

# **BILLBUGS & CHINCH BUGS - MAJOR LAWN PESTS... OFTEN MISSED!**

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The general dogma for decades has been that white grubs are the only major pest of ohio lawns! I'm not sure where this came from, but my thoughts are that grub control has traditionally been an "add on" service which added extra revenue to the bottom line! When this kind of emphasis occurs, specialists and home owners alike, figure that this is the most important pest of their lawns!

My colleague, dr. Harry niemczyk, wrote articles over two decades ago about how billbug damage was missed and diagnosed as something else. It has been my experience that our hairy chinch bug is also commonly misdiagnosed or missed entirely until lawns begin to die out! More recently, dr. Doug richmond (turfgrass entomologist at purdue) has performed some insect surveys in indiana lawns and he recently came to the conclusion that billbug damage is much more of a lawn killer than white grubs!

## **Billbugs-**

**Billbugs and their damage continue to be one of the most commonly missed pests of lawns, grounds, sport fields and golf courses, especially if kentucky bluegrass is the dominant grass! Their life cycle develops in such a way that most inexperienced lawn specialists and home owners simply think that their turf is going into summer dormancy when, in fact, it is dying! The larvae generally burrow down seed-head stems in may, reach the turf crown in early june. If the weather is normal to wetter than normal, the new tillers that developed in may and june will set roots and replace the dead parent plant. However, if it turns off hot and dry in mid-june, the new tillers will collapse and the whole plant system (parent plant and tillers) will die off. Unfortunately, this can look like the grass is simply entering dormancy! If this assumption is followed into september when rains normally resume, the billbug damaged turf won't recover. Healthy turf that went into dormancy will green up rapidly.**

**Billbug adults overwinter in the turf and nearby protected areas. They become active when the soil surface temperatures regularly reach 65 °f.** After a few days of feeding, females begin inserting their eggs into the seed-head stems, probably because these are the thickest stems available. The egg hatches in a week to 10 days into a small grub-like larva that burrows down the stem leaving a trail of fine sawdust-like fecal pellets behind (frass). While grub like (having a brown head and roughly c-shaped body), billbug larvae have no legs. The larvae molt several times, but eventually reach the crown. If the larva is small, it will burrow up and down additional stems. Eventually the larvae is too large to fit inside stems and it will drop out to feed on the crown itself. This often happens in mid- to late june.

Billbug activity is pretty easy to diagnose once the larvae have burrowed down stems. Simply do the "tug test!" Grasp some of the brown grass stems and tug. In june, these will look like the natural dieback of the seed-head stems. Later on, pulling on any of the straw-colored stems is appropriate. If the stems break off easily and they are packed with a fine dust-like powder, you are seeing billbug activity.

This is demonstrated on a video posted on youtube! ([Http://www.Youtube.Com/watch?V=a-5zdolfnms](http://www.Youtube.Com/watch?V=a-5zdolfnms))

## **Hairy Chinch Bug-**

**The hairy chinch bug has historically been a major lawn pest but it seemed to be less of an issue when we began using some long residual organophosphate insecticides, like Oftanol and Triumph. Over the last two decades, I have been seeing more and more activity of this pest, primarily in recently sodded Kentucky bluegrass lawns! In many cases, these new lawns were established on rubble, not soil and the KBG would be killed out by both billbugs and chinch bugs in the first five years after being laid down. The lawns would often be reseeded with perennial ryegrass or tall fescue (both of which have endophytes) and the chinch bugs would no longer be an issue!**

**The hairy chinch bug also overwinters as adults hiding in the turf. In the spring, when surface temperatures get closer to 70 °F during the daytime, these adults begin to disperse, feed, and lay eggs in the thatch. The eggs hatch in a few days and the tiny red-orange nymphs feed on stems, often within the protection of thatch layers. Chinch bug feeding clogs vascular bundles, and the tissues upward from the feeding spot stop getting nutrients and water, then turn yellow and die. The chinch bugs simply move to new stems or move lower on a stem to continue feeding. The majority of first generation nymphs seem to be active from late May through June. In July, the new adults lay more eggs and we get a second generation through August, if the turf is kept actively growing during this period.**

Hairy chinch bug detection is pretty simple, but it DOES require you to LOOK! I call this the hands-and-knees technique! Simply walk over to where the turf is turning brown and spread the turf canopy where the brown and green edge joins. If chinch bugs are present, you should easily see the black and white adults and red-orange nymphs. Check a couple of places. If you don't readily find the chinch bugs, then something else is happening to the turf! I also have a video demonstrating this technique (<http://www.youtube.com/watch?v=Vn6y78ZBQqE>).

