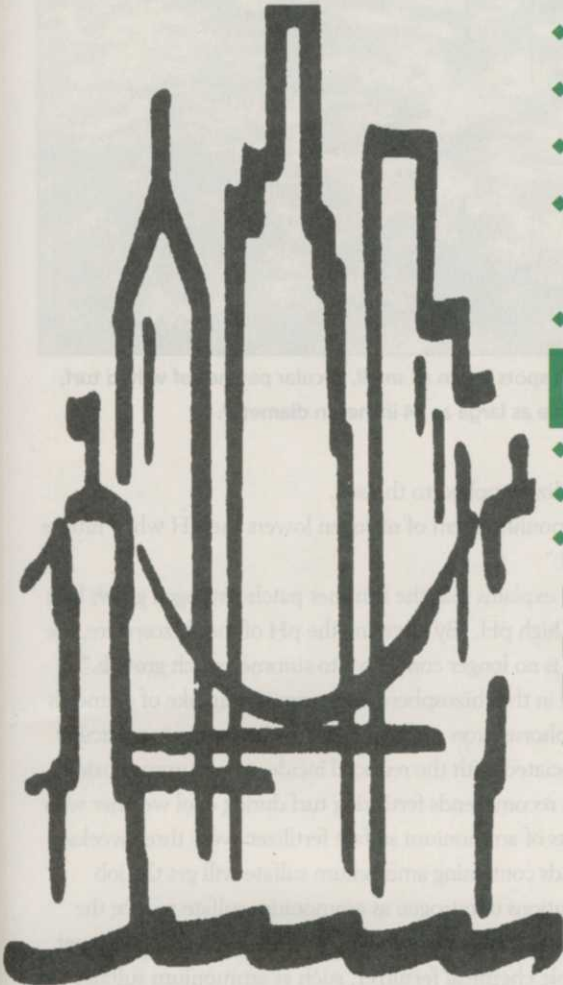


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LM

# Seeing spots?



Summer patch spots begin as small, circular patches of wilted turf, and can become as large as 24 inches in diameter.

**I**f you're starting to see spots when looking over the lawns you've planted, your turf may be suffering from summer patch. It's the most common turf-grass root disease in the Northeast and it starts to show up at the beginning of summer.

Summer patch spots begin as small, circular patches of wilted turf, 1½ to 3 inches in diameter. Some can get as big as 24 inches in diameter, although most stay in the 2- to 12-inch range. As the summer progresses, patches turn from a grayish-green to a light straw color.

Summer patch is caused by the fungus *Magnaporthe poae*. It moves between plants by growing along roots and rhizomes, and can spread at a rate of 1½ inches per week.

Since summer patch affects the root system of the plant, a change in the environment surrounding the root—the rhizosphere—may help suppress the disease. According to Dr. Joseph Heckman, soil fertility specialist at Rutgers University, plant roots can alter their immediate environment in response to the form of

nitrogen fertilizer applied to the soil.

"The ammonium form of nitrogen lowers the pH while nitrate raises the pH."

Heckman explains that the summer patch pathogen grows best in soil with a high pH. "By lowering the pH of the rhizosphere, the environment is no longer conducive to summer patch growth."

A low pH in the rhizosphere also promotes uptake of elements such as phosphorus, iron and manganese. Manganese in particular has been associated with the reduced incidence of summer patch.

Heckman recommends fertilizing turf during cool weather with small amounts of ammonium sulfate fertilizer every three weeks—fertilizer blends containing ammonium sulfate will get the job done. Applications of nitrogen as ammonium sulfate reduce the rhizosphere pH, thereby suppressing summer patch development.

Any soluble chemical fertilizer, such as ammonium sulfate, ammonium nitrate and urea, can burn turf during hot weather. Make sure to apply these products only in the spring and fall months.

