yellow, and yellow GF-120 stations with standard ammonium acetate concentrations, and 1x and 2x concentrations. Fourteen trials were conducted over 4 days, both in the morning and in the afternoon. The killing stations positions were rotated every 15 minutes over a 120 minute period. WCFF on the underside of the killing stations were counted and collected prior to rotation.

Cherry fruit fly killing stations are rain-protected, inverted trays lined with the GF-120 solution.

Preliminary results showed that WCFF females are more attracted to the color yellow. Both sexes were more attracted to the higher ammonium acetate concentrations (twice the normal amount in GF-120), and were more active in the early afternoon than morning hours.

Further research is needed to make this information useful to cherry growers, and could focus on the effectiveness of GF-120 after longer field exposure, the necessary killing station density in relation to number of WCFF present in the orchard, and killing station placement in the tree.

-Cammile Adams, USU student, and
Diane Alston, Entomologist

CAPS Update

The Cooperative Agricultural Pest Survey (CAPS) is a pest-surveillance program managed by USDA–APHIS, in conjunction with the Utah Department of Agriculture and Food. This summer we will survey three moth species (Figures 1-3) that could potentially enter Utah and cause damage to a broad range of crops. The larvae of all three species feed on over 180 different plants, both wild and cultivated. All three species have been detected in the U. S. many times, but so far they have failed to become established.

Because these moths are well suited to Utah's climate, and because the consequences of establishment would be dire, surveying for these pests every 2-3 years is considered a high priority. The survey will target sites throughout the state where corn and hay are grown or processed. If you have suggestions of trapping sites, or if you believe that you've seen one of these pests, contact Cory Vorel, USU CAPS Coordinator (cory.vorel@usu.edu).

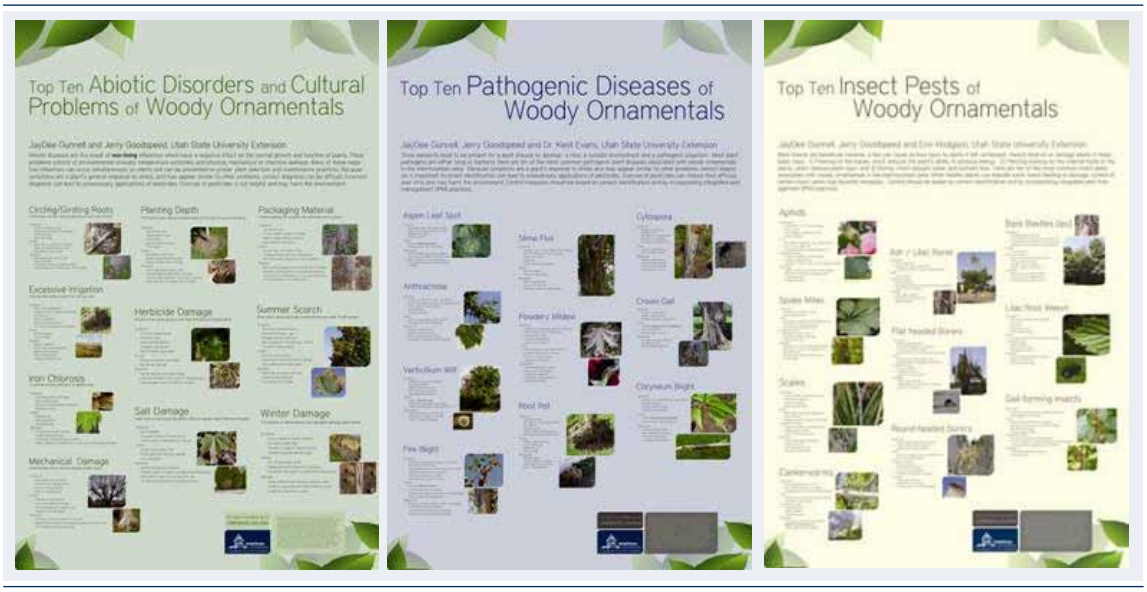
Figure 1. Adult and larval stages of silver Y moth, *Autographa gamma*.

Figure 2. Adult and larval stages of old world bollworm, *Helicoverpa armigera*.

Figure 3. Adult and larval stages of Egyptian cottonworm, *Spodoptera littoralis*.

Developing a Series of Diagnostic Training Posters

By JayDee Gunnell and Jerry Goodspeed; Extension Agriculture Agents in Davis and Weber Counties, respectively.



Identifying and correctly diagnosing problems associated with ornamental plants can be complicated and sometimes overwhelming for many homeowners and landscape professionals. In an effort to clarify this process, we developed a series of three posters and fact sheets to serve as educational tools for green industry professionals and Master Gardener volunteers to identify and diagnose common problems associated with woody plants.

