

The Facts About Golf Course Pesticides

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Why Do Golf Courses Use Pesticides?

Pesticides help limit the damage that can be caused by insects, weeds and plant diseases. Insecticides, herbicides and fungicides are used very selectively to protect the health of turf, trees and other living things on the course. Fertilizers provide much-needed nutrition for the course's plant life.

It is very important to note that pesticides and fertilizers are not used primarily for aesthetic reasons. First and foremost, they are tools that help ensure a healthy playing surface for the game. Furthermore, they help protect a valuable and ecologically important piece of land.

Golf courses are tremendous economic assets as well as vital greenspaces for communities. They employ hundreds of thousands of people, enhance local economies through tax revenues and tourism and provide many ecological benefits. For example, golf courses help filter air pollutants and create fresh oxygen; they are excellent groundwater recharge sites, and most important, they are critical wildlife sanctuaries in urban and suburban areas.

How Does a Superintendent Decide When to Apply a Pesticide?

Pest problems on golf courses are often relatively predictable or can be diagnosed as part of an ongoing monitoring program. Once the problem has been identified, the superintendent considers the available options. These could include cultural practices (such as physically removing weeds, changing irrigation patterns or clearing underbrush around a problem area to allow more air movement) or the use of biological controls or chemical products.

Once the problem is diagnosed and the right treatment has been selected, the superintendent waits for the ideal time to treat the problem in the most effective and environmentally sound manner available. This approach is often called "integrated pest management."

What Kinds of Products are Used?

Most people are surprised to find out that the majority of the pesticide products used by superintendents are identical or closely related to those used by homeowners.

How Do We Know These Products Aren't Harmful to Humans or Wildlife?

Pesticide production is one of the most highly regulated industries in the United States. Before a product is registered by the EPA, it must be rigorously tested for

potential human health and environmental effects. This process can take up to 10 years and involve more than 120 different tests and studies. Today, manufacturers often invest up to \$50 million in product safety and testing before a new pesticide ever comes to the market.

Are Golfers at Risk?

No. There is no scientific evidence that golfers face any chronic health risks from the pesticides used to maintain courses. Once a liquid product is applied and the turfgrass is dry or the product has been watered in, there is very little chance of exposure to golfers or others who enter the area. It is worth noting that a small percentage of people may be allergic to a particular product, just as some people are allergic to household cleaners, soaps or perfumes. Golfers with possible chemical allergies are always en-

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Heavy Play, Weeds, Moss And Dead Poa—What's Next?

By **BOB VAVREK**

USGA Agronomist North Central Region

Maintaining consistent playing conditions throughout the 1998 season was definitely a challenge for many superintendents across the region. The year began quietly when warm weather arrived ahead of schedule and provided some enjoyable early season rounds for golfers. There was surprisingly little winterkill to repair and many courses were green and playable by early May. April and May cart revenue was up at many private clubs and the daily fee courses were treated to a considerable amount of springtime cash flow. Life was good — or was it?

Unfortunately, the floodgates that hold back golfers in spring were opened before many superintendents had a chance to properly clean up and prepare the course for play. The full complement of seasonal help was still weeks away and there was little time for training the new employees as they trickled into the maintenance facility. That is, if any summer help arrived at all, because the pool of seasonal help had all but dried up in most locations where unemployment rates were extremely low. A number of courses were short a few temporary employees all summer

due to the dwindling pool of seasonal help.

Although turf had greened up on many courses, it was not yet growing vigorously and the playing surfaces were not able to rapidly recover from concentrated cart/foot traffic. Consequently, a bumper crop of clover, dandelions, chickweed and other weeds became well established on the course before summer. Weed control was discussed on nearly every Turf Advisory Service (TAS) visit last summer. The most weed-free courses were those that made an extra effort to eliminate weeds from the playing surfaces during the previous fall.

To make matters worse, golfers who play plenty of golf during April and May generally expected 4th of July conditions by Memorial Day. Unreasonable expectations made for one long, busy season.

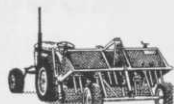
Quite a few superintendents experimented with Embark applications on one or two fairways and had excellent results. It seems the timing and the wather following the treatments was just about perfect, which provided

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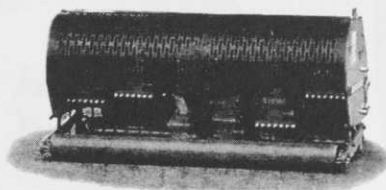


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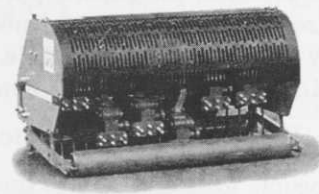


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Facts About Pesticides—

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couraged to contact superintendents to find out what products might be in use.

