Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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Euonymus scale

This is the time of year to be cognizant of euonymus scale (*Unaspis euonymi*) crawlers moving around on plant parts looking for a place to settle down and initiate the feeding process. The primary hosts are evergreen euonymus (*Euonymus japonica*) and Japanese pachysandra (*Pachysandra terminalis*).

Euonymus scale crawlers resemble small yellow spots that move around on stems and leaves. Plants under "stress" tend to be more susceptible to scale infestations than plants that are receiving sufficient quantities of moisture and fertilizer. The reason for this is that plants can naturally defend themselves when supplied with the appropriate amount of water and nutrients.

Euonymus scale typically overwinters as a mated female, primarily on plant stems. Eggs develop and mature underneath the scale, and then hatch over a two to three week period. The newly hatched crawlers migrate along the stem and start feeding near the base of host plants. Crawlers can also infect adjacent plants by being blown around on air currents, which results in infestations often not being detected until populations are extensive and damage is noticeable. Leaves eventually become spotted with yellow or white areas. Plants located near structures such as long foundations, walls or in parking areas (**Figure 1**) appear to be more susceptible to euonymus scale than plants growing in open areas that receive adequate light and air movement. In addition, the variegated forms of euonymus are more susceptible to euonymus scale than the green forms.

Heavy infestations of euonymus scale can ruin the aesthetic appearance of plants, causing complete defoliation or even plant death. Females are dark brown, flattened, and resemble an oystershell. Males, however, are elongated, ridged, and white in color (**Figure 2**). Males tend to be located on leaves along leaf veins whereas females reside on the stems. There may be up to three generations per year.

Cultural practices such as pruning out heavily infested branches—without ruining the aesthetic quality of the plant—is extremely effective in quickly reducing scale populations. Be sure to immediately discard pruned branches away from the area. If feasible, avoid planting *Euonymus japonica* in landscapes since this species is highly susceptible to euonymus scale. Winged euonymus (*Euonymus alata*) is less susceptible to euonymus scale, even when adjacent plants are infested. Applications of insecticides in May through June, which is when the crawlers are most active, will help to alleviate problems with euonymus scale later in the season. Insecticides recommended for suppression of euonymus scale populations, primarily targeting the crawlers, include acephate (Orthene); pyrethroid-based insecticides such as bifenthrin (Talstar), cyfluthrin (Tempo), and lambda-cyhalothrin (Scimitar); potassium salts of fatty acids (insecticidal soap); and horticultural, neem, and summer oils. It is important to routinely check plants for the presence of crawlers, which will help in timing insecticide applications. In general, three to four applications performed at seven to 10-day intervals may be

required; however, this is dependent on the level of the infestation. Euonymus scale is a hard or armored scale, so, in most cases, soil or drench applications of systemic insecticides such as imidacloprid (Merit) are not effective in suppressing euonymus scale populations; however, the systemic insecticide dinotefuran (Safari), due to its high-water solubility (39,000 ppm), may provide suppression of euonymus scale populations when applied as a drench to the soil.

Euonymus scale is extremely susceptible to a variety of natural enemies (e.g., parasitoids and predators). These include braconid and ichneumonid wasps, ladybird beetles, green lacewings, and minute pirate bugs. However, natural enemies may fail to provide enough mortality ('killing power') to significantly impact "high" populations of euonymus scale. Furthermore, insecticides such as acephate (Orthene), and many of the pyrethroid-based insecticides including bifenthrin (Talstar), cyfluthrin (Tempo), and lambda-cyhalothrin (Scimitar) are very harmful to most natural enemies, so applications of these materials may disrupt any natural regulation or suppression.

Raymond Cloyd

Squash Vine Borer

It is not too early to be "thinking" about the squash vine borer (*Melitta curcurbitae*), especially if you are planting summer and winter squash, and pumpkins, which are susceptible to infestations of the squash vine borer. In fact, the winter squash variety 'Hubbard' is very susceptible to squash vine borer attack whereas cucumbers, melons, and butternut squash appear to be less susceptible.