Each poster and fact sheet offers vivid illustrations of the "Top 10" most frequent problems likely to be encountered with woody ornamentals in the landscape (Table 1). The poster series consists of: 1) Abiotic Disorders and Cultural Problems; 2) Pathogenic Diseases; and 3) Insect Pests. The posters display a variety of colorful images which help identify and diagnose general symptoms and signs associated with each problem and/or pest. The posters also outline general management strategies, focusing on integrated pest management (IPM) practices, and direct the public to the USU Extension Utah Pests Web site and/or to their local nursery professional for more information regarding current pesticide information. The idea behind the project was to provide a quick visual reference, while familiarizing more people with local resources.

We created the posters in collaboration with USU specialists Dr. Kent Evans (former USU Plant Pathologist) and Dr. Erin Hodgson (former USU Entomologist), who provided technical support and feedback throughout the development process. The list of the most common problems was determined based on the number of samples brought to the Davis and Weber Extension county offices and public queries to Master Gardener volunteers.

Table 1. "Top ten" problems highlighted in each poster.

Abiotic Disorders	Diseases	Insects
over-irrigation	aspen leaf spot	aphids
girdling roots	anthracnose	spider mites
iron chlorosis	verticillium wilt	scales
mechanical injury	fire blight	cankerworms
planting depth	slime flux	lilac-ash borer
herbicide injury	powdery mildew	flatheaded borers
packaging materials (wire, burlap)	crown gall	roundheaded borers
scorch	root rot	bark beetles
salt injury	cytospora canker	lilac root weevil
winter injury	coryneum blight	gall-formers

The project, which took two years to complete, was funded by the USU IPM & Sustainable Agriculture Mini-Grant Program. Design help and support was provided by Mike Whitesides and the USU Extension Marketing group. To date, the posters, fact sheets, and PowerPoint presentations have trained over 300 professionals within the green industry and more than 130 Master Gardener volunteers.

The posters have also been distributed to nearly 40 different cities and municipalities along the Wasatch Front, along with several local nurseries and garden centers.

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Top Ten Posters, continued from previous page

Each USU Extension county office has received a laminated set of the training posters for public display. Individuals or companies interested in purchasing their own set of Top 10 posters can purchase the set for $25 by going to the Utah Pests Web site (utahpests.usu.edu). Proceeds from the posters will go directly into further developing the USU-sponsored demonstration gardens, the Utah Botanical Center, and Ogden Botanical Gardens.

UTAH PESTS NEWS AND INFORMATION

Companion Planting: Myth or Reality?

Companion vegetable planting for home and local markets is a historical concept, passed between generations and from neighbor to neighbor. The idea is that the presence of one plant species improves the growth of another. Many recommendations are based on folklore and tradition rather than scientific research. There are, however, valid mechanisms of certain plant associations that can lead to minor pest suppression and greater crop yields.

Documented benefits from plant associations include physical, chemical, and biological alterations that can improve the establishment and survival of desired plant species. The mechanisms of plant interactions are not completely understood, but there are several scientific conclusions that explain the process:

TRAP CROPPING occurs when one plant species or variety is attractive to a pest, and is not affected by yield loss, or is used as a "sacrificial" crop. The trap crop is either treated or removed after infestation, and pest pressure on the desired crop is reduced. An example is using Petunia 'Carpet Blue' to attract thrips away from tomatoes or peas.

NITROGEN FIXATION by roots of legumes (peas, clover) adds nitrogen to the soil, reducing the need for nitrogen fertilizer, which is helpful for vegetables like corn, tomato, or cabbage.

NURSE CROPPING by using tall or dense plants can protect tender plants through shading and wind breaking. Oats, for example, are used to help establish alfalfa by preventing weeds from establishing.

PEST SUPPRESSION can occur through a variety of mechanisms:

a) *Chemical exudates* from parts of certain plants may have pesticidal properties. In two studies examining the chemical compounds of marigold (*Tagetes* spp.), one found that naturally occurring compounds in flowers and foliage were lethal to Mexican bean weevil, and another found that root compounds were lethal to cabbage maggot larvae. Another example is the use of mow-killed rye grain as a mulch. The chemicals from the rye residue prevent weed germination and do not harm transplanted vegetables.

b) *Mixing plant species* may cause an interference with visual or olfactory orientation of pests to their host plants.

c) *Mixing plant varieties* of the same species circumvents insects' ability to adapt to natural plant defenses. For example, mixing field-planted barley cultivars resulted in reduced aphid feeding as compared to a planting of a single cultivar.

c) *Refugia* (beneficial habitats) provide desirable environments of plant material and shelter for predator and parasitic insect species such as syrphid flies, parasitic wasps, lacewings, and robber flies. One research project showed that the addition of chicken wire plus bedding straw in tilled soybean fields reduced pest injury by 33% by providing habitat for spiders and predatory beetles.