If the Products Aren't Dangerous, Why Do Professional Applicators Wear Protective Gear?

Applicators work directly with pesticides and are exposed much more often than golfers. Consider the fact that it is safe for a person to have an occasional X-ray, but the technician may actually leave the room to prevent repeated exposure. Pesticide label directions (which carry the weight of law) require that applicators take certain precautions based on the assumption that the same person will be repeatedly exposed to the same product over many years. These precautions may include the use of rubber gloves, goggles, respirators or protective clothing.

Some Media Stories Suggest That Pesticides Are Linked to Cancer. What Are the Facts?

Most of the product testing required by EPA focuses on this question. Before a product is registered, tests are done (usually on laboratory rats) using exposure rates that are considerably higher than any exposure a golfer could ever receive. Although a recent study commissioned by GCSAA to examine cause of death among its members found some higher rates of certain cancers, researchers said no cause-and-effect relationship could be established from the data. They also said lifestyle choices such as smoking, dieting and stress were the most significant factors in the results.

Do Properly Applied Chemicals Pose a Threat To Groundwater, Lakes or Streams?

No. Studies consistently show that a well-managed golf course can actually improve water quality on and around the facility. Research also shows that when pesticides and fertilizers are used properly, they do not tend to seep into groundwater or run off in surface water.

Modern products and practices allow superintendents to manage turfgrass so efficiently that there is little chance of harm to our precious water resources.

What Kinds of Training and Education Do Superintendents and Golf Course Applicators Have?

Golfers are often surprised to find that most superintendents have college degrees in agronomy, horticulture or a related field. Because it's important to keep up-to-date with new information and technologies, the majority also attend continuing education programs offered by universities and associations like GCSAA.

Superintendents are widely considered to be among the best-educated and most judicious users of pesticide products. The vast majority of superintendents are using integrated pest management practices to ensure that both the turf and the environment stay healthy. Applicators are also trained and licensed by their states.

A recent study indicated that nearly 100 percent of GCSAA-member courses had at least one licensed applicator on staff (despite the fact that it isn't necessarily required in some states). This confirms a high degree of compliance and concern about safe and proper usage of chemical tools.

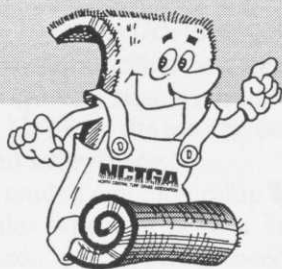
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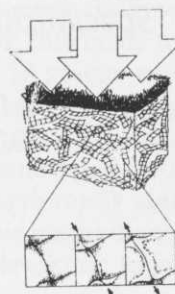
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Weeds, Moss and Dead Poa—

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equally perfect results. Word spreads quickly and there will undoubtedly be many more acres of fairways treated with Embark this spring.

In my opinion, if Embark treatments were foolproof, then everyone would be controlling *Poa Annua* seedheads on fairways each spring. Most older, successful superintendents realize through experience that an Embark treatment is a hit or miss endeavor, highly dependent on timing the application just right and not without the risk of discoloring or injuring the turf. Furthermore, the success regarding seedhead suppression on fairways will no doubt encourage the use of Embark on *Poa Annua*/bentgrass greens, where a heavy crop of seedheads can affect the quality of a putting surface. There is nothing quite like the look of a burnt orange *Poa* green that was treated with Embark during early spring and then hit with a few heavy frosts a day or two later. The several week period before recovery occurs usually feels like several months to the superintendent when the hottest topic in the grill room is whether the greens will ever be green again.

Whether the heavy early season play had any influence on the invasion of moss into greens across the region is debatable. Over the past two seasons the courses that always had a little moss in greens are finding that the moss has

spread and many courses that have never had this concern are now seriously affected by moss encroachment.

I felt more like a "psychic friend" than an agronomist this summer at several TAS visits to courses I had never seen before. We typically discuss the day-to-day maintenance practices before touring the course.

What is the mid season height of cut? About 0.120" from late May through September. We really raise the height of cut way up to .130," after our last major outing in early November, the Frostbite Open.

Groomers on the mowers? On one set of triplexes, rotated on and off a particular green every other day.