Dr. Bruce Clarke, extension turf pathologist at Rutgers University and Director of the Center for Turfgrass Science, offers additional suggestions:

- Avoid mowing turf below recommended heights. Low mowing (1 to 2 inches) enhances the symptoms of summer patch.
- Overseed affected areas with a mixture of resistant turf species such as perennial ryegrass or tall fescue.
- Apply systemic fungicides at a two-inch soil depth in late spring or early summer when soil temperatures stabilize between 60° and 65° F. **LM**

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Circle 110

# Are your people aching to be taken advantage of?



*Terry McIver*

TERRY MCIVER  
Managing Editor

**D**o you often feel you're wasting your time on things you don't do very well or "hate" doing? These could be things you're either not strong in or things you never thought were your responsibilities.

You can't always have it just right. You have to help out, fill in, supervise, organize, eliminate, hire, fire, discuss, and purchase.

Each of us is gifted in different ways for different reasons. It seems that I'm a pretty good writer, although some of you may disagree. I may

also sort through mail and perform other duties not listed in my official "job description."

Our golf and grounds readers most often act as managers, although some hands-on work is certainly required from time to time.

People are hired into a company or crew every day because they possess a particular gift or talent. Later, they may find that they are not given the chance to use their gift in the best possible way.

Politics is often to blame for a shift in one's duties. This is often unavoidable and always unfortunate. Budget cuts can also cause a project to be placed on hold. We hear that it happens all the time, in these days of limited funds. If it happens at your facility, and you're still on the job, just be thankful, and try to use your talents in other ways.

Remember that there's more to life than working for 40 long years and retiring. Everything you do has a purpose. Don't take the "somebody's gotta do it" attitude. Don't complain or grumble—as I was tempted to do earlier today! Be happy that you've been placed in your particular situation and make the most of it.

Which brings us to an often-maligned word: delegation.

Delegating has a negative connotation for some people, particularly the "delegates."

It's important that you realize—and explain to others—what good delegating is all about.

At its worst, delegating is indeed nothing more than passing along work you don't want to do yourself. At its best, delegating accomplishes three things:

- ▶ it frees you of a duty which you may not be very good at;
- ▶ it lets you work on your strengths;
- ▶ it gives someone else a chance to do the job better than you would have done it.

Somewhere in your crew is a person who's been aching to try his or her hand at a new skill, or run with a new idea. Ask around and see if you can find someone who feels he or she can contribute in a new and different way.

Summer is a busy time, but nice weather also allows the freedom to experiment in the great outdoors. Take advantage of the sunshine, and the talented people who are on your team. **LM**

**Questions, comments? Call Terry at (216) 891-2709, fax at (216) 891-2675 or e-mail at 75553.502@compuserve.com.**

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Summer Patch



Dollar Spot



Anthracnose



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and other diseases. And you can apply BAYLETON over your entire course to keep golfers from tracking disease from your fairways to your greens and tees.

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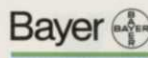
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Circle No. 106 on Reader Inquiry Card

# Best bunkers

## soak up heavy rainfall

by STEVE & SUZ TRUSTY

**A**fter nearly 18 inches of rainfall within the last few months of 1995—including one day-long, nine-inch deluge—Fred Wong and Ed Okamoto were beginning to feel like kids stuck in a sand box.

With 77 bunkers on Wong and Okamoto's Kauai Lagoons Golf Club in Hawaii and 109 on the Kiele Course, crews were constantly reshaping and reworking the sand.

It was obvious to these superintendents that sand bunkers serve functions other than aesthetics. They separate sections of the course and help define areas of play, control ball movement, "save" balls from landing in water hazards, and even serve as targets for golfers.

Your golf course may not have as many bunkers as Kauai Lagoons, but it is equally important to decide which of these roles each bunker on your golf plays and define its effectiveness in that role.

### Traffic control

Bunkers help control traffic, but turf wear and compaction may be caused in the surrounding turf. Turf-covered mounds or hollows that would slow and spread out traffic might have less negative impact. More flexible traffic control can be achieved with movable landscape features such as flower beds.

Think "playability." How will balls be landing?



**Wet bunkers that drain poorly are tough to maintain and are a constant source of golfer complaints.**

How will they be played? Bunkers are hazards and should present a fair challenge, not an impossible one. Look at the bunker's placement, its overall angle, slope and lip from a player's perspective. How extreme is the frustration level for the beginning golfer and for the course's "average" player?