The table shown on the next page provides examples of plant associations that have traditionally been followed. Some home gardeners have reported benefits by mixing certain plant species while others see no difference. Understanding how plant associations work can improve their use and consistency of effects.

-Marion Murray, IPM Project Leader

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Leger, Catalina. 2009. Evaluation of marigolds and entomopathogenic nematodes for control of the cabbage maggot (*Delia radicum*). Journal of Sustainable Agriculture. 33: 2, pp 128-141.

Ninkovic, Velemir, et al. 2002. Mixing barley cultivars affects aphid host plant acceptance in field experiments. Entomologia Experimentalis et Applicata. 102: 2, pp 177-182.

Weaver, D.K., et al. 1994. Insecticidal activity of floral, foliar, and root extracts of *Tagetes minuta* against adult Mexico bean weevils. Journal of Economic Entomology. 87: 6, pp 1718-1725.

Companion Planting, continued from previous page

Table of traditional recommendations of compatible plant associations. Note that these relationships are based on the mechanisms described on the previous page, such as trap cropping, disruption in host-finding, shading, chemical exudates, and habitats for beneficials, not on whether plants "love" or "hate" one another.

CROP	COMPATIBLE
asparagus	tomato, parsley, basil
beans	most vegetables & herbs
beans (bush)	potato, cucumber, corn, strawberry, celery, summer savory
beans (pole)	corn, summer savory, radish
Cabbage Family	aromatic herbs, celery, beets, Onion Family, chamomile, spinach, chard
carrots	English pea, lettuce, rosemary, Onion Family, sage, tomato
celery	Onion & Cabbage Families, tomato, bush beans, nasturtium
corn	potato, beans, English pea, pumpkin, cucumber, squash
cucumber	beans, corn, English pea, sunflowers, radish
eggplant	beans, marigold
lettuce	carrot, radish, strawberry, cucumber
Onion Family	beets, carrot, lettuce, Cabbage Family, summer savory
parsley	tomato, asparagus
pea (English)	carrots, radish, turnip, cucumber, corn, beans
potato	beans, corn, Cabbage Family, marigolds, horseradish
pumpkins	corn, marigold
radish	English pea, nasturtium, lettuce, cucumber
spinach	strawberry, fava bean
squash	nasturtium, corn, marigold
tomato	Onion Family, nasturtium, marigold, asparagus, carrot, parsley, cucumber
turnip	English pea

Source: George Kuepper & Mardi Dodson. 2001. COMPANION PLANTING: BASIC CONCEPTS & RESOURCES. Appropriate Technology Transfer for Rural Areas. Horticultural Technical Note.

In the National News

CHANGES TO THE USDA NATIONAL ORGANIC PROGRAM

Miles McEvoy, the new Deputy Administrator for the National Organic Program, recently announced improvements and changes to the Program. Recent findings from the first-ever USDA survey of organic producers found that regulations was the number one barrier they faced. McEvoy aims to change that reality by clarifying requirements and increasing enforcement measures for violations. Pesticide residue sampling, for example, has never been implemented, and along with surprise inspections, will help to enforce policy. Staff increases and a boost in funding will allow the program to enact measures that will add credibility to the organic program and streamline organic agriculture regulations.

SPRAY VOLUME CALCULATOR FOR IPHONE

DuPont Crop Protection has created a free spray volume calculator app for iPhone called "TankMix." The app helps users determine amount of product and water needed for a tank or area. The app does not contain product specific information.

NEW TERMITE TRACKING METHOD EFFECTIVE AND AFFORDABLE

Agricultural Research Service entomologists in Arizona have developed a protein marker to track termites over long distances. The subterranean termite has caused an estimated $1.5 billion in losses in the southwestern U.S. each year. The marker is created from egg, milk, or soy, and is sprayed over vast areas where termites live. Termites gathered from infested areas can be tested for the protein and thus, their spread can be monitored. This inexpensive marker has been successfully tested for a wide variety of pest and beneficial insects. Ideally, this method will lead to improved and affordable control of termites, lygus bug, and other pests.

WHITEFLIES REDUCE PLANT "DISTRESS SIGNALS"

German entomologists have discovered that bean plants attacked by both spider mites and whiteflies are not attractive to beneficial predatory mites. Typically, spider mite feeding on beans causes the plant to produce odors that attract predatory mites. Whitefly feeding interferes with the plant enzymes that produce the odors, resulting in lower predatory mite populations. Researchers also found that spider mites produce more offspring on a plant under whitefly attack. Research in this area will help determine how pests interact and affect plants' "cries for help" (originally discovered by this same group in 1988).

