

Stop 11. Remote Sensing & GIS Unmanned Aerial Systems (UAS)

Robert Goodwin, Joe Welsh, and Dr. Dave Lusch

Please see report on pg. 8.

Stop 12. MSUTurfInsects.net

Terry Davis and Dr. David Smitley

The Turf Insect ID website (www.msuturfInsects.net) is up and running. It can be used to identify turf pests via entering turf damage symptoms or comparing descriptions and pictures of the damage and insects. Pictures, descriptions, life history and general control measures can be found on this website for all of the major turf insect pests in Michigan. This is the companion website to the turf disease and weed websites.

Stop 13. A Bee-Friendly Approach to Home Lawn Grub Control

Dr. David Smitley

Imidacloprid, clothianidin, and thiomethoxam are the neonicotinoid insecticides used on on home lawns and golf courses for grub control. These insecticides and many other insecticides can be toxic to bees when bee-attractive flowers are sprayed. However, because bees only feed on the nectar and pollen they will not visit turfgrass in home lawns unless flowering weeds like clover are present. If a lawn does not have any flowering weeds there will be no adverse effects on bees when an insecticide is applied for grubs. Let's say that your lawn care company usually treats lawns for grubs, billbugs and chinch bugs in early June. Customer lawns can be divided into two categories with the following bee-friendly grub control options:

- 1. Old customers, no flowering weeds present.**

Standard grub control practices will not harm bees because your outstanding weed control program has eliminated flowering weeds.

- 2. New customers, flowering weeds are present.**

If the lawn is mowed immediately before it is treated with an insecticide for grub control, weed flowers will be removed and the insecticide application will not be harmful to bees. Also, in a recent study in Kentucky, Dr. Dan Potter found no adverse effects to bumble bees visiting clover in a lawn sprayed with chlorantraniliprole (Acelepryn or GrubEx). So, if flowering weeds are present, chlorantraniliprole can be used.

What if linden trees or other flowering trees are present in the lawn? We do not know at this point if the grub control rate of imidacloprid, thiomethoxam or clothianidin applied to turfgrass under flowering trees will be harmful to bees. The trees will absorb some of the neonicotinoid insecticide through their roots and some of the insecticide will be systemically moved

throughout the plant, including into the pollen and nectar. This may not be enough insecticide to be harmful to bees, because in Dr. Potter's study in Kentucky, turf with clover was not harmful to bees when it was mowed before spraying, even though the clover bloomed again a few weeks after clothianidin was sprayed. Still, the safest approach is to apply imidacloprid, thiomethoxam or clothianidin, in July, after lindens and most flowering trees are done blooming. Also, landscapers should not use imidacloprid as a basal soil drench around linden trees or other trees that are attractive to bees. Some landscapers have used imidacloprid basal soil drenches for control of Japanese beetle, aphids, scale insects and borers.

Recent research has shown that all of the insecticides used to control grubs in lawns are more consistent when the lawn is irrigated immediately after application. So, regardless of what insecticide is used, irrigate with ½" of water immediately after application.

Another alternative to using a neonicotinoid insecticide for grub control is to [grow a lawn with a dense root system](#) that is tolerant of grubs. This can be done without the use of any insecticide. If homeowners set their mowers at the highest setting (clips turf at 3 to 4 inches in height), return their grass clippings to the lawn instead of collecting them, chop tree leaves into the lawn instead of raking, fertilize modestly, and water during dry periods, they will build a dense turf resistant to grubs. Tips on how to do this are available in the [Michigan State University Extension](#) Smart Gardening tip sheets: **Mow high**, **mulch leaves**, and **smart watering**.

Stop 14. Annual bluegrass Control in Athletic Fields

Aaron Hathaway and Dr. Thomas A. Nikolai

Annual bluegrass (ABG) continues to infiltrate Kentucky bluegrass (KBG) athletic fields. It not only becomes an aesthetic problem because it forms small and large, yellower patches, but does not tolerate traffic nor recuperate from traffic stress as well as KBG. If ABG is not controlled in a timely manner it proliferates from year to year becoming a bigger and bigger problem because it can produce plenty of seed even when regularly mowed low while KBG cannot. ABG builds its population above the ground but also builds its potential future population through an ever-increasing bank of seed in the soil. It is important to control ABG from the very beginning as maintaining control of small populations of ABG is much easier than mass control of a large population. Another hurdle to ABG control in KBG is that these two turfgrass species are very closely related and, so, it can be difficult to find a herbicide that effectively controls ABG, but is also adequately safe on KBG. A trial was initiated on a KBG athletic field mowed at one inch. Herbicides were first applied on June 6, 2014 and applied every two weeks thereafter.