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The cornerstone of your turf management program.
There is little scientific data offering high marks on efficacy for organic, natural and biological insect controls.

by Harry Niemczyk, Ph. D.
Ohio State University

Interest in—and demand for—organic, natural, biological and bio-rational ways to control damage from insect pests of turfgrass remains high.

The EPA, as well as other agencies and organizations, strongly encourages the use of some such insect control materials. Collective scientific data to date still provide relatively little encouragement where their effectiveness is concerned.

Grub control—Various species of insect pathogenic nematodes have been evaluated over the last eight to 10 years. While successful control is occasionally reported by researchers, no single species has provided consistent results. In the view of this author, nematodes and other forms of biological control will meet with limited success—at best—until equipment is developed to place these agents directly into the zone of grub habitation. The distance from the turf surface to the target is a formidable one for these agents to traverse. We are simply not there, yet.

Cutworms and sod webworms—Grass-eating, thatch-inhabiting sod webworms and cutworms are more readily reachable targets for biological control materials than are subsurface pests such as grubs.

Results with surface applications of insect pathogenic nematodes such as exhibit (Steinernema carpocapsae), a Ciba Geigy product for control of cutworms on golf course greens, have been somewhat encouraging. This writer encourages golf course superintendents to try them in 1992 and report their impressions and results to the company.

Further encouragement for control of this group of pests has been seen with the use of insect growth regulators (IGRs), some of which are natural extracts from the neem tree. Chinchbugs—Few, if any, of the biological control materials have been effective against this thatch-inhabiting pest. Insect growth regulators show some promise for control when applications are made to the early developmental stages.

Billbugs—The fact that the larval stages of this—the No. 1 pest of cool-season lawns—feeds in the stems and crown of grasses, makes it a more reachable target for insect pathogenic nematodes and other biological control materials. Results of 1991 research have been encouraging, but broader field evaluation is needed to confirm effectiveness.

Expectations—Biological controls will not totally replace insecticides for control of insect pests of turfgrasses. Our expectations for biological agents should be for them to act as suppressors of pest populations, not as complete control agents in themselves.

Knowledge about the lifecycle of pests in any specific area and the determination of the need for treatment based on evaluation of populations at vulnerable periods during the insect’s life cycle remain the keys to successful control.

This guide points out the seasonal occurrence of the eight most important cool-season pests of this region and some of the insecticides that may be effective.

Billbug damage is often mistaken for drought, disease or other stress. Examination of the grass removed and the root zone distinguishes billbug damage from that of other pests.

No endorsement of products is intended, nor is criticism implied of those not mentioned.

—The author is Professor Emeritus and turf insect research coordinator at the Ohio State University’s Ohio Agricultural Research & Development Center, in Wooster, Ohio.
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Of course, a herbicide that lasts all season won’t always fit your schedule. That’s the time for Balan herbicide. Available straight and on fertilizer, it gives you up to ten weeks of grassy weed control. And, depending on the rate you use, you can reseed as soon as six weeks after you apply it.

Used according to label directions, Gallery, Team and Balan are gentle on all major turfgrass species. University studies show they don’t harm root systems. And they won’t leach into groundwater or harm nearby ornamentals and trees.

Okay, now for grassy weeds. A single application of Team herbicide gives you sixteen weeks of broad-spectrum control. It’s very effective on crabgrass and goosegrass. And it’s available on fertilizer or in a granular form for accurate application.

Choose the length of control best for you.

<table>
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<tr>
<th>Herbicide</th>
<th>Control Duration</th>
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<tr>
<td>Gallery</td>
<td>24 weeks</td>
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<tr>
<td>Team</td>
<td>20 weeks</td>
</tr>
<tr>
<td>Balan</td>
<td>10 weeks</td>
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</tbody>
</table>

Pest Management can tell you more. It contains information you can use to control weeds, insects and turf diseases more efficiently. For a free

The herbicides not applying herbicides

control that’s as good or better than you’re getting now.