Adult squash vine borers are classified as clear-wing moths and are 1/2 inches long with an orange abdomen lined with dark markings (**Figure 1**). Adults fly around during the day-time, which is different from most other moths that typically fly at night. They create a very noticeable "buzzing" sound during flight. Adults emerge from cocoons residing in the ground from late spring through summer. Females lay reddish-colored eggs at the base of susceptible plants or on leaf undersides, which hatch into larvae that tunnel into plant stems. Larvae are

white, with a brown head, and a wrinkled (accordion-like) body (**Figure 2**). They may feed for up to six weeks, and then emerge from stems and burrow into the soil to pupate; remaining in the pupae stage until the following year. Squash vine borer may overwinter as a pupa or full-grown larva located one to two inches below the soil surface near previously infested plants.

Damage caused by squash vine borer larvae includes wilting of infested plants, that if not treated collapse and die. Holes may be observed at the base of plants, which are filled with orange, yellow, or green colored sawdust-like material called “frass.” There may be more than one larva attacking a single plant. Feeding wounds created by the larvae may allow entry of soil-borne pathogens.

The management of squash vine borer is primary aimed at killing as many larvae as possible before they tunnel into the plant because once larvae enter and reside inside the stem it is difficult to deal with them. Placing a floating row cover (**Figure 3**) will physically exclude the adults when plants start to vine. Once adult squash vine borers are detected, leave the row covers on for approximately two weeks. However, be sure to remove the row covers when plants are flowering to allow bees to pollinate flowers. “De-worming” plants by using a sharp knife to excise a slit in the stem, removing any larvae and killing them is another option. Be sure to cover the wounded area with moist soil so as to prevent drying, which will allow the wound to heal and plants to recover. The removal of old vines and then tilling the garden may kill overwintering larva or pupae, and thus avoid new infestations. Also, remove all infested plants and dispose of promptly. The planting of a group of highly-susceptible plants (such as ‘Hubbard’) may act to lure adults away from the main crop. After a certain time period, these plants should be destroyed. Insecticides that may be applied prior to larvae entering plants include carbaryl (Sevin), permethrin, bifenthrin (Talstar), esfenvalerate, and spinosad. Several applications may have to be conducted to kill as many larvae as possible after egg hatch.

Raymond Cloyd

Potato Leafhopper

Potato leafhoppers are common in alfalfa fields throughout central Kansas. These migrant pests are not normally found in Kansas until after the second cutting, thus growers and consultants need to be very vigilant much earlier this year.

Alfalfa Weevil

Weevils are still very active throughout central Kansas. Early treated fields have a few mature larvae or pupae while later treated fields (after 18 April) have small, recently hatched larvae. Swathing seems to be well underway and should, for the most part, control the larval situation. However, if it stays relatively cool (under 85ºF) the emerging adults may remain in the fields, especially under the windrows, and feed on the new growth, so continue to monitor these fields. Please see photos.

This illustrates the effectiveness of treatments.

Mature alfalfa weevil larva

Several well-concealed pupating weevils plus one starting to form pupal site

Jeff Whitworth *Holly Davis*

Clover Mites in Homes

Over the past few weeks, the Insect Diagnostic Lab has received multiple samples and inquiries about tiny mites (1/30 inch) found by the hundreds and thousands around window and doors of homes in Kansas. These mites can be distinguished from other home-invading mites by the very long front legs and reddish green color (see photos).

They most commonly invade homes in the spring and fall when temperatures are favorable for the mites to be active (70-85ºF). During warmer and cooler temperatures, the adults and eggs remain dormant. Clover mites feed on plants by sucking plant juices and tend to prefer clovers and lawn grasses, but will feed on some ornamentals. These mites do not bite people or pets and do not cause damage to homes. Large populations of mites are often associated with newly established or heavily fertilized lawns. Physical control methods are usually sufficient and include creating a vegetation free zone around the home (18 – 24 inches wide) especially on the south and southwest facing sides, and caulking exterior cracks around windows, doors, and the foundation of the home. Severe or reoccurring problems may require the use of pesticides.

For more information, please visit:

http://www.ksre.ksu.edu/library/entml2/mf915.pdf

Holly Davis

Come and Done! Time flies! What's next! ..... Eastern Tent Caterpillar & European Pine Sawfly

Any of the 3 introductory statements are applicable to these early-season insects.

Come and done – they began their feeding forays about 5 weeks ago and have completed their development. Time flies – looking back, it seems but an eye blink that these 5 weeks have passed. What's next – having completed their feeding cycle, what is "next" in their seasonal cycle?

