

NEW CHEMISTRY ROLL CALL

What supers like, according to Green Section agronomists

By PETER BLAIS

United States Golf Association Green Section agronomists make thousands of annual visits to U.S. golf courses, putting them in a position to discuss with superintendents what new turf chemicals seem to be working and which need more work.

While forbidden from endorsing any specific item, a handful agreed to discuss products that are proving popular with golf course superintendents.

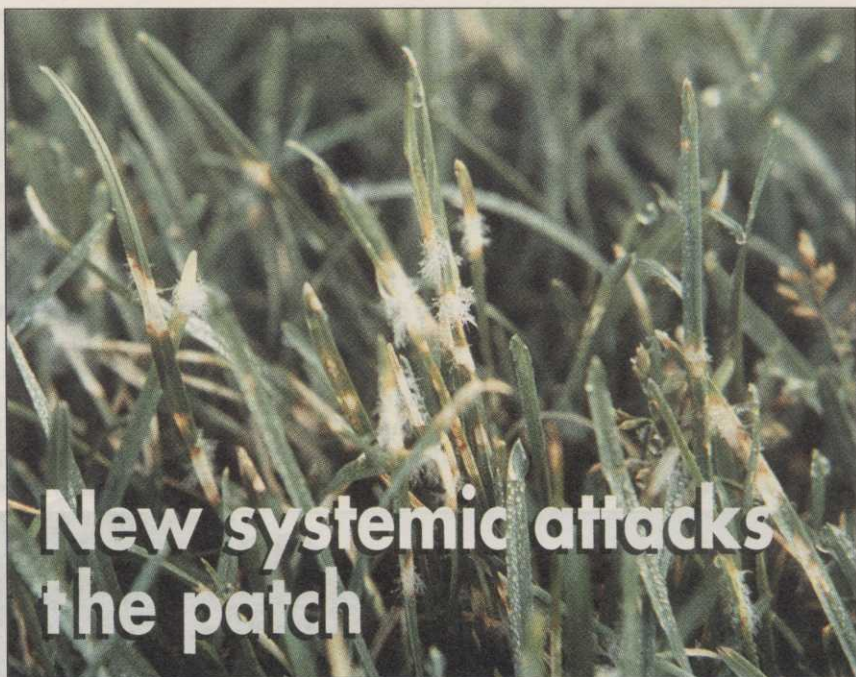
Bob Brame, director of the North Central Region, noted the acceptance of the plant-growth regulator Primo. Ciba introduced the product roughly a year ago. It differs from other Gibberellic Acid inhibitors in that it enters the GA production cycle later in the growth process, Brame said. Yet it still effectively inhibits grass cell elongation.

Brame also explained that, unlike other GA inhibitors, Primo application only affects existing turf. The foliar application becomes inactive after reaching the soil. That makes Primo effective for overseeding programs with new bentgrasses, slowing the growth of existing turf while giving the newly planted varieties a chance to take hold, he added.

While organics are not new, superintendents are revisiting natural materials like Milorganite and seaweed extracts as a way to reduce chemical dependence. "A lot of questions remain about their effectiveness," Brame said. "But they are often an important part of an overall turf management program."

Merit, a nicotine-based insecticide

Continued on page 41



New systemic attacks the patch

Look for highs today in the mid- to upper-80s, with overnight lows in the 70s. There's a 95 percent chance we'll see some showers today and tomorrow, with the humidity level rising to a stifling 90 percent.

Conditions like these might be unpleasant for golfers, but weather forecasts are an even greater concern to superintendents. As the temperature and humidity begin to rise, the inevitable environmental conditions favoring turf diseases aren't far behind. This is the time of year when superintendents in many regions must decide how to prevent costly and damaging diseases from putting them on the hot seat.

