THE LATEST WORD ON . . .

Laser guided fertilizers?

WELL, NOT QUITE—but two universities are testing a new laser-based sensing system for measuring nitrous oxide emissions from agricultural fields. The initial results of the laser testing found higher than anticipated levels, which indicates that the fertilizers applied to the fields are not being used as efficiently as had been expected. As this technique is refined, it may help the turf management industry to improve both the efficiency of turf fertilizers and the techniques and management strategies that are used to apply fertilizers.

Earthworms

A STUDY OF THE EFFECTS of 17 commonly used turf pesticides on earthworm populations has shown that several materials produce high death rates and have residual effects that can last up to five months. Single applications of benomyl, ethoprop, carbaryl, or bendiocarb produced high earthworm death rates of 60–99%. Other insecticides, including diazinon, isofenphos, trichlorafon, chlorpyrifos, and isazophos caused less severe mortality rates in other tests.

Another recent study of earthworms showed that, over a 23-month period, net loss of organic matter is greater and microbial activity is higher in thatch layer samples that contained earthworms than in samples from which earthworms were excluded or eliminated by insecticide use. The earthworms deposited large amounts of mineral soil into the thatch layer samples.

Billbug biology and susceptible varieties

A TWO-YEAR STUDY IN EASTERN NEBRASKA found that adult billbugs emerge from their over-wintering homes in the topsoil in April. Found in the thick thatch layers above the soil, they mated and laid eggs and died as new adults emerged in August. The highest number of billbug eggs were found in the lushest stands of bluegrass at the sites. During the early summer of both years, the naturally occurring larval stage of an unidentified parasite was found inside varying numbers of adult billbugs.

A recent survey of pure stands of various varieties of bluegrass, tall fescue, perennial ryegrass, and creeping fescues found that they were all hosts for the four species of billbugs found in New Jersey. In an associated laboratory test, billbug survival rates in Kentucky bluegrass, ryegrass, tall fescue and bermudagrass were tested. With the exception of the bermudagrass—a less desired host—there was no difference in the three remaining species.

High maintenance impact on fine fescues

FINE FESCUES ARE AN EXCELLENT SPECIES for low to no management situations. They are particularly well-suited to no maintenance situations that tend to the dry side. In a long-term test of the survivability of different turf species, mixtures of different varieties of bluegrass, ryegrass, and fine fescue were seeded, tended until established, and then left with no maintenance other than periodic mowing. After two to three years, the ryegrasses faded, and after five to seven years the bluegrasses faded, leaving the fine fescues as the dominate variety in the test stands. Under these low maintenance conditions, the predominately fine fescue turf stands remained stable for years.

The trend toward higher levels of maintenance can upset that stability, according to another study. As long as fine fescue is maintained under low to moderate management conditions, it has performed well. However, many fine fescue areas are increasingly managed at higher levels, and these stands showed increasing deterioration due to increasing insect and disease damage. Fine fescues are vulnerable to chinchbugs, sod webworms, billbugs, leaf spot, and Pythium diseases.

Dethatching and chinchbug

DETHATCHING CAN HELP reduce chinchbug problems, according to a Michigan study. When chinchbug populations were compared 24 hours after being released, the populations were an average of 329% higher on the thatchy plots than on the dethatched plots.

Also, in a random survey of over 100 home lawns, thatch thickness was greater on infested lawns by an average of 53%. The study looked at other variables, including clipping weight, chlorophyll content and grass species. The data indicated that thatch levels and fine fescue content were the only variables that showed a definite correlation. The higher the fine fescue content and the lower the bluegrass content, the higher the incidence of chinchbug infestation. ■

LETTERS TO THE EDITOR

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