While their feeding stages coincided, there are sharp contrasts as to when the remaining stages occur/persist.

Eastern tent caterpillars have left their tents to wander about looking for a site in which to produce their cocoons. They may be "loners" or "groupies" as they form their individual cocoons. Or, several caterpillars

may produce a large community/"omlet" cocoon (Figure 1). Cocoons are made of silken webbing and are infused with a yellowish powder which can be irritating to skin and eyes.

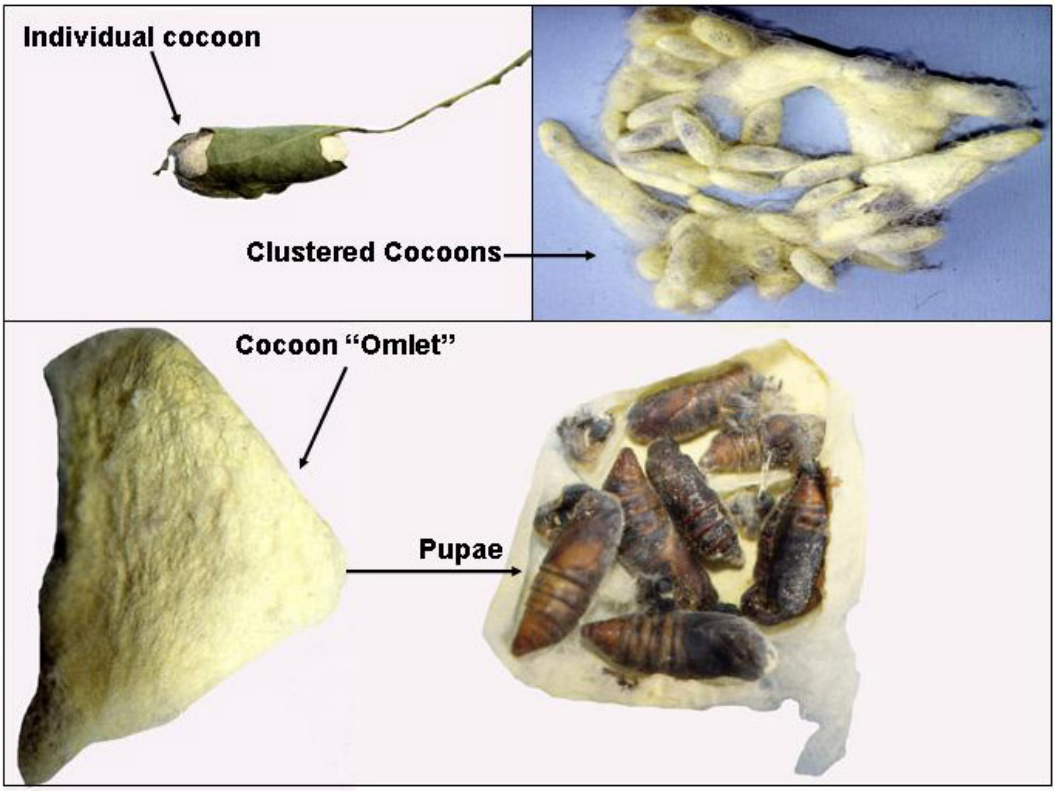

Figure 1

After 10 – 14 days, eastern tent caterpillar moths emerge in late May and early June (Figure 2).

Figure 2

Moths live for a brief time: males die after mating, and females live just long enough to produce eggs. Eggs are deposited in masses which encircle the twigs of preferred host species. Egg masses are covered by a protective shellac-like material (Figure 3).