If funds are low, try grassy hollows and mounds as an option to bunkers. But make sure they can be mowed easily.

If you rebuild, assess the impact of past and potential problems.

Consider the impact of prevailing winds, water flow patterns, and player and cart traffic flow. Gauge the accessibility of the surrounding turf—especially the greens—for mowing, aeration and other maintenance needs.

The steeper the banks of sand within the bunker,

# WASHOUTS

the greater the "wash" during heavy precipitation. While vertical lips help define and edge the bunkers, too deep or steep a lip can contribute to washing. Washing changes the placement of the sand and cuts down the depth on the slopes by about two to four inches, and adds to the flat areas unevenly.

Washouts also bring silt into the bunker. Compaction in low areas will increase and hamper the natural drainage pattern. Following washing, valuable crew time must be allocated to clean the bunkers and rework contours.

Larger, flatter bunkers with curving sides rather than sharp banks reduce washing, and make it easy to use bunker rakes instead of the more time-consuming hand raking.

Are some slopes so steep that walk-behind mowers are required? Could these slopes be reshaped without too much effect on course aesthetics to allow mowing with ride-on units? Cutting the steepness of the turfed slopes also reduces their exposure to sun and wind, lessening desiccation and the need for supplemental irrigation.

## Maintenance concerns

Less extreme variations on constructed bunkers can cut maintenance time. Scalloped perimeters look showy but are tougher to mow and edge. Consider altering the scallops to more flowing curves, or changing the overall perimeter to a straight-edged

**A bunker with poor drainage leaves a lasting reminder of heavy rain. Find a sand that drains well.**

oval or circular pattern.

Edging around the bunkers is necessary to keep turf from invading and to maintain the sharp, precise appearance. Experiment with the edging methods of mowing, string trimming and hand edging to find a combination that meets expectations but trims maintenance time. Learn which crew persons are most skilled at each type of edging, and let them handle the job regularly. □

—The authors are principals at *Trusty & Associates, Council Bluffs, Iowa.*

Scalloped perimeters look showy but are tougher to mow and edge. Consider altering the scallops to more flowing curves.



## Sand-aids

—Choose sand that has visual appeal but also the right gradation and physical characteristics.

—Bunker surfaces need to be firm, but not hard or crusted. If possible, establish precise specifications of particle size, shape and composition.

—Avoid sands with very fine or coarse particles. Larger particles may cause problems when "blasted" onto the green during a shot.

—Repeated contact with coarse sand will be abrasive to mowing equipment.

—Determine the sand's degree of contamination, and regard any material other than the sand to be a contaminant.

—Look for some degree of compatibility with the putting green sand and topdressing materials.

—Avoid sands that are too soft and thus likely to break down faster.

—Choose a sand that drains well. Test various materials in different bunkers prior to the change over.

—Ask crew and players for their opinions.

—If the sand is of good quality, but drainage is still a problem, examine the subsurface drainage system. Perforated drain pipes sunk into a gravel-filled

trench that extend beyond the bunkers are preferred. Problems may be due to channeling greens drainage into the bunker drainage system.

—Sand in different batches may be inconsistent. Buying from a local source may save you money, but be sure he has sand in sufficient quantities to meet your needs.

—Before you buy, ask other superintendents about the reliability of the supplier and the sand quality.

—S.T.



# 'Wet weather'

## REPAIR STRATEGY

by STEVE & SUZ TRUSTY

**T**he athletic turf manager's job is to provide a safe, playable surface for the athletes. All other concerns—including field aesthetics—are secondary.

Generally, these professionals find a way to do it all, even with limited budgets and limited staff...and lots of rain.

### Field composition, drainage

Preparations for excess water—and then your reactions to it—vary, according to soil profile and underlying drainage conditions for each field.

Many premium fields have a sand content of 80 percent or higher, coupled with sophisticated underground drainage systems to channel excess water from the playing surface.

Most extensively used fields are found in school systems and parks and recreation facilities. Many were built where space was available, and thus feature native soils, which may not be ideal for rainy weather. Native soils, especially those with substantial proportions of heavy clay, absorb water more slowly and retain it longer than fields with a higher sand content. Underlying conditions may include hard clay, rock or even layers of packed debris (such as old landfill).

