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Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

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Preventative Treatments Against Annual White Grubs:

The topic of annual white grubs in turf was addressed in the June 24, 2005, Kansas Insect Newsletter #10. Why then is this an issue of current interest? During the 6-week interval, the 2005 “masked chafer” flights have come and gone. Whereas the earlier newsletter dealt with the topic of applying more costly long-residual insecticides (Merit and MACH 2) whose uses are not dependent on chafer flight patterns, the timing and use of less costly shorter residual materials (active ingredients carbaryl and trichlorfon commonly marketed under the popular trade names Sevin and Dylox, respectively) are contingent on chafer flights. Due to the short residual properties of Sevin and Dylox, they must be applied in a timely manner in order to maximize their most effective use. The rationale in treatment timing is that insecticides be applied 30-40 days after peak flights of chafers. During this period, all eggs will have hatched and 90% of the grubs will be in their first and second developmental stages (Figure 1) which have not caused extensive feeding damage, and which are easier to kill than later-occurring large third instar larvae (Figure 2, large grub).



Figure 1
1st and 2nd instars



Figure 2
2nd and 3rd instars

A series of blacklight traps operated by cooperators throughout Kansas provide detailed information on chafer flights. Across southern Kansas (Independence - Wichita - Hutchinson - Liberal), chafer flights peaked the evenings of June 25, June 26, June 26 and June 24, respectively). Flight peaks across northern Kansas (St. Francis - Mankato - Manhattan - Lawrence) were the evenings of July 7, June 29, July 3 and July 2-4, respectively. Thus the approximate ideal 10-day treatment application period for southern Kansas is July 25 through August 4, and that for northern Kansas, August 2 through August 12. Again, these dates **serve as a guideline** to maximize the effectiveness of short-residual insecticides. There are “overlaps” because chafer flights in Kansas are somewhat synchronized and there are not great differences from south to north. And yes, preventative treatments can be applied beyond the “tenth day” — it’s just that the sooner, the better.

Sevin and Dylox are contact insecticides. Therein lies a problem. Insecticides are applied to the surface of the turf. But grubs are in the soil. Grub mortality cannot occur until insecticides move down into the zone of grub activity (Figure 3). Moisture, in the form of rain or post-treatment waterings/irrigations, is required to accomplish the downward movement turf plug of insecticides.



Figure 3

Cross section of turf plug

A deterrent to the insecticide relocation into the soil is a layer of thatch (Figure 4) which acts as a barrier against the movement. Furthermore, the tangled mass of thatch (Figure 5) provides somewhat of a substrate which intercepts and binds up a portion of the insecticide.



Figure 4

Closeup of thatch



Figure 5

Bottom view of soil plug minus the soil

Three turf site preparatory activities are recommended to increase the likelihood of achieving successful performance of preventative treatments against grubs. **First:** Thoroughly water the turf site. There is a

tendency for grubs to move closer to the soil surface when their environment is moist as opposed to dry. This will then place them into closer proximity of insecticides as they enter the soil zone. Also, a pre-moistened soil will more readily “accept” insecticides when they are eventually watered in. **Second:** Prior to the insecticide application, attempt to break up and reduce the thatch layer. A verti-cut or core aerator will make channels (in the thatch layer) through which insecticides will be able to move. More ideal would be the use of a power rake to thoroughly disrupt the thatch layer, after which the uprooted thatch “trash” could be hand raked and removed/discarded. **Third:** Immediately after a treatment application, provide a post-treatment irrigation/watering to help wash the insecticide into the soil/grub zone.

It is difficult to evaluate the effectiveness of preventative treatments. If, at season’s end, a turf site is lush and green and absent of “grub spots”, then one assumes that a preventative treatment was effective and worth the effort and cost of site preparation, as well as the cost of the chemical and its application. It may well be (and quite likely the case) that there were few to no grubs to begin with. But then, that is the premise of preventative treatments automatic insecticide applications as a preventative measure against annual grubs whether or not (in actuality) treatments would have been necessary.

Bob Bauernfeind

Number of Horse Flies on Cattle and Horses Becoming Noticeable:

Horse flies biting cattle and horses have been on the increase; so are calls requesting information on how to control these vicious biters. Horse flies and deer flies are well-known pests of cattle, as well as of horses and humans. There are about 300 species in North America; whereas here in Kansas there are over 30 different species. Their size ranges from small deer flies slightly larger than house flies, to some of the horse flies measuring about 1 ¼ inches long. Egg masses are deposited on vegetation over water or moist areas. Newly-hatched larvae drop to the water or mud where they develop. It has been demonstrated that some species in the Midwest U.S. develop in well-drained soils. Most of these flies have only one generation per year, but because so many species occur in any given area, animals are continuously attacked during the spring and summer as one species after another emerges. Horse flies and deer flies have razor-sharp bayonet-like mouthparts with which they inflict a deep, painful, bleeding wound; then they drink the welling blood with their sponging mouthparts. Their feeding activity is extremely irritating. Heavy horse fly attack may result in anemia; they can also be vectors of equine infectious anemia in horses and anaplasmosis in cattle. Control of horse flies and deer flies is extremely difficult. The fact that there are so many different species at any locality and with diverse life habits makes it impractical to control the immature stages. Horses can be sprayed with pyrethroid insecticides such as permethrin, which may give temporary relief from their attack. Frequency of spray application would depend on label restriction or on duration of efficacy.

Alberto Broce

Sorghum:

We are receiving reports of scattered infestations of "worms" in late-planted sorghum. Various reported as armyworms, fall armyworms, and corn earworms but all, so far, have been from whorl stage sorghum. This is probably because these "worms" cause relatively easily seen feeding damage and is thus being noticed. Generally, these infestations need to be about 75% of the field before insecticide treatment is justified. The one field we checked was about 25% infested with corn earworms but infested plants were readily apparent. These "worms" may start infesting the head at which time they can do considerable damage. Sorghum head infestations are sometimes not noticed until "worms" are mature and most damage is done. So if you have late planted sorghum, please be aware of the potential that these infestations pose and continue to be vigilant. Refer to the KSU Sorghum Management Guides available at your local County Extension Office for treatment recommendations.

Jeff Whitworth

Weekly Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostic Laboratory from August 4 through August 11, 2005:

- 8-4-2005, Rooks County: Carpet Beetle on bed in home.
- 8-4-2005, Ottawa County: Fungus Beetle larvae on ground.
- 8-4-2005, Marion County: Pine Tip Moth damage.
- 8-5-2005, Lyon County: Springtails in home.
- 8-5-2005, Pottawatomie County: Pine Needleminer damage.
- 8-8-2005, Pottawatomie County: Obscure Scale, Oak Skeletonizer on oak.
- 8-8-2005, Sherman County: Springtails in home.
- 8-9-2005, Reno County: Fly larva in mulberry clipping.
- 8-9-2005, Labette County: Garden Webworm in soybean.
- 8-11-2005, Riley County: Drugstore Beetles in home.

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 at bbrown@oznet.ksu.edu

Bobby Brown

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Sincerely,

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