Let’s start with broadleaf weeds. It usually takes up to five herbicide applications a season to control them. But by using Gallery herbicide (straight or on fertilizer), you can do it with one. It doesn’t take much, either. Just 1/3 ounce per 1000 square feet.

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By switching to Gallery the superintendent at Crooked Stick Golf Club in Carmel, Indiana, reduced herbicide applications on his fairways from five a year to one. The notoriously picky PGA officials who inspected those fairways for the 1991 PGA Championship raved about their outstanding condition.

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## Cool-Season Insect Control Strategies

<table>
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<th>Pest</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall-early winter</th>
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<tbody>
<tr>
<td>Chinch bugs</td>
<td></td>
<td>Treat before injury is severe, with Dursban (1 lb. ai/A); diazinon** (2.5-5.5 lbs. ai/A); or other labeled insecticides.</td>
<td>Treat if necessary. Generally, infestation not high enough to warrant using insecticides.</td>
</tr>
<tr>
<td>Billbugs</td>
<td>Same as for chinch bugs.</td>
<td>Treat at grub rates with Triumph®, diazinon**, Turcam, Mocap or Sevimol. App. in mid-late June most effective. Irrigate following application.</td>
<td>Treatment is usually not appropriate at this time.</td>
</tr>
<tr>
<td>Sod webworms</td>
<td></td>
<td></td>
<td>Larvae cause little damage at this time. Treat in Sept. to reduce spring population.</td>
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<tr>
<td>Cutworms</td>
<td></td>
<td>Apply when damage is seen, or larvae are present. Use Dursban (1 lb. ai/A), Triumph® (1 lb. ai/A); diazinon** (5 lbs. ai/A); Sevin-Sevimol (6-8 lbs. ai/A); Proxol-Dylox (6-8 lbs. ai/A), or other labeled products.</td>
<td>Same as for summer.</td>
</tr>
<tr>
<td>Greenbug aphid</td>
<td></td>
<td></td>
<td>Severe infestations may occur as late as Dec. Use the same insecticides as in summer.</td>
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<tr>
<td>Grain mites</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Clover mites</td>
<td></td>
<td></td>
<td>If infestations develop in Dec. use summer treatment.</td>
</tr>
<tr>
<td>Grubs</td>
<td></td>
<td></td>
<td>Treat as needed, with liquid diazinon** (2.5 lbs. ai/A) or Dursban (1 lb. ai/A)</td>
</tr>
<tr>
<td>Black turfgrass ataeinius</td>
<td></td>
<td></td>
<td>Treatment can be made as late as mid-late Sept., as long as grubs stay in first inch of surface soil. Triumph® Mocap, Dylox, Proxol at labeled rates may be effective.</td>
</tr>
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</table>

### Pest Management Tips

- **Greenbug aphid**: Aphid numbers too low to detect.
- **Grain mites**: If treatment is necessary, use liquid diazinon** (2-3 lbs. ai/A) or Dursban (1 lb. ai/A). Avoid repeated use of Sevin-Sevimol.
- **Clover mites**: Liquid diazinon** (2.5 lbs ai/A) or Dursban (1 lb. ai/A) may be used.
- **Grubs**: If treatment of overwintered grubs is necessary, apply when all grubs are in the first two inches of surface soil. General or spot treatment with Triumph® (2 lbs. ai/A); Oftanol, Sevin-Sevimol or Mocap. Mocap (5 lbs. ai/A) or Turcam (2-4 lbs. ai/A) may be used. Irrigate as soon as possible after application. Green June beetle larvae are difficult to control at this time. Sevimol (2-4 lbs. ai/A) may be effective.

### Additional Notes

- **Severe infestations**: May occur as late as Dec. Use the same insecticides as in summer.
- **Existing grubs**: May be found in June or August. Overwintered, egg-laying adults, reduces potential for summer larval infestations. Treatment after two weeks may be necessary.

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1 For use only by commercial lawn pest control personnel, and only on golf course tees, greens and aprons, and on sod farms. See soil restrictions. **Diazinon may not be used on golf courses or sod farms.**

---

Source: Dr. Niemczyk
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