The athletic field manager must then:

- 1) Assess the basic composition of the field and drainage.
- 2) Analyze average infiltration



After normal rainfall, a well-maintained and properly designed infield should be ready for play within a reasonable amount of time.

rate during rainfall and irrigation.

3) Develop a wet weather strategy.

Ideally, the infiltration rate will be slightly better than average rainfall patterns, and will let moisture be absorbed rather than run off or stand in puddles.

After normal rainfall, the surface area should be capable of sustaining play within a reasonable period.

Groundwater table levels affect percolation rates. If a river or lake is near the field, water table levels may fluctuate with the depth of that body of water, and the percolation rate may fluctuate accordingly.

On football fields and the outfield sections of baseball and softball fields, above-ground drainage can be improved by slightly crowning the field and

channeling natural drainage with a minimal grade.

For the skinned areas of baseball and softball fields, a water-absorbent material such as calcined clay can be mixed into the sand-and-clay infield mix to improve water infiltration rates and develop the best consistency for play.

Where funds are limited, an affordable amount of material can be added each year, gradually bringing the surface to the desired quality.

Turf areas with poor infiltration rates also can be improved gradually, after extensive aeration. The cores can be:

- dragged back into the field;
- dragged back in with a topdressing material of sand or a sand-and-soil mixture;
- removed, and a topdress-

ing mix applied.

To avoid layering of different soils, periodic deep aeration will penetrate subsurface layers.

Fields that frequently become too wet for safe play should undergo extensive reconstruction programs, with attention to underlying drainage systems, and rebuilding the field with a better quality soil profile.

### Temporary fixes

Field covers will protect surfaces from too much moisture buildup, from pre-game irrigation, or both. If field covers aren't available, or the effects of a previous rain linger too long, spot applications of calcined clay or other absorbent materials may sufficiently dry skinned surfaces for play to proceed.

For heavier moisture buildup on skinned areas, add calcined clay or a clay and calcined clay mix and work as usual to reach the desired level of consistency. It may be necessary to rework the pitchers' mound and bullpen mounds with more materials, depending on the depth or moisture and the consistency of the existing materials.

On overly wet turf, cut compaction as much as possible, but keep the grass within normal conditions. That may mean switching to walk-behind mowers rather than ride-on units. Cut the turf a little bit

*cont. on page 8G*




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cont. from page 6G

shorter than normal to allow better surface evaporation, but never remove more than one-third of the turf blade in any one mowing.

If the grass was thick and heavy, it may be best to catch clippings temporarily to allow better air movement for evaporation.

In soggy turf, the oxygen supply to the rootzone can be improved by multiple passes with a slicing aerifier or slit seeder. Depending on the soil profile, after moisture levels drop from field capacity, the area may be topdressed with sand or a sand and calcined clay mixture

#### Time out to shift fields

When field conditions are too wet for safe play, or when play would be damaging to the field, sports turf managers may shift play to other fields.

All practices might be moved off the game field, or practices shifted to specific practice fields until conditions could be improved through maintenance practices, or the fields dried out naturally. Most players, when told about possible restrictions in advance, will understand and cooperate.

If alternate fields aren't available within a facility, arrangements may be made to shift play to neighboring facilities temporarily. Plan ahead with other facility managers for these reciprocal arrangements. Advance planning makes it easier to work through problems when they do occur.

Scheduling adjustments will be in order, so teams, coaches, athletic directors and league personnel must all cooperate. □

## Strategy for severely flooded fields

During the past few years, athletic field managers across the country have seen their fields flooded. In some instances, waters rise rapidly, recede quickly and little damage remains. In many cases, long-term saturation takes place and silt and other debris move in along with the flood waters. Here's how you solve the problem.

**1)** Once the waters recede, hose off the coating of silt and debris.

**2)** For heavy residue accumulation, the exposed silt layer may be allowed to dry. It can then be broken into "chunks" with a spiker, raked into piles and removed by hand, or broken into small enough particles to be removed with a turf vacuum.