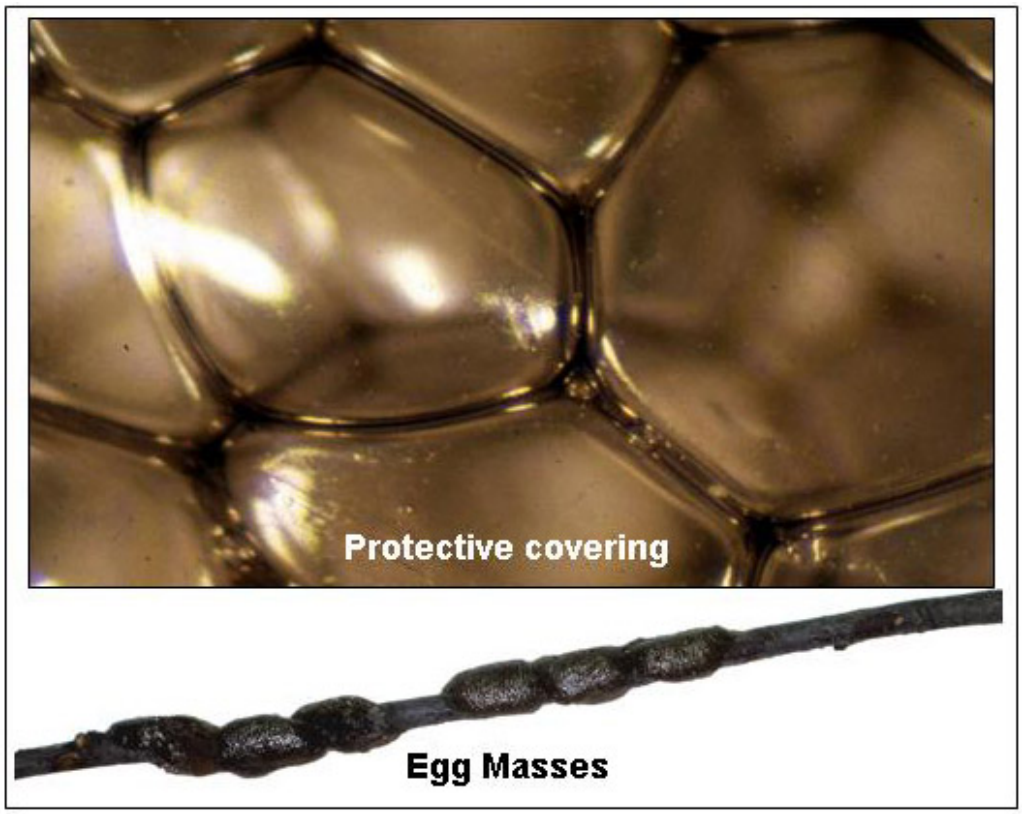

Figure 3

The egg stage is the longest stage in the life cycle of eastern tent caterpillars persisting through the extreme summer heat and harsh winter cold. Egg hatch in mid- to late March, 2011 will initiate the next generation.

Currently, European pine sawfly larvae also are wandering and producing cocoons. However, their cocoons are thin and papery in composition. Cocoons may be exposed if made on their host (Figure 4A). More often than not, larvae move off their host and construct cocoons on the ground beneath their host. In these situations, cocoons may be less obvious as they are "coated" with soil/debris (Figure 4B).

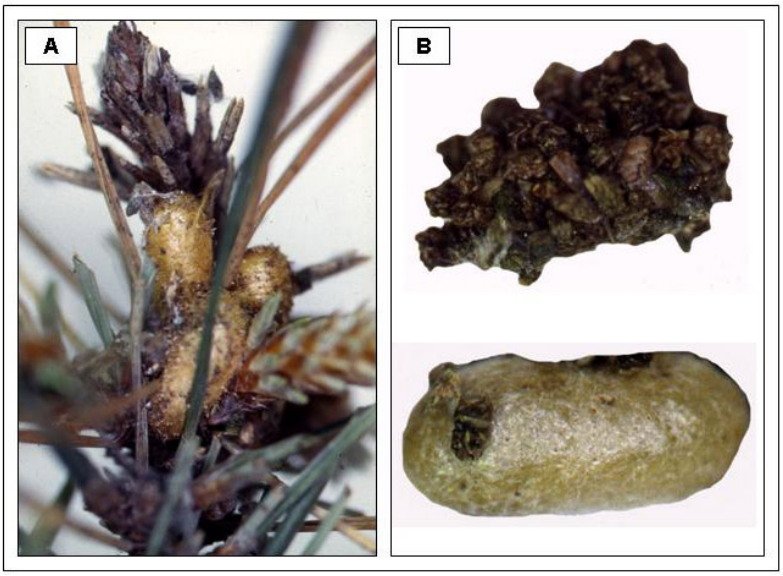

Figure 4

Inside of their cocoons, larvae do not immediately pupate, but rather remain "quiet and inactive" during late spring and through summer. It is in the early fall that sawfly larvae finally pupate followed by the emergence of adults in late September through October.

