



## Insects and the Drought—What is next?

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I always get in trouble when I make predictions on what insects are going to do down the road. The press often makes me chase woolly bear caterpillars around during the fall to make my best guess as to what the winter will bring. It works out well if you make some outlandish claim. (I am predicting a mild winter). If you're correct people seem to remember, if you're wrong they often forget what the funny guy who chases bugs for the University said. Even when we have some understanding into how insect populations fluctuate, all you have to do is to have lived in Wisconsin the last two summers and you can throw your textbooks out the window.

What about the potential for bugs in turf for 1989? For some insects we need to look back on how they did during 1988's drought. You may remember very heavy **June beetle** numbers around the club house security lights during May and June or maybe even had oak trees defoliated by adult feeding. Every three years we see very heavy flights of adults and 1988 was a peak flight year. After mating the adult female is attracted to grassy areas and digs a small earthen cell under the turf. It takes two to three weeks for the eggs to swell and hatch and during that first year the larvae do little observable damage. It is during their second year of life that the most extensive turf damage is seen. If 1988 was the peak adult flight that means 1989 should be a bad year for **white grub** damage. Here I go with my predictions—I do not think so. The drought can have a serious affect on insects, too. The dry, hard ground makes it very difficult for the females to dig in the ground. Even if she could get into the concrete, eggs will not develop properly under low moisture situations and the larvae will die. From what I have seen, white grubs had very little egg laying success this year. With the low reproductive success of 1988, we are hoping for a quiet 1989. A few skunks go hungry because of this, but that's the way the grub bounces.

**Cutworms** were a big problem for many courses. Some superintendents were forced to treat 3 times in 1988 to stop their greens and tees from disappearing. Why? Cutworms like to lay their eggs in lush, dense, grassy areas. In a normal year this could be weedy fields, old pastures and even home lawns. During 1988 the only lush green areas were found on golf courses, so any adult moth in the county would be sure to be attracted to the local course. What will 1989 be like? There is really no way of telling. There are at least 5 species of cutworms that cause problems in Wisconsin turf. Some overwinter as partially grown larvae; some fly up during the spring from as far away as Mexico. This year's weather will have little impact on what will happen next season. Anytime from May-early September they could be out there so you must keep your eyes open. We like to suggest using an "irritation test" to force the caterpillars out into the open. Mixing a ¼ cup of powder or 1 T of liquid detergent or 2-3 T of pyrethrum containing insecticide to a gallon of water and treating 1 sq. yd. of turf will usually force the worms to the surface within 3-5 minutes. Small ½ inch long worms will continue to feed and damage turf for 8-10 days. Large 2-inch long worms are done feeding and it is useless to control them. Although revenge treatments against big worms may make you feel good, they are uncalled for and a waste of time and chemical.

We did not have many complaints about **Black Turfgrass Ataenius (BTA)** for 1988. In the early spring a couple of superintendents called about various small black insects flying around. During late May when the adults of *Ataenius* come out of overwintering sites and you can often see them flying around at dusk or crawling on members' golf balls. The insects that were sent in were either ground beetles or a type of marsh fly and were no problem. The superintendents involved saved themselves a needless insecticide application by keeping their

eyes open and making sure what they were dealing with. A heavy snow cover and a mild winter will favor better survival for BTA for next year, but that alone will not assure problems. The courses that have had problems in the past will be the most likely to have problems again. Look for activity about the time the *Spirea* is in bloom.

The outlook for the trees around the state for 1989 is not so bright. **Bark beetles** and other **wood borers** do best when trees are under stress. The severe drought conditions have given these insects an open door that may take a few years to close. After a drought the populations will remain high and often overpower even healthy trees. The problems already have started this season with a large number of infested and dead trees coming into the diagnostic lab. If you look at dead and dying red pines, you will often notice small BB sized holes in the trunk. The  **Ips bark beetle** that is responsible will go through 3 generations per year. Once a tree shows these emergence holes, it is too late to save that tree. The insects will remain dormant during the winter, but will warm up next spring and be active by early May. It is not just red pines that are showing the problems. White cedar (*arborvitae*), white pine, flowering crabs, white birch, oaks, and maples all have their group of wood borers and are showing death and dieback problems already this fall. After the 1976 drought it took three years for the beetle populations to come down. I am sorry to say this, but I predict a lot of tree death in the next two years that we will blame on the combination of drought and wood borers.

What is the best management for bark beetles or wood borers? First cut and destroy dead trees and those that will soon die. If left standing these dead trees serve as breeding sites that we call brood wood. Remember, that even unstressed trees have problems defending themselves when populations are high. Sanitation before May 15

(Continued on page 19)

should be the first step. For large trees that show small amounts of dieback, only the wood exhibiting symptoms may need to be removed. If cut wood cannot be hauled off, the use of heavy plastic tarps sealed around the wood pile will prevent beetle escape, and the added effect of warming and drying the wood will make the wood a poor breeding site.

The second step is to "baby" the trees. Maintain the strength and vigor of the tree by proper watering and by fertilization. As I write this article, we have not had enough fall rains to recharge the subsoil. If this continues, we will have our trees start next spring under continued stress. Strong, healthy trees attract fewer beetles and healthy trees do have ways of fighting the bark beetles and wood borers off. When possible, eliminate or minimize other stress factors such as compaction, construction injury, etc. as much as possible until things settle down. Newly transplanted trees will also be at high risk next year.

Are insecticides needed? Both chlorpyrifos (Dursban) and bendiocarb (Turcam) have labels for a number of borers and types of trees. Check the label as rates and timing differ con-

siderably depending on the insect involved. It must be remembered that the adults and larvae that are under the bark will usually not be killed by the insecticide treatment. What you set up is a protective barrier that will help prevent further attack. This means, that tree may continue to decline even after treatment. In most cases only the lower portion of the trunk and large branches need to be sprayed. For some trees, the insecticide mixture can even be painted on the bark. Most applications should be made by May 20 and for some insects follow-up treatments in June or July may be needed.

Some of the early season leaf feeding defoliators may give us a problem next May. We have been having a spotty **cankerworm** outbreak in Sauk, Columbia, Walworth, and Jefferson counties. **Forest Tent Caterpillar** which attacks a wide range of broad leafed trees including oaks, poplar, maples and basswood caused some minor problems from Wausau to Madison. There are some beneficial insects that will eventually knock these caterpillars out, but I am expecting they will not help yet in 1989 and I am afraid of increase spring defoliation. Watch for activity just after bud break through

early June. Normally, we do not get too excited because the damage is largely cosmetic, but drought stressed trees that get chewed on will be that much more susceptible to borer attack.

All of the bedding plant pests such as **spider mites, leafhoppers, aphids, thrips** and **whiteflies** will start out next spring with a clean slate. Spider mite and thrip populations thrived under the California type weather we had, but unless we have a repeat, we would not expect problems next year. Aphids did well in the spring of '88, but the combination of heavy predation by Lady beetles and the stress of the weather kept them in low numbers for the rest of the season. Much like the cutworms you will have to keep your eyes open.

I know that there is not such a thing as a normal year, and I have learned a long time ago that insects do not read the same books I do, but it would be nice to see a season that goes according to the "books." I have made my predictions and best guess-taments for 1989. Time will only tell if I am a hero, or have to find some other insect than the fuzzy wooly bear to get my inside information from.



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