**3)** A topdressing application of calcined clay may be necessary to counteract any slick-

ness—which might be a threat to player safety—that remains on the turf surface.

**4)** Use the standard topdressing mix to level out the uneven areas.

**5)** Mowing and aerification strategies on wet fields should be applied to flood-ravaged fields.

**6)** Because considerable leaching may have taken place, and turf is in a weakened condition, the fertilization program may need adjusting.

**7)** When active growth resumes, fertilize with balanced nitrogen and potassium, and whatever nutrients the soil tests indicates are low.

**8)** Build up the strength of the plant first, then gradually get back on the normal fertilization program.

**9)** Supplemental iron applications will improve turf color without stressing turf or forcing

growth roots cannot support.

**10)** Turf will be susceptible to disease. If budgets allow, apply preventive controls. If funds are low, watch for signs of disease activity and be prepared to apply treatments immediately.

**11)** Irrigation adjustments will be necessary, depending on the length of saturation.

**12)** Turf roots will become more shallow during prolonged wet spells. Apply water more frequently at first, gradually promoting deeper root growth with less frequent but deeper irrigations.

**13)** When the field is dry enough, make multiple passes with a core aerifier. Apply pre-germinated seed with both a slit seeder and broadcast spreader. Keep players off the field as long as schedules allow.

—S.T.



Even with limited budgets, it's often possible to purchase covers to protect the infield sections of baseball or softball fields, or at least the mound, batter's box and skinned baseline.



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The grow-in time may vary from six months for a sprigged course in the South, to a year or more for a seeded cool-season course.

# Grow-ins: FAST...FASTER...FASTEST

*Jonathon Scott, an agronomist with Nicklaus Design, outlines a superintendent's options for getting a golf course ready for play sooner than usual.*

by RON HALL / Senior Editor

**Y**ou walk a tightrope while a new golf course is growing in. Everyone wants grass now. Everyone wants the course to open as soon as possible. Members are eager to play. Owners and financial backers want to start getting a return on their investment.

But you realize that the new turfgrass is vulnerable. It must be given time to develop enough density to withstand wear and environmental stresses.

"How fast can it be done?" is the question a superintendent is usually asked rather than "how long will it take?"

You can't answer either question with certainty. Weather is the wild card. The grow-in time may vary from six months for a sprigged course in the South, to a year or more for a seeded cool-season course.

In the real world, this sometimes isn't fast enough, and you may be called upon to accelerate the process.

Jonathon L. Scott with the Golfturf Division of Nicklaus Design says you have five options when trying to establish turfgrass fast.

"Each option has its associated advantages and disadvantages over conventional

grassing methods," says Scott, a superintendent for 16 years before joining Nicklaus seven years ago.

To compress the grow-in period, you may choose to use one, or any combination of these procedures. They can be used instead of—but more often in conjunction with—conventional grassing, says Scott.

The options are:

- 1) Increasing the seeding or sprigging rate.
- 2) Hydroseeding or hydrosprigging.
- 3) Strip or row planting live sprigs or sod.
- 4) Sodding.
- 5) Increasing the fertilizer rate and frequency.

Regardless of option, all grassing procedures start the same, with proper soil preparation. This includes:

- ▶ cleaning up any rocky debris,
- ▶ discing and raking to loosen up the top four to six inches of soil, and
- ▶ testing and amending with any necessary minerals or organic materials.

#### **Not that easy**

The simplest way to establish turfgrass faster is to increase the seeding or, for warm-season grasses, sprigging rate, says Scott. But it's not as easy, nor as effective, as it might seem on the surface.

### Boost the rates

Research has shown that, although a greater planting rate results in a proportionally greater number of seedlings and an initially denser stand, six months later, the turf is generally no denser than it would have been if it had been seeded at "normal" rates. Moreover, higher rates predispose some turfs to more disease.

In the case of sprigging, the problem of getting more plants into the soil is mechanical. Most machines are designed to plant between 300 and 400 bushels per acre for fairway-type bermudagrass, says Scott.

To maintain good soil-to-sprig contact with an increased sprigging rate, contractors generally make two passes with the sprigging machine. If a third pass is called for, they may use a slicing machine to push exposed sprigs into the soil.