REVIEW OF INSECT RESISTANCE TO BT ENHANCED CROPS

Researchers reviewed results of more than 40 studies on five continents from around the world to determine if insect populations are developing resistance to Bt transgenic crops. *Bacillus thuringiensis* or Bt, produces an insecticidal toxin and the gene has been used in certain crops for over a decade. The review concluded that although isolated cases of resistance have appeared, most pest populations are still susceptible to Bt crops. The authors recommend that producers using Bt crops should grow an adjacent area of non-Bt crops to slow evolution of resistance.

RESULTS OF ORGANIC FARMING SURVEY RELEASED

USDA conducted its first ever survey of organic producers in 2008. Over 14,500 farms were tallied on 4.1 million acres of land. All 50 states were represented, with 20% of farms and 36% of national sales in California. Organic sales in the U.S. totalled over $3.16 billion in 2008. Average sales and production expenses of organic farms were found to be higher than conventional farms. Most products were sold locally or within 100 miles of the operation.

The survey showed that challenges organic producers face are regulatory (the number one challenge), production, management, and marketing issues. More than 78 percent of respondents indicated that they plan to maintain or increase their organic production over the next five years. Results can be found here.

Useful Publications and Web Sites

- "Guide to Rocky Mountain Vegetable Gardening" has recently been published by Montana State University horticulturists Bob Gough and Cheryl Moore-Gough by Cool Springs Press.

- "A Grower's Guide to Organic Apples" and "Production Guide for Organic Grapes," are two new online guides to help organic growers choose varieties and growing sites, while providing recommendations for how to manage diseases, insects, and weeds organically. Access the apple guide here, and the grape guide here. Organic guides for beans, carrots, cole crops, cucumbers and squash, peas, and spinach also are available here.

- Organic Farming Research Foundation is now offering a free newsletter called "Organic Link" that highlights research in organic agriculture and policy actions. Subscribe here.

- "Protecting Pollinators on Farms and Urban Landscapes," produced by Coalition for Urban/Rural Environmental Stewardship, helps growers and pesticide applicators protect native pollinators. Access it here.

Featured Picture of the Quarter

Cooley spruce gall adelgid is primarily a pest of blue spruce. Feeding by the tiny nymphs (called gallicolae, shown at left) in early spring stimulates newly emerging bud growth to swell and form a gall with interlocking chambers. More than 100 nymphs develop within each gall for a period of 2 to 3 months, emerging as fully grown nymphs in late summer that soon molt to winged adult adelgids.

-USU Extension IPM Program image

Calendar of IPM Events

April 5 - 8, Annual Western Forest Insect Work Conference, Flagstaff, AZ, www.fsl.orst.edu/wfiwc

April 11 - 14, Pacific Branch Entomological Society Annual Meeting, Boise, ID, entsoc.org

April 19 - 22, Imported Fire Ant Conference, Little Rock, AR, meeting information

May 11 - 13, Int. Organization for Biological Control Annual Meeting, Niagra Falls, Ontario, www.iobcnrs.com/event_5-11-10

May 16, National Conference on Urban Entomology, Portland, OR, ncue.tamu.edu

May 25 - 27. Climate Change and Implications for Plant Protection, Guelph, Ontario, www.cropprotection.open.uoguelph.ca

June 13 - 23, International Short Course on IPM, and Sustainable Agriculture, East Lansing, MI, worldtap.msu.edu/home/page/51

June 20 - 23, American Phytopathological Society Pacific Branch Meeting, B,C., Canada, www.apsnet.org/members/div/pacific

Free Pesticide Disposal

May 1 - June 14, 2010

Don't throw your old pesticides into the garbage! Utah Department of Agriculture and Food is sponsoring a free pesticide disposal program. They are accepting unwanted, leftover, old, or banned pesticides (even if the label is missing) at:

IFA stores in: Cedar City, Delta, Draper, Garland, Lewiston, Price, Richfield, and Roosevelt

J&J Nursery/Great Basin Turf Products in Davis County

Steve Regan stores in: Logan, Salt Lake City, and St. George

UDOT road shed in Santaquin on June 17 ONLY

Contact UDAF at 801-538-7185 for info.

UTAH PESTS people and programs are supported by:

UtahStateUniversity COOPERATIVE EXTENSION

NPDN National Plant Diagnostic Network · WPDN Western Plant Diagnostic Network · APHIS · NIFA · UDAF Utah Department of Agriculture and Food