Sod producers explore alternative treatments for turfgrass health

By Douglas H. Fender

In the ongoing war against insect pests, fungal diseases and other threats to turf health, many turfgrass sod producers are exploring nontraditional treatment options to promote vigorous, pest-free crops.

In their continuous effort to provide those who buy and maintain turfgrass sod with the highest-quality product possible, turf growers and researchers are testing a variety of inexpensive alternative treatments, including mineral, herbal and live biological products.

While these alternatives don't replace effective traditional pesticides, turf industry professionals are starting to recognize the value of such materials, reporting important successes in the field.

Benefits of mineral silica

For years, rice and sugarcane farmers have used water-soluble silica, a byproduct of phosphate fertilizer mining, to fight fungal disease and promote growth. Now its effects are also being studied on turfgrass, with funding from the International Turf Producers Foundation (ITPF).

Paul Grose, general manager of King Ranch Inc. in Belle Glade, FL, has participated in the University of Florida's ITPF-supported silica/turfgrass trial studies for the past year and a half. While it's still too early to report definitive results, Grose said he has seen improvement in root system density.

"We used silica on our sugarcane for many years and had dramatic results," said Grose. "So when the University of Florida approached us about trying it with our turfgrass, we were interested."

According to Lawrence Datnoff, Ph.D., the University of Florida plant pathology professor who oversees the study, most soils contain considerable quantities of silica.

However, over-planting may reduce the levels that are naturally available to plants. Datnoff has found that soil incorporation with soluble silica reduces the incidence of gray leaf spot caused by *Pyricularia grisea* on St. Augustinegrass. Other research has found it to be effective against pythium blight, dollar spot, brown patch and powdery mildew.

"Right now, traditional fungicides are considered the best method available for managing these diseases," said Datnoff. "But silica, as a complementary solution, potentially offers another disease manage-

PHOTOS COURTESY: DR. LAWRENCE DATNOFF, PROFESSOR OF PLANT PATHOLOGY, UNIVERSITY OF FLORIDA –INSTITUTE OF FOOD & AGRICULTURAL SCIENCES.

Picture #1 (close-up photo of healthy turfgrass plant): "St. Augustinegrass amended with silica shows little if any gray leaf spot."

Picture #2 (close-up photo of turfgrass plant with gray leaf spot): "Non-amended St. Augustinegrass in the same conditions shows severe gray leaf spot."

ment option for turfgrass producers and maintenance crews."

Promising mineral, herbal, live biological treatments

Because much of the current research is still not complete, some turfgrass producers are taking a "wait and see" attitude before they apply alternative treatments to their sod. Since producers are constantly looking for ways to further strengthen the turf they provide to customers, alternative materials for disease management are an attractive option — and the initial research results are promising.

In addition to the silica studies, researchers are testing the effectiveness of sulfur, manganese, iron and other mineral products against pests and disease. Scientists also are studying the health benefits to turfgrass of herbal remedies such as salicylic acid and the bacteria Xanthomonas.

Live biological remedies like the bacteria pseudomonas have been shown to suppress a variety of turfgrass diseases. And beneficial nematodes (microscopic worms of the phylum Nematoda) are being used to parasitically control insect pests, such as grubs, mole crickets and caterpillars (see TurfGrass TRENDS, Vol. 10, No. 5, May 2001).

Some innovators also are exploring the value of alternative materials as fertilizers. For example, in an effort to recycle waste while improving quality and yield, one company is manufacturing fertilizer from used photo and film processing chemicals.

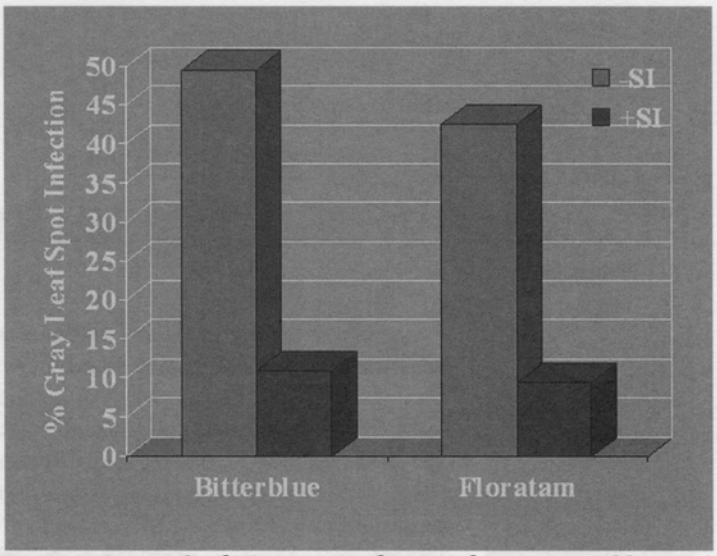
Timing is crucial

For the past three years, Myron Kuenzi of Kuenzi Turf & Nursery of Salem, OR, has used a yeast starter containing the beneficial fungus Trichoderma to combat the Helminthosporium fungal disease. Kuenzi says he has experienced "modest" success by spraying it on turf in the early stages of growth.

"The timing of the application is exceedingly important," he said. "You need to be aware of the life cycle that you're working with. If it's too early or too late, there's no benefit."

Most researchers and producers familiar with alternative treatments agree that timing is crucial, and that these products work best if applied before disease occurs. That way, they are used to help prevent the problem, rather than cure it. As is the case with traditional pesticides, these alternative remedies should never take the place of good maintenance practices.

"I always tell my customers, that's the most important part of disease management," Grose said. "Sod producers are doing all they can to deliver the healthiest product possible, but after the grass is installed, the customer can avoid most fungal problems by maintaining turf properly."



Picture #3 (graph of "% Gray Leaf Spot Infection"): "Red bars represent the percentage of gray leaf spot infection in Bitterblue and Floratam turfgrass varieties not treated with silicon, and green bars represent the percentage of infection in the same varieties treated with silicon. Silica is a silicon-containing compound commonly used in such applications."

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