Scott believes the best time to use a higher rate is when the planting time has passed the time of optimal turf development.

For cool-season grass zones, this is after the soil temperature has dropped below 60°F., usually by the end of September.

He says a 50 percent increase in the seeding rate offers several benefits. It gives better protection against erosion over winter, and it compensates for the expected mortality of young seedlings due to cold, desiccation and disease.

For sprigging, increasing the rate pays more dividends after the soil temperature falls below 75°F., usually by the end of August. Scott recommends gradually increasing the sprigging rate as dormancy nears, finishing at, perhaps, triple the normal rate.

"Mulching plays an important role in the success of late-season grasses by insulating the soil surface and protecting the young plants against freezing and drying," he adds. Mulch should be thin enough to let air and light to reach the soil surface, but thick enough to stay in place.

### The easy way

In hydroseeding, seeds are sprayed onto the soil in a slurry of water, mulch and fer-

tilizer. The process is called hydrosprigging when sprigs are used.

This procedure saves weeks, perhaps even a month, in establishing a course, says Scott. It results in less disruption to soil during planting; it discourages soil erosion, and it makes it easier to seed or sprig slopes. Also, using green-colored mulch

gives the course a more pleasing appearance before grass actually starts growing.

But there are risks. The procedure makes it more difficult to keep grass contours sharp where different varieties of grass are used to provide contrasts, say between fairways and roughs.

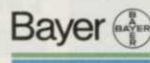
Also, areas must be irrigated immedi-

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Circle 104

ately after they're hydroseeded. The lack of direct soil contact in the upper layers of the mulch means that grass plants must grow downward to get moisture, says Scott.

#### Row planting

Machines plow narrow furrows, introduce sprigs of a warm-season grass like a hybrid bermuda, then close the furrows in row planting. Generally about 400 to 500 bushels of sprigs per acre are planted this way.

*To maintain good soil-to-sprig contact with an increased sprigging rate, contractors generally make two passes with the sprigging machine. If a third pass is called for, they use a slicing machine to push exposed sprigs into the soil.*

Its major advantage is convenience, particularly in renovation because it causes minimal disruption of the target area.

In new construction, sprigs have a stronger survival rate, particularly where irrigation isn't as frequent. The sprigs, being in the soil, draw on soil moisture. Row planting's major disadvantage is cost, says Scott.

#### Check sod for purity

Sodding provides almost instant results. It limits erosion, and play can begin in as little as one month after installation, meaning that a cool-season course may be able to generate a full season of revenue.

But these benefits have to be weighed against the cost and availability of the desired types of sod. A cool-season course with bentgrass fairways costs about \$2.8 million to sod, a course with zoysia fairways about \$2 million, and one with bermudagrass about \$1.5 million, says Scott.

Other risks associated with sodding include possible sod/layer interface problems, purity, and pest infestations.

Scott recommends that superintendents check all maintenance records of the sod they're considering buying. They should also visit the sod fields and get samples to send to reliable laboratories.

Although a sodded course looks like it's ready to play almost immediately, it's not.

"Sod requires the same amount of initial care as seed or sprigs," says Scott. "Wait at least four weeks before subjecting it to traffic and play. During that time treat it like the new turf that it is."

#### Fertilizer can help

You can accelerate the grow-in process with fertilizer, but only to the ability of turfgrass plants to take and use the nutrients.

"A sensible fertilization program for either warm- or cool-season courses uses moderate rates and frequencies determined by growth, color and density," says Scott.

Greens and tees planted with cool-season grasses establish well with ½ lb. N/1,000 sq. ft./week. Fairways and roughs get ¾ lb. N every two weeks until full density, says Scott. Bermudagrass, growing under optimum growing conditions, can receive 1-1 ½ lbs. N/week.

Balance phosphorus and potassium with nitrogen, on either sand or soil, until the initial turf coverage is established. Then, adjust phosphorus levels according to soil test recommendations.

Scott says superintendents should reduce fertilization rates if they notice turfgrass disease.

"The key to being successful is understanding all the options, and selecting the methods that best match your situation," says Scott.

