Turfgrass Entomology Report 1988

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Introduction

The first half of the growing season in 1988 set new records for the least amount of precipitation in 2, 3 and 4 month periods. Insect injury was a minor concern compared to drought stress injury to turfgrass. The extreme weather conditions provided an unusual opportunity to observe turfgrass insect pests under drought conditions. In this report I first discuss my observations of insect problems throughout the state of Michigan in 1988. These comments are based on what I saw in my limited travel around the state, and do not reflect my scientific endeavor. Secondly, I will briefly discuss 1988 turfgrass insect research projects.

Golf Course Insect Problems in 1988

In general, golf course insect pests were not affected by the drought. An exception may be the tendency of black cutworm and bluegrass billbug adults to move into irrigated fairways to deposit eggs. There may have been more movement away from dry roughs and into fairways in 1988 because some turfgrass roughs were so dry that they were no longer suitable for oviposition. Several golf courses reported unusual cutworm damage in 1988. I also observed an unusually high level of bluegrass billbug injury to some golf course fairways. Superintendents tend to overlook billbug damage because it can only be correctly diagnosed during a brief period (from July 1 to August 1 in central Michigan).

Golf courses throughout Michigan continued to have problems with ants. Insecticides such as Turcan or Dursban seem to suppress ant mounding for only 1 to 3 weeks per application. More work is needed on ant control on golf courses. And at the same time we need to learn more about the beneficial effects of ants in turfgrass. These questions will probably be studied by reviewing the available literature and evaluating experimental turf plots in 1989.

Japanese beetle continues to slowly expand its range in southern Michigan. The most heavily infested areas are around Monroe, Ann Arbor, Detroit, Jackson and Kalamazoo.

In contrast to Japanese beetle, European chafer is rapidly expanding its range around Detroit and Grand Rapids. At this rate, we could see a continued band of infestation from Detroit to Grand Rapids by 1995.

Black turfgrass Ataenius continues to plague golf courses throughout the state. Some 10% of all golf course managers feel they have enough Ataenius grubs to justify applying insecticide to prevent injury.

Home Lawn and Recreational Turfgrass Insect Problems in 1988

In most cases, insect problems were of little concern compared to drought injury. However, because of the drought, some unusual things happened. In some areas, home lawns became so dry that chinch bugs and billbugs either died or moved to areas with more moisture. By July chinch bugs and billbugs were difficult to find in

completely dry lawns. This may be because there was not enough moisture left in the drying grass crowns to support billbug or chinch bug feeding. The highest population and greatest injury was found on irrigated lawns or in areas of the state that received enough rain to keep home lawns alive.

Sod webworms, June beetle grubs (Phyllophaga spp.), Japanese beetle and European chafer continue to be a problem in localized areas. More home lawns are becoming infested with European chafer grubs around Detroit and Grand Rapids.

Chinch Bug Research

1988 was the third and final year of a project designed to determine what types of lawns are most likely to have chinch bug problems. The third year of study confirmed findings from the first two years: lawns at the highest risk of chinch bug infestations have a high proportion of fine fescue and a dense thatch layer. For a detailed report on this work see another paper in this proceeding report by Kortier and Smitley.

Biological Control of Japanese Beetle Larvae with Insect Parasitic Nematodes

On May 19, 1987, nine 1.0 ft^2 plots were each seeded with 26 Japanese beetle grubs. These plots plus an additional set of nine plots not receiving grubs were treated with insect parasitic nematodes (Neoaplectana carpocapsue + Heterorhabditis HP-88) on May 20. A final set of nine control plots did not receive grubs or insect parasitic nematodes. The plots were distributed equally among irrigation block replications at the Hancock Turfgrass Research Center at Michigan State University. Irrigation treatments were daily irrigation, irrigation to 80% PAN, and no irrigation. Three replications of nine treatments (Table 1) were analyzed for change in the number of grubs per plot and differences in the number of plant parasitic nematodes.

Conclusion

The number of grubs per square foot found in plots treated with insect parasitic nematodes was more reduced in irrigated blocks (6.7 or 2.7 per ft^2) than in the no irrigation blocks (12.0 per ft^2). Apparently the ability of the insect parasitic nematodes to locate the grubs, or their survival is considerably reduced in dry soil compared to moist soil. The results of this experiment suggest that the use of insect parasitic nematodes as a microbial insecticide for control of grubs in turfgrass is more practical for irrigated sites.

The number of plant parasitic stunt nematodes (Tylenchorhynchus) per plot was reduced in irrigated plots treated with insect parasitic nematodes (40-55 per 50 cc soil) compared to irrigated control plots (85-117 per 50 cc soil). The suppression of plant parasitic nematodes after application of insect parasitic nematodes has not been well researched. The results of this test should be confirmed by additional experiments.