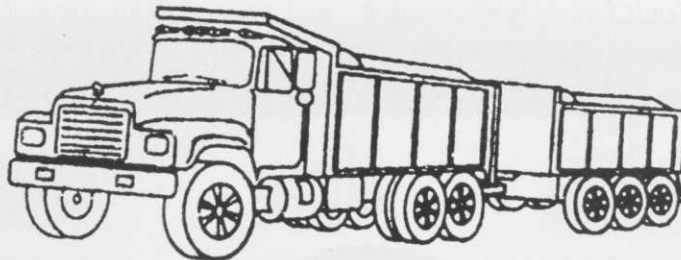
How deep are the groomers set? Set just deep enough to tickle the turf, you know, about a dime or a nickel below the bench setting. It really cleans up those *Poa* seedheads, eliminates the grain and detaches the green. What a great management tool, no need to set up the verticut reel anymore. Been brushing the greens more too, it really stands up the turf and helps manage green speed.

Do any rolling? On Men's Day and on the weekend, but sometimes three times a week.

How much play? About 30,000+ rounds a year, seven to eight minutes between tee times, and there are always a few early-bird members that they allow out on the course as soon as it's light.

Any policy regarding green speed? There wasn't until two

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My First Year As A Golf Course Superintendent

By THOMAS JOHN SCHMIDT
Moorhead Country Club

I stepped into the maintenance facility and took a good look around, no doors, no plumbing, no heating and no electricity. Just a giant shell 30' x 80'. It's January 17 and I have to sharpen all the reels, fix equipment and build a maintenance facility before an early spring approaches. My main goal was to get the building done so I could move the equipment from its three locations on to a central spot — the new maintenance building. Most of my equipment was in the old maintenance building which had been a victim of the 1997 flood. My triplexes and fairway units were in a snowbank and the rest was in a Masonic lodge garage. This was a sure sign of a very fun winter.

I spoke and met with dozens of contractors, getting bids on the new maintenance facility and above ground gas tanks. After designing the inside of the shop and making construction decisions I felt I was ready to start on the new maintenance building and finally began heading in an upward direction. My two-page to do list never seemed to shorten. As soon as one project was done two more were added to the list. Bringing back the assistant superintendent, Brandon Chaffons, and a mechanic was a must. The assistant had been around for seven years and was a godsend. He knew the ins and outs of the golf course and where to find everything.

We traded a membership to a gentleman named Dwight Guebler who had been a builder. Guebler, my assistant Brandon and myself proceeded to frame the inside of the maintenance shop bathroom, breakroom, pesticide storage and grinding room. We worked weekends and late nights on the interior and used the day hours for our endless list of other tasks.

February was here and the snow was already beginning



Tom Schmidt, Superintendent at Moorhead Country Club.

to melt on the mighty Red River. The river was coming up to its banks and we had to secure our drainage ports to keep excess water from backing up on to the course. It was time for the mechanic to start putting the equipment back together, five Cushman's of the 1970s vintage and only one of the five was in working condition. I needed equipment desperately. I set forth a package deal and traded in some equipment. I received a 455D, a fairway unit 5200 and a Workman. I strongly believe without this new equipment I would not be here. Well, now I had the equipment looking up and the shop was moving in the right direction. This brings us to the golf course which also needed some extra attention. We began to prune the front nine trees which took part of January and all of February. Yes, they were desperate for a good pruning.

As the snow continued to slowly melt away, I kept looking for the grass to come through the greens. The only thing I was able to see was sand; this made me a little worried. We shoveled seven of our 18 greens which we found were covered over half an inch with mason sand. I thought that this spring I would have to seed excessively but I believe that the removal of the sand prevented this overseeding.

By mid-March things were really starting to shape up. We had moved into our new maintenance facility completed except for some sheetrocking, tape and texture and painting.

April brought us to the First Annual Moorhead Member Clean Up Day. I had a very successful turnout. Thirty people showed up to lend a hand in raking matted turf areas and the clean-up of leaves. This helped out immensely and gave us our first jump on the year.

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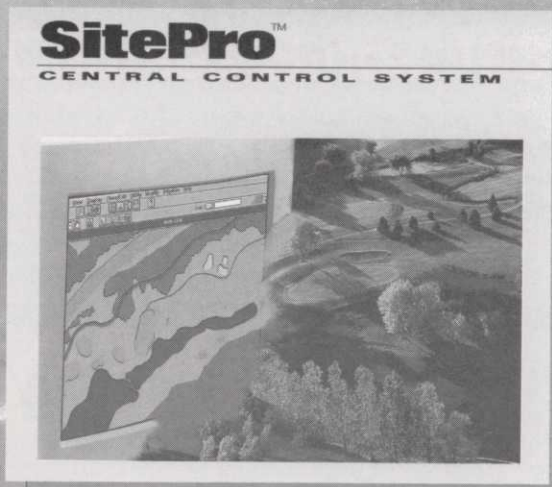


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First Year—

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April 7 was our opening day. The training process started as my seasonal staff was beginning for the season. The implementing of new programs, schedules and new training procedures finally paid off when the course was in great shape for an April and early start.