"Make sure the risks and benefits are clearly understood by all parties, and know that the limitations of nature will always be your constant companion." **LM**

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Circle 124

**Ciba-Geigy Ltd.** and **Sandoz Ltd.**, have merged to form Novartis, which will be the largest marketer of crop protection chemicals in the world. Ciba Ag Group head Emilio (Leo) Bontempo will head Novartis Crop Protection (which includes turf and ornamental), and Northrup King president Edward Shonsey will head Novartis Seeds. Fred Fuller, president of Ciba Seeds, is the new head of Vaughn's Seed Co., Novartis's stand-alone flowers and ornamentals business in North America.



Clint Eastwood is one of the celebrities expected to tee off in the AT&T Pro-Am tourney.

Golf superintendent Glenn Smickley of Robert Trent Jones Golf Club in Gainesville, Va., is a winner in the GCSAA's Environmental Steward Award competition. The competition is sponsored by by GCSAA and **Ciba Turf & Ornamental Products; Rain Bird's Golf Division; Jacobsen Division of Textron**, and **Lebanon Turf Products**.

Jim Ferrin of Granite Bay Golf Club in California is **Seed Research of Oregon's** 1995 "Golf Course Superintendent of the Year" winner. The company's "Golf Course of the Year" award went to Glen Oaks Country Club of West Des Moines, Iowa, Tom Marzolf, architect, and Tim Johnson, superintendent.

**Monsanto** is sponsoring the Roundup All-Pro Weekend Sweepstakes, which will send the grand prize winner and a guest to the AT&T National Pro-Am Golf Tournament next year at Pebble Beach, Calif. To enter, pick up an entry card from your Roundup Pro retailer. The com-

pany also announced plans to spend nearly \$200 million to produce Roundup herbicide in several countries.

**Rain Bird** launched a "Passport to Fun" contest on May 1. Contractors can win luxury cruises, camcorders, color televisions or free cases of rotors. Pick up entry brochures at your Rain Bird distributor.

Twenty students received Peter Selmer Loft Memorial Scholarships worth \$1,000 each, at the Rutgers Alumni Awards Banquet last fall, continuing a 13-year tradition established by **Lofts Seed**. Also, Lofts gave royalties to Dr. C. Reed Funk, Dr. T.M. Casey and Dr. Bruce Clark of Rutgers University (\$700,000) and Dr. Noel Jackson and Dr. Bridgit Reummele of the University of Rhode Island (\$15,000).

**AgrEvo's** North American controlled release nitrogen fertilizer business—including Nitroform and Nutralene—is now being made and marketed by

the Nu-Gro Corp., Ontario, Canada. AgrEvo is planning to concentrate on ag and turf control products.

When a golf course superintendent purchases Pinpoint 15 Granular Insecticide and/or Orthene Turf, Tree & Ornamental Spray, a donation will be made to the research organization of his or her choice. The program is called "The Right Course," according to **Valent's** Derrell Kelso. For more information, phone (800) 898-2536.

**Walker Manufacturing** produced its 25,000th mower on Jan. 9th, 16 years after the first units were produced. President Bob Walker commended the nearly 100 employees for quality workmanship and teamwork.

Four personnel changes at **Jacklin Seed**, which is celebrating its 60th year in business: Gayle Jacklin promoted to project leader in new market development, Hiromi Yanagisawa promoted to vice president, managing director of marketing; Rick Dunham promoted to vice president, marketing; and Brandie Beebe named to a public relations/advertising position.

**Scag Power Equipment** held its annual distributor service conference in Ft. Myers, Fla. Dave Greinder of Lawn Equipment Parts was Service Manager of the Year and Texas Outdoor Power Equipment was Service Distributor of the Year.

**Ransomes America** will co-sponsor the GCSAA's program of 150 local and regional semi-

nars across the U.S. The company will also be exclusive supplier of turf maintenance equipment and utility vehicles for the GlenEagles Hotel of Perthshire, Scotland.

**TerraBiotics** has acquired Hydretain, a water management product for golf courses, from Ecologel USA. The product, which costs \$100 per acre, is applied by overhead spray or through a fertigation system at a rate of 4 gal./acre.