One solution is a new systemic fungicide introduced to the turf market just last year. Cyproconazole, classified as a demethylation inhibitor (DMI), or sterol inhibitor (SI), has received good reviews in both trials and widespread use. Sandoz Agro is the only company manufacturing

cyproconazole. Other broad-spectrum systemics include Banner by Ciba, Bayleton by Bayer, Chipco 26019 by Rhone-Poulenc, Cleary 3336 by W.A. Cleary, Rubigan by DowElanco, and Tersan 1991 by Marshall Thomas.

Marketed under the name of Sentinel 40WG by Sandoz Agro, Inc., cyproconazole is designed to be effective at controlling a broad spectrum of diseases, including brown patch, dollar spot and summer patch: three of the most economically threatening diseases on turf.

Although the three diseases are caused by different pathogens, stimulated by different conditions and characterized by different symptoms, there is one common thread between them: They are all difficult to control.

While DMIs are some of the most commonly used fungicides, cyproconazole is the most systemic product available. "A comparatively small amount of cyproconazole can do the same job as competitive fungicides for

Continued on page 40



IGR advances take center stage at Ottawa conference

By MARK LESLIE

OTTAWA — Citing little on the horizon in some areas of research but encouraging development of insect-growth regulators (IGR), bacterial toxins and natural fungi, Dr. Harry Niemczyk told Canadian superintendents here "the pot is boiling" to make Integrated Pest Management (IPM) stew.

Niemczyk, professor emeritus of entomology at Ohio State University, told the Canadian Golf Superintendents Association annual conference, "The amount of information and material you have to integrate as far as IPM is concerned is limited at best."

But, various types of preventive and curative measures are available and are being developed by forward-thinking companies and scientists.

Things that will determine what superintendents do and how they do it, Niemczyk said, are budget; course standards; governmental influence; and superintendent philosophy.

"What approach you take in this matter, these are the things that steer the ship," Niemczyk said.

Prevention should be the key to an IPM program, he said, adding that chemical, biological and cultural approaches should be integrated, based on some system of monitoring, observation and recording what's on the golf course.

Niemczyk presented a rundown on the outlook for pathogenic nematodes, bac-

Continued on page 39

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Cyproconazole

Continued from page 36

a longer period of time," said Dennis Williamson, product development field scientist for Sandoz. "The fungicide isn't unique in its chemistry, but rather in its high unit of activity and its spectrum of control."

Systemic fungicides like cyproconazole are absorbed by the plant and move internally within its own system. Systemics protect the leaves and stolons of the turf plants, as well as new growth. They require fewer applications because they persist

longer than nonsystemic or contact fungicides.

Like other DMIs, cyproconazole is absorbed by the plant and translocated in an upward acropetal direction. These fungicides act as acropetal penetrants when applied to plant surfaces — passing into underlying tissue and moving upward to new growth. This provides an advantage to treated turfgrass, with weather conditions, soil temperature, irrigation levels and mowing height changing daily.

"We believe the crown of the turf plant serves as a reservoir for the above-ground portion of

the plant," Williamson said. "Because it is highly systemic, cyproconazole has the ability to overcome all these factors."

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Knowing when turf disease is most likely to occur in a particular region is the first step to implementing a successful preventive disease control program. This is especially true for Rhizoctonia blight — generally referred to as brown patch.

Generally striking cool-season turfgrasses late in the spring through early fall (May through September), brown patch appears as circular patterns. It

causes a dieback from the leaf tip, giving the diseased turf its brown appearance. Conditions for the fungus are most favorable in warm, humid weather, with nighttime low temperatures above 70 degrees. Free moisture on leaf blades and high nitrogen fertilization can also increase turf susceptibility to brown patch.

Before these conditions exist, it is important to take appropriate preventive action to ensure brown patch does not get a foothold on the turf. "Even if brown patch is stopped dead in its tracks, after disease symptoms are present, the grass will con-

tinue to lose turf quality until the fall when weather conditions are cooler," Williamson said. The fungus is especially threatening in the South, where long periods of high temperatures and humidity are the rule.

Field trials showed cyproconazole is effective for 28 days at 1/3 ounce of product per 1,000 square feet on fairways, roughs and tees. On greens, as little as 1/6 gives 14 to 21 days of control.