## **Billbug and Chinch Bug Controls –**

**Since both billbugs and chinch bugs overwinter in and around the turf that they attacked last year, one of the first strategies was to apply a surface insecticide to kill these adults as soon as they become active. In the past, Dursban, Diazinon or Sevin were commonly used for this purpose. Today, some of the pyrethroids (like Talstar, Scimitar, DeltaGuard, and Tempo Ultra) can be used for this purpose. Applications would be made when the soil surface temperature reaches 65-70 °F. This is usually in early May.**

With the development of turfgrass use neonicotinoids (e.g., imidacloprid, thiamethoxam, clothianidin and dinotefuran), virtually all of these are very good at taking out billbugs if they are applied

from early May into the first week of June. We don't have good laboratory evidence, but it appears that these insecticides affect both adults (may stop their egg-laying) and larvae (through systemic action). The problem with early May applications of neonics is that some (imidacloprid, thiamethoxam and dinotefuran) will not remain at active levels for the grub populations that may arrive in July. In short, you will get billbug control, but not grub control with a single application. Clothianidin, seems to have longer residual activity.

Chinch bugs are also controlled with early applications of neonics, but bifenthrin products are still the fastest knock-down materials. Chinch bugs are often difficult to find until early to mid-June (middle of the

first generation) and damage is more common in July and August. In either case, lawn specialists should be quick to use the hands-and-knees technique to diagnose chinch bug activity. Once discovered, a single shot of bifenthrin should eliminate them for the rest of the season.

Finally, I still strongly recommend taking a long-term approach to controlling both billbugs and chinch bugs. Slit seeding with endophytic ryegrass or turf-type tall fescues will stop both insects from achieving pest status. All you need is about 40% of the stand expressing the endophytes that these grasses contain in order to stop the pests!

**Table 1. Summary of Ohio Bluegrass Billbug Control Studies 1996-2012**

*(applied as preventive and early curative treatments)*

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Insecticide	Rate	%	#	range
	lb.ai./A	control	tests	% control
Bifenthrin (=Talstar)	0.1	66.5	15	37-100
	0.2	76.5	4	53-100
Chlorantraniliprole (=Acelepryn)	0.08	89.5	2	85-93
	0.1	71.8	8	12-86
Clothianidin (=Arena)	0.2	82.4	5	74-94
	0.3	94.1	7	80-100
Cyfluthrin (=Tempo)	0.14	67.0	2	
Deltamethrin (=Deltagard)	0.13	67.0	1	
Imidacloprid (=Merit)	0.3	77.4	21	55-95
	0.4	92.5	5	73-100
Lambda-Cyhalothrin (=Scimitar)	0.06	78.4	5	64-95
Thiamethoxam (=Meridian)	0.2	87.2	6	81-100
	0.26	100.0	2	
Dinotefuran (=Zylam)	0.36	84.1	7	73-93
	0.54	71.6	7	46-86

**Table 2. Summary of Ohio Hairy Chinch Bug Control Studies 1996-2012**

*(applied as curative treatments)*

Insecticide	Rate	%	#	range
	lb.ai./A	control	tests	% control
Bifenthrin (=Talstar)	0.1	93.9	17	69-100
	0.2	92.6	13	55-100
Beta-cyfluthrin (=Tempo Ultra)	0.1	83.	0 1	
Chlorantraniliprole (=Acelepryn)	0.2	57.5	2	56-57
	0.4	37.6	5	32-54
Clothianidin (=Arena)	0.2	92.2	5	83-100
	0.3	85.6	5	71-100
Cyfluthrin (=Tempo)	0.14	33.7	3	0-79
Imidacloprid (=Merit)	0.3	83.6	11	50-100
	0.4	77.8	6	61-100
Lambda-Cyhalothrin (=Scimitar)	0.05	88.8	6	76-95
Thiamethoxam (=Meridian)	0.2	69.0	3	29-97
	0.26	88.5	2	79-98
Clothianidin + Bifenthrin (= Aloft)	0.4+0.2	93.7	3	86-97



*Unfortunately, chinch bug damage can look like disease or drought stress. You have to do the "hands-and-knees" inspection to be sure!*



*Billbug damaged lawn and frass-filled stems resulting from a "tug test."*



*Bluegrass billbug larva that has burrowed down the seed-head stem to the crown.*



*Hairy chinch bug life stages (egg, five nymphal instars and adult).*