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Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

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Insecticide Applications for Controlling Annual White Grubs:

In Kansas, white grubs are the most recognizable insect pest associated with lawns and turf. May beetles/June beetles (Phyllophaga spp.) (Figure 1, top row, #'s 1, 3, 4; middle row, all; bottom row, #'s 2 - 4) have 3-year developmental cycles. While their grubs may be present in turf, rare are the instances in which they are responsible for damage to turf. Rather, the grubs of the "masked chafer" beetle (Figure 1, top tier, #2) are acknowledged to be the major cause of damage to turf. "Masked chafers" (Cyclocephala spp.) have a 1-year life history, and therefore their grubs are referred to as annual white grubs.

Figure 1

White grubs primarily feed on grass roots. When grubs are highly clustered, their feeding activities destroy root systems, thus causing "dead patches" (Figure 2). Because roots have been severed, sod can easily be rolled back to expose the underlying grubs (Figure 3).

Figure 2

Figure 3

In situations where grubs may not, in of themselves, be responsible for causing visible damage to turf, they serve as food to foraging vertebrates. Thus, raccoons (Figure 4) will indiscriminately tear up turf after locating grub clusters. Skunks are probably ruthless

because their foraging activities are more of a rooting nature (Figure 5). However, even this damage is unacceptable.

Figure 4

Figure 5

There are two approaches to consider when dealing with grubs. Judicious **curative** treatments are applied only to restricted areas if and when there are the first signs of grub damage appearing in September and October. On the other hand, routine **preventative "insurance" treatments** are applied to entire areas without knowing whether or not grubs will actually be present.

The precise timing for preventative treatment applications is especially important when using insecticidal active ingredients carbaryl, diazinon and trichlorfon (the common product trade names are **Sevin, Diazinon** and **Dylox,** respectively). These "contact insecticides" have limited residual activities, and therefore their applications must be pinpointed to coincide with that time when the greatest proportion of grubs are small and especially susceptible to insecticides, and before they have attained sufficient size to cause extensive feeding damage.

The rule-of-thumb is: "Treatments should be applied 30-40 days after the "masked chafer" flight peak". It is projected that during this 10-day optimal treatment window, all eggs will have hatched, and 90% of the grubs should be in their most susceptible and least damaging life stages as 1st and 2nd developmental stage larvae.

In the Manhattan area (and experience has shown that throughout Kansas, flight events are fairly similar), **flights peaked the evening of July 2.** Therefore, August 2 through August 12 is the projected treatment window if using the aforementioned short-residual insecticides.

Two additional (and relatively more recent) active ingredients, imidacloprid and halofenozide, have received increased use as preventatives against white grubs. Both of these materials are systemic within the plants, and as such, their main mode of entry into grubs is via consumption of plant/root tissues containing the active ingredients. Imidacloprid is a nerve poison whereas halofenozide is a growth regulator which accelerates the molting process with lethal effect.

An attractive feature of imidacloprid and halofenozide (trade names Merit/Grubex and MACH 2, respectively) are their longer periods of residual activity. Therefore, these materials can be applied as preventative treatments with little regard to actual chafer flight activities. Because they are most active against newly hatched and smaller grubs in their early developmental stages, ideally they should have been applied just prior to the initiation of the current chafer flights to allow adequate time for their uptake into plants.

There is still time for these materials to be applied for controlling the current season's grubs. Both imidacloprid and halofenozide are least effective against larger grubs, and therefore neither are recommended for use as curative treatments after grub damage appears.

Bagworm Update:

With the approach of mid-July, bagworms are making their presence known. Many are 6 weeks into their developmental cycle, and thus have increased in size to the point where they are rapidly consuming the new and most tender terminal growth almost as soon as it is formed. Heavily infested trees exhibit a burnt/scorched appearance. Damage will quickly escalate if bagworms are allowed to continue unchecked.

Bagworm populations can be reduced to non-damaging levels via insecticide applications. Any number of insecticidal products are registered for use against bagworms. Check with local garden centers and retail outlets to see what they are recommending for bagworm control. It should be noted that the most important factor in bagworm control is not what insecticide is used,. Rather, thorough coverage and r**epeat treatments** are the important keys to successfully combating bagworms.