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Dollar spot also generally threatens during late spring to early fall. Caused by *Sclerotinia homoeocarpa*, it is found throughout the nation, with the exception of some arid regions in the West.

Dollar spot appears as yellow-green, hour glass-shaped blotches on leaves, which progress to straw- or tan-colored infections with reddish-brown borders. Infected areas range in size from that of a quarter to a silver dollar, but patches may coalesce, resulting in larger areas of affected turf. Warning signs of the disease include warm, humid days — with high temperatures ranging from 60 degrees to nearly 88 degrees — and cool nights that result in heavy dew. Drought- and nitrogen-stressed turf during periods of high humidity also favor the disease.

"Cyproconazole is extremely effective on dollar spot with 1/6 ounce of product per 1,000 square feet, giving 28 days of control when used preventively," Williamson said. "These longer control periods of dollar spot can be useful in the North, where superintendents are challenged with trying to prevent the disease over a longer period of time. Also, more Kentucky bluegrass or ryegrass mixtures are used in the North, which may be easier to infect compared to warm season grasses in the South."

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Warning signs are already appearing for summer patch. Caused by the pathogen *Magnaporthe poae*, the disease generally infects its host in the spring, resulting in foliar symptoms when the temperature rises during June, July and August.

Summer patch usually finds its host in annual bluegrass, Kentucky bluegrass and fine-leaf fescue. High temperatures ranging from 86 to 90 degrees, combined with heavy/excess rainfall, create conditions for the disease. It appears as gray-green wilted patches, four to six inches in diameter. These patches may coalesce involving large areas of turf, especially on fairways. In order to effectively control the disease, it's important to make preventive applications in the spring before symptoms appear. For many turf managers, long-lasting, DMI fungicides have been the answer to this problem. When applied preventively, cyproconazole has consistently provided 28 days of control of summer patch on greens — 28 to 45 days on fairways.

GOLF COURSE NEWS

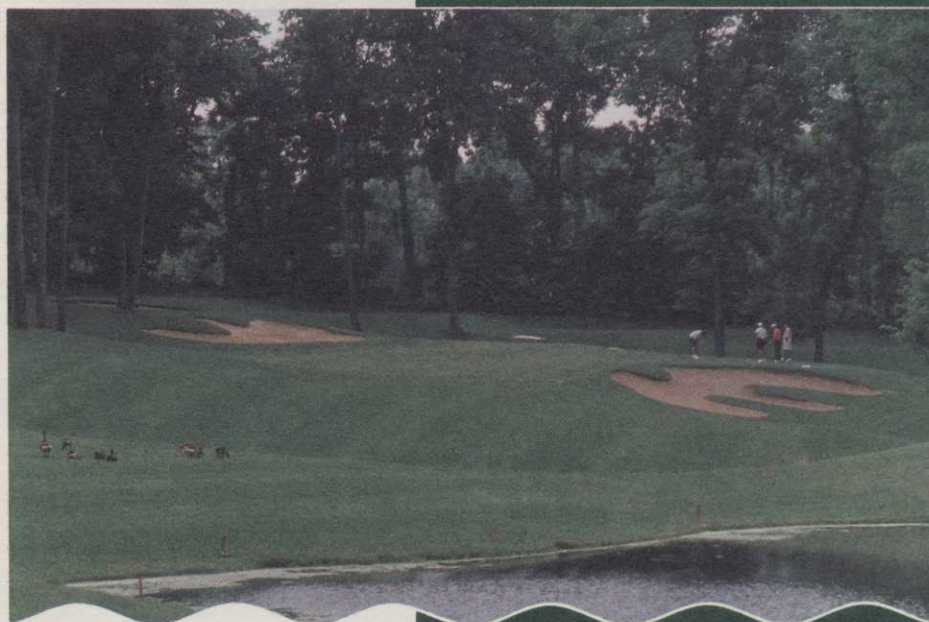
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