Male and female pine sawflies (which actually are wasps) are dimorphic. Males are distinctly smaller, black and possess feathery antennae. Females are brownish and more wasplike in appearance (Figure 5).

Figure 5

Like so many other insects, adult European pine sawflies are shortlived: their sole mission is mating and the production of eggs. Females insert eggs into thicker-needled pine species (Figure 6).

Figure 6

Protected within the needles, eggs survive the rigors of winter, and hatch in late March, 2011 and thus initiate the next generation.

Thus ends our 2010 thoughts of these two early-season pests. As always seems to be the situation, once they have completed their feeding/damage, they soon become a faded memory.

Bob Bauernfeind

The Royal Gorge Bridge. The Golden Gate Bridge. The Potato Bridge? ….. CPB's

Webster defines a bridge as a structure carrying a pathway or roadway over a depression or obstacle. Everybody knows that the Royal Gorge depression is spanned by the Royal Gorge Bridge. Everybody knows that the Golden Gate strait between San Francisco Bay and the Pacific Ocean is spanned by the Golden Gate Bridge. So what is the Potato Bridge??????

Webster provides another definition a bridge: a time, place or means of connection or transition. Ask a Colorado potato beetle what the Potato Bridge is, and it might relate the following:

"Originally, we beetles were restricted to the eastern slopes of the Rocky Mountains where our preferred host plant was buffalo bur, *Solanum rostratum*. As pioneers/settlers moved westward, they logically brought one of

their staple crops: POTATOES! When the American westward expansion reached us in the Rockies, we were introduced to delicious potato plants which became our favorite food source. With potatoes planted and established from the Rockies to the Atlantic, we Pioneer Potato Beetles began our eastward expansion to the east coast via the Potato Bridge".

In Kansas Colorado potato beetles are perennial pests of potatoes. Overwintering as adults under protective cover, beetles become active with springtime warm-up. And with potatoes being one of the first crops planted in home gardens, community gardens and several commercial operations, CPS's are assured of a good regularly-available source of food. Gardeners are encouraged to check their gardens on a regular basis for the presence of the colorfully striped beetles. They are not shy, and are easily seen as they mate on plants (Figure 7).

Figure 7

Clusters of bright yellow eggs are deposited primarily on the undersides of leaves

(Figure 8)

Figure 8

In a week's time, small reddish to pink larvae hatch out, begin feeding and progress through a series of instars (Figure 9). Mature larvae then burrow into the ground, create and "earthen chamber" in which they pupate (Figure 10). First generation beetles then emerge to produce a second generation leading to overwintering adults.

Figure 9

Figure 10

Currently, beetles and eggs were noted earlier this week. By next week, one would expect to encounter young larvae which in a couple weeks will have caused extensive feeding damage (Figure 11).

Figure 11

Colorado potato beetles can easily be managed. Because of their "relatively" large size and their color in stark contrast against potato plant foliage, beetles and larvae are highly visible. While traditionally people have handpicked adults, inspected leaves for eggs and crushed eggs, and/or handpicked larvae, this method may be time consuming. In larger plantings, insecticides may be the chosen method for eliminating CPB's. Various products are registered for use and include organically acceptable products (horticultural oils, horticultural soaps, spinosyns) as well as synthetically-derived alternatives.

Bob Bauernfeind

Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostic Laboratory from April 30th to May 6th.

April 30 2010 – Riley County – Carpophilus taken from bee hive
April 30 2010 – Johnson County – Bird mites in residence
April 30 2010 – Darlington, SC – Clover mites in and around home
May 3 2010 – Riley County – Bark aphid
May 5 2010 – Sedgwick County – Wolf spider in school
May 5 2010 – Atchison County – Winged termites, varied carpet beetle larvae, black carpet beetle larva found in homes
May 6 2010 – Smoky alderflies around porch

If there are any questions regarding these samples or about the identification of any arthropod please contact the Insect Diagnostician at (785) 532-4739 or GotBugs@ksu.edu.

Holly Davis

Sincerely,

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