

Putting the Kibosh on Clover

As this weed rears its ugly head, here are tips on how to control it

By Frank H. Andorka Jr., Associate Editor

Clover stealthily infests a course until it takes over and squeezes out healthy turf.

Clover is the stealth bomber of weeds. It sneaks up under superintendents' radar screens, showing up in little clusters that don't seem an imminent threat. If those clusters are left to their own devices, however, clover can suddenly take over a course.

The weed germinates even when the grass is dormant, and it's a tenacious competitor for nitrogen when turf wakes up from its winter slumber. Here are tips for superintendents who are readying to do battle right now:

Understand your grass varieties. Peter Dernoeden, a professor at the University of Maryland, says the choice of herbicides with which a superintendent can

kill clover depends on a host of variables, including the type of grass.

Feed the grass, kill the clover. "Healthy turf is the best defense against clover," says Bob Brame, director of the north-central region of the USGA Green Section. "Don't starve your grass of nitrogen. If you do the clover will snatch up whatever nitrogen you put down and leave nothing for the grass to live on."

Brame says he encounters superintendents who feel low nitrogen provides for the best turf, but his advice for those superintendents is to be on the watch for clover. "If you're seeing a lot of clover, then you might want to re-evaluate your feeding program," Brame says.

Look for the earliest signs of a clover infestation. If it's not possible to do a pre-

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emergent treatment, keep a close eye on your course for the first signs of clover, which include circular patches that may not seem like an imminent threat to the course, Brame says. It's a mistake to ignore them.

"If you're not careful, those little circular patches will continue to radiate out and then you'll end up with an entire

golf course full of clover," Brame says. "Golfers hate that."

Just because the leaves are gone, don't assume you've solved the problem. If a superintendent uses a clover control product that kills only the leaves, it will not effectively control the infestation, warns Dernoeden.

"Clover germinates all the time, and therein lies the problem," Dernoeden

says. "If you don't kill the stolons where the germination takes place, you're wasting your time."

Rotate the herbicides you use, even within the golf course. Jerry Coldiron, superintendent at Boone Links/Lassing Pointe GC in Florence, Ky., says it's a good idea to rotate herbicides, particularly pre-emergents.

"We have our pre-emergent herbicides on a nine-hole rotation," Coldiron says. "It prevents our clover from becoming resistant to any one herbicide."

Test different herbicides on small patches of grass before using them wholesale. Not every herbicide works in all regions of the country effectively, Miller says. Rates are going to vary, so it helps to have a test site.

"Don't be afraid to tweak the rates to fit your specific area," Miller says. "Superintendents should always maintain a flexibility so they can adjust on the fly."

Use a "sticker" that will allow the herbicide to stay on the clover long enough to take care of the problem. Charlie Ulevich, superintendent at Hayfields CC in Hunt Valley, Md., says he uses seed oil with his herbicide.

"The sticker allows me to reduce my rates with the herbicide so it can be less toxic to the overall environment," Ulevich says. "That's an important consideration, no matter where you are."

Aerate on a regular basis. A good aeration program will keep a thatch layer from building up and trapping enough nitrogen to encourage clover, Brame says.

Create a nursery to replace turf in places where herbicides are not an option. Around tees and greens, wholesale spraying of herbicides wouldn't be the prudent course of action, so you need to have a turf nursery on your course to deal with those areas, Brame says.

"It's always amazing to me when I go out to a course and the superintendent doesn't have some sort of nursery, particularly when it comes to greens grass," Brame says. "Once you've got a clover infestation, you need a nursery and you need it now." ■

CORNY SOLUTION

As environmental restrictions on herbicides tighten, golf courses find themselves asked to do increasingly more with less. Choosing organic products over traditional chemicals presents an environmentally friendly alternative, but there has to be proof the products perform. Nick Christians is dedicated to giving superintendents that proof.

Christians, professor at Iowa State University, discovered the herbicidal properties of corn meal in 1986. Christians was testing corn gluten meal as a growth media for microorganisms.

"We didn't go into this research thinking about discovering an organic herbicide," Christians says. "We were just looking to encourage Pythium fungi growth to study it"

While plots treated with the Pythium-infected corn meal grew the fungi as expected, Christians and his team found the fungi didn't grow in the plots where untreated corn meal had been used.