May and June brought their downfalls or should I say downpours. Fourteen inches of rain fell in May and 16 inches in June. Besides the rain the Red River flooded or crested five times; luckily only a few areas on the course were affected. the only good part about the rain was that we never needed to use our irrigation system those months. This allowed us time to move and fix three major breaks from the previous year.

June was great for irrigator breaks. A mere \$6,000 was spent on our 20-30 breaks. Out of which 15-20 heads weren't repairable. Piece by piece we fixed and dug and fixed until it was working pretty good. The course was looking in very good shape.

July and August were hot, humid and not a drop of rain. Two months of watering — I was a Toro key holder most mornings. I had approximately 30 heads in which 15 had never been wired and the other 15 had been cut. These were slowly fixed as the opportunity arose. I knew we had some major problems ahead. With budget restraints and getting people to understand we needed to spray our fairways for



weeds. Knotweed was taking over and people were beginning to get frustrated. I could only explain that I was in the process of asking for extra monies needed in order to do what was needed to rid of the weeds. No answer about the extra monies so I went ahead and sprayed. I aerified the fairways for the first time in years. Everything was getting back to normal and actually better than before. The course looked fabulous. The best it had looked all year. It was what I pictured Moorhead Country Club should be.

Every decision I had to make this year, whether it small or large, right or wrong was surely a learning and growing experience.

As I look back over the season I believe I made the right choice in accepting my first Superintendent job. Of course, at the trying times of the year I sometimes second-guessed my decision, but as next year approaches I know I will have more control along with experience—"weather permitting."

I would like to thank a few people for their generous help throughout the year: Greg Vigen, Fargo Country Club; David Woods, Oxbow Country Club, and all their crew; the Moorhead and Fargo city golf courses; Larry Murphy, the golf professional at Moorhead Country Club, and General Manager Michael Borgie.

I have worked for many superintendents: Scott Austin, Steve Shumansky, John Christianson and my friend and mentor Michael Brower. I would like to thank them for the many practices I have learned from each of them and I hope I can do the same some day. A special thank you to my wife who took on the burden of my 70-hour weeks with two small children in a new area.

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years ago when the incoming club president appointed my new Green Committee Chairman. What a player, he can turn it up a notch or two after a press on the back nine. Pretty knowledgeable too, he has played many of the Top 100 courses in *Golf Digest* and is a member at several of the nearby new courses as well. It runs in the family, his daughter was just awarded a full scholarship to Stanford. First thing he did was appoint the current Men's and Women's Club Champs to the Green Committee. Anyway, we have initiated

a policy of keeping greens about 10', especially on days when members may be having guests playing. We used to keep the greens about 9' to 9'6" all year, but a few of the better players wrote a letter to the Board saying that some of the greens just don't feel like they roll 9'6" — maybe because the front nine greens are so flat. Well, we sure addressed that problem when we designed and built the back nine, but that's another story.

Any shade problems on greens? The greens get plenty of sunlight, except for three holes on the original front nine and the eight holes on the new back nine that the members designed and pitched in to build about 20 years ago. The back nine really has some character; it was cut right through a wooded swamp — spectacular in fall when the leaves change color. The pace of play also improves in the summer because you can't take too many practice swings with all those mosquitoes.

What is a typical irrigation cycle in summer? Averages about 15 minutes a night or so, depending on whether it rains. All the sprinklers around greens go on or off as a block.

How many pounds of nitrogen would you say you apply to greens each season? About 1½ to 2 pounds a year. An old soil test indicated we had plenty of phosphorus in the greens so we haven't applied any for 12 years. Well, it doesn't move through the soil profile and there really isn't any need to encourage more *Poa annua* in the greens.

Considering the answers to these questions, I usually ask to visit the greens that have the most moss encroachment first, when we tour the course. Eyes open wide, jaws drop and suddenly I'm a psychic who can predict moss on a green at a course I have never seen before. The tongue-in-cheek answers to putting surface maintenance questions, however, allude to the underlying causes to moss encroachment, which is overly intense mangement of a green. The bottom line is that moss cannot compete with a healthy, vigorously growing stand of turf and it has no problem becoming well established in a weak, thin green.

As the long season dragged on, many areas were subjected to extended periods of drought. Drought put extra stress

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