Due to the thickness and fullness of foliage, complete coverage is essentially impossible. Therefore, it is suggested that a person not simply apply a spray and assume that the job is done. Bagworms feeding on peripheral foliage will have been eliminated. However, those feeding deeper in plantings escape peripheral treatments. They will eventually move to outer areas and feed unfazed because the insecticide residues likely will have abated. Thus the necessity of another insecticide application! And possibly a third round, if warranted!!

Bob Bauernfeind

Personal protection against mosquitoes - What works and what does not:

There are many products on the market claiming to provide a good protection from mosquitoes. Remember that the efficacy of any product should be based on **the frequency of mosquito bites over a period time** with or without repellent.

The scientific evidence shows that products based on DEET (N,N-diethyl-meta-toluamide) and permethrin offer good and long lasting protection from mosquito bites.

The active ingredients that offer a short time or no protection include:

- citronella
- peppermint oil
- cedar oil
- lemongrass oil
- geranium oil
- catnip oil
- IRS 3535
- DEET in wristband products

There is no evidence that: not eating bananas, eating garlic, eating vitamins, or setting up a bowl with water and lemon dish detergent and other similar home remedies will protect you from mosquito bites.

Many products designed to trap mosquito adults (based on light, CO2, ...) do work and trap mosquitoes. **However**, all these devices **attract** mosquitoes to your property and there is **no evidence that they reduce the nuisance level and frequency of mosquito bites**. They might be effective, in closed or semi-closed areas (large tents...) but not in wide open areas (yards....).

Therefore, I recommend using repellents based on DEET or permethrin. Other tips include, screens on doors and windows, avoid being outdoor at dusk and dawn if you are in the area with a high mosquito population, wearing long pants and sleeves, and taking care of standing water on your property in terms of controlling mosquito larvae. For additional information visit this page: http://www.oznet.ksu.edu/westnilevirus/

Ludek Zurek

Sunflower Head Moth:

1st adults were collected from central KS (North Agronomy Farm, Manhattan) on 7 July (Pherocon 1 C Trap).

Jeff Whitworth

Sugarcane Rootstock Weevil:

Getting reports in from central and south central KS about sugarcane rootstock weevils in sorghum. This insect was detected for the 1st time in over 30 years in 2002. We don't have much information about this pest in KS but apparently it is already at detectable populations and causing some damage in sorghum. Thus, a little information about this pest so you can be aware of it in case you get inquiries. The adult weevils are dark brown or black and very small (1/8 in.). The adults do feed on young sorghum plants but usually not to the point of causing damage. This is the overwintering stage and may be found on wild grasses including johnsongrass in the spring before moving to sorghum. Female weevils lay eggs in the stalk at the base of the sorghum plant. As the larvae emerge they start tunneling inside the stalk near the base. These tunnels may look like those made by other borers but smaller and don't extend up the stalk. The larvae are small, white, and grublike and often found at nodes toward the outer surface of the stalk near the base. Pupation occurs in the stalk. There are several generations per year in Texas and probably in KS as there are mature larvae present already. Larval feeding damage often makes the plants look drought-stressed. Plants I saw last year were drought-stressed also so it can be difficult to separate weevil damage from drought stress but if your plants are looking stressed already this year, sugarcane rootstalk weevils may be suspected. Larval feeding may also cause lodging and cause entrances for plant diseases, especially charcoal rot.

Jeff Whitworth

The following samples were submitted to the Insect Diagnostic Laboratory for the week of June 30 through July 3, 2003:

6-30-2003, Thomas County: Springtails in yard, home.
6-30-2003, Osage County: Potato Leafhopper burn in Alfalfa.
6-30-2003, Kiowa County: Bark Beetles, possible Lilac Borer in Privet.
6-30-2003, Nemaha County: Red Flour Beetle in home.
7-2-2003, Leavenworth County: Greenstriped Mapleworm on trees.
7-2-2003, Miami County: Possible Aphids on Maples.
7-3-2003, Reno County: Nursery Web Spider in home.
7-3-2003, Rooks County: Darkling Beetle on Sorghum.

If there are any questions regarding these samples or about the identification of any arthropod please contact the Insect Diagnostician (Bobby Brown) at 785-532-6154 or bbrown@oznet.ksu.edu

Brand names in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Sincerely,

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