"We had sprayed some of our gluten formula on a golf green, and we noticed that broadleaf weeds didn't grow where the compound had been sprayed," Christians says. "It became clear that something unusual was going on beneath the surface."

Further investigation revealed that the corn gluten contained a chemical that killed weeds at the root level by inhibiting root growth. Corn gluten meal is 60 percent corn protein and 10 percent nitrogen, with 40 percent other materials included. It's a byproduct of the wet-milling process and is sold as the main ingredient in a variety of livestock, fish and dog foods.

Christians says the nitrogen, combined with the corn meal, produces the added advantage of encouraging the growth of healthy turf. Christians says healthy turf itself is an effective inhibitor of weed growth.

Though the substance initially exists as a fine yellow powder, Christians says pellets make its application on the soil far easier.

Corn gluten meal affects a series of broadleaf weeds, including clover and dandelions. It also controls crabgrass, Christians says. Unlike chemical herbicides, the organic meal has little effect on established grass when it's applied, he says.

Christians recommends a rate of 20 pounds per 1,000 square feet to reduce crabgrass infestation in Kentucky bluegrass by 50 to 60 percent in the first year, and that a slow increase in rates can bring total control. As with synthetic herbicides, timing is important. The turf needs to be wet to activate corn gluten meal's herbicidal properties, but extended wet periods can reduce its effectiveness.

But Christians warns superintendents not to think of corn gluten as a solution for post-emergent weed control.

"You have to put this substance down before the weeds start to grow," Christians says. "Otherwise, the whole process will be a waste of time."

Corn meal gluten is being marketed under a variety of different names across the country. For a complete listing of vendors and brand names, visit www.gluten.iastate.edu.

The sprayable form of the herbicide is not terribly stable, and Christians says further research into nonsprayable forms is continuing.

— Frank H. Andorka Jr.

HERBICIDES ON PARADE

Here are some products you can use to control pesky weed problems

The hand-held Weed Pro by **Standard Golf** is a cost-efficient alternative to the normal hand-spraying methods for herbicides. Weed Pro is 31 inches long to allow for convenient handling and holds a premeasured amount of herbicide concentrate and water.

The operator simply locates the weed and applies the necessary amount of herbicide with the spring-loaded sponge at the end of the applicator.

CIRCLE NO. 211

Rohm and Haas Co.'s Dimension now has a supplemental label that allows superintendents to overseed with perennial ryegrass eight weeks after the application. Previously, superintendents were required to wait 90 days.

CIRCLE NO. 212

BASF Specialty Products offers Drive herbicide

for weed problems, including crabgrass and dandelions.

The active ingredient, quinclorac, is a new chemistry for the turf herbicide market and can be used on a number of turf species, according to the company. The product is registered with the Environmental Protection Agency.

CIRCLE NO. 213

Barricade is a pre-emergence herbicide that offers low rate, season-long control of 30 grassy and broadleaf weeds, including crabgrass, goosegrass and *Poa annua*, in turf and ornamentals. Offered by **Novartis**, it's known for its non-staining active ingredient and application flexibility.

CIRCLE NO. 214

SENCOR from **Bayer** offers effective control of tough weeds on dormant and actively growing bermudagrass turf. One post-emergent application of SENCOR in the spring will usually provide control through the fall.

SENCOR can be tank mixed with MSMA to control crabgrass, nutsedge, barnyard-

grass, common yellow woodsorrel, sandbur and dallisgrass.

CIRCLE NO. 215

Dynaweed from **Soil Technologies Corp.** provides an alternative to chemical herbicides. It offers pre-emergent control of crabgrass and other persistent, annual grassy and broadleaf weeds. Dynaweed granules are derived from a by-product of the wet-milling process for corn syrup. Dynaweed pre-emergent weed control stops annoying crabgrass and other persistent weeds before they start, according to the company.

CIRCLE NO. 216

Professional landscape managers in both warm and cool climates are discovering the advantages of Confront, from **Dow Agro-Sciences**, for post-emergence control of broadleaf weeds in almost every type of turf. Confront is close to 100 percent effective against dandelion, clover, plantain and oxalis, as well as other problem species, according to the company.

CIRCLE NO. 217

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