*Golf Digest* magazine selected the **Milorganite Division** of MMSD as one of four winners in its first "Environmental Leaders in Golf" award as the company was celebrating its 70th anniversary in April.

**John Deere** has a new three-year transmission warranty on its GS series of commercial walk-behind mowers. The warranty covers transmission failures for the original purchaser and parts and labor for defects in material and workmanship.

**Jacobsen Div. of Textron and Automatic Turf Equipment** will provide a training and support program for many Purdue University students, and will help renovate Purdue's golf course and turf facilities.

The **Mycogen Corp.** is to acquire **DowElanco's United AgriSeeds** seed business in exchange for 46 percent equity in Mycogen, which agreed to issue about 4.5 million shares of common stock to DowElanco in exchange for United AgriSeeds and \$26.4 million in cash. **LM**

**T**hat brown layer of living and dead organic material at the top of the soil surface is called thatch. You can see it—and judge its depth—by taking and examining a core sample.

All turfgrass naturally produces a thatch layer that consists of dead and dying leaves, stems, stolons, rhizomes and roots. Its purpose is to insulate the grass plant against sudden temperature changes, to cushion against wear, to reduce excessive water evaporation, and

instance—slows establishment of a utilitarian lawn. The best way to “push” thatch formation is by programming your management to produce up to ½ inch of thatch as soon as possible, by using extra nitrogen and extra water, for instance.

But once a turf is established, thatch control should be a major management practice built into the overall maintenance program. Too many times, we fail to set up an ongoing program until the thatch has built up beyond optimum levels (½ inch).

In lawns with excessive thatch, the grass tends to produce long thin leaves with shallow roots. Here are other problems that excess thatch can cause:

1) **Increased insect and disease activity.** Rather than manage thatch, we tend to apply more insecticides and fungicides. The thatch also contributes to making these control products less effective because its organic matter reduces their activity. Also, chemical penetration through the thatch is restricted, reducing its chances of reaching pests and pathogens in the soil.

2) **Holding excessive moisture.** Besides increasing disease problems, excessive moisture will encourage a shallow root system that predisposes the turf to water stress during periods of high evapotranspiration. When a thatched turf dries out, it does not permit water to reach the underlying soil. Thatch can also act as a sponge that holds the water at the soil surface after an intense rain or irrigation.



3) **Limiting uptake of nitrogen.** Because thatch increases volatilization of some nitrogen fertilizers, less nitrogen reaches the grass's roots, where it is most needed.

4) **Low heat, drought and temperature tolerance.** Because the turf's crowns, rhizomes and roots are elevated above the soil surface, they are exposed to greater extremes. A restricted root system also results in reduced water absorption and increased drought stress. Winter desiccation injuries are particularly severe when a thatch is present.

5) **Scalping,** particularly during the heat stress periods of mid-summer.

Vigorous grasses that have rhizomes and stolons, such as bluegrass, bermudagrass and kikuyugrass, are greater thatch producers than are bunch-type grasses like perennial ryegrass, tall fescue and creeping red fescue.

Poor turf aeration and drainage reduce the activity of

# Thatch and its control

*Don't let the turfgrass thatch layer get beyond a half-inch, because that's when your insect, disease and drainage problems begin.*

to stabilize the soil and protect it against compaction.

Lignin makes up from 10 percent to 40 percent of the thatch, making it very resistant to chemical change or breakdown.

Too much or too little thatch can create a problem. Lawns or golf course fairways can safely handle ¼ to ½ inch of thatch, while the optimum amount of thatch on golf greens is ⅛ to ¼ inch.

Too little thatch—when you're establishing new turf, for





**A complete thatch prevention plan includes turfgrass aerification or dethatching.**

various micro-organisms which normally help break down the thatch. When temperatures are too low, or the turf is over-irrigated (keeping the rootzone cooler and poorly aerated) those same micro-organisms are less active.

No one has found a panacea for controlling thatch build-up.

Biologically, any management practices that control the grass's growth will discourage thatch build-up. To a degree, we can control or reduce the rate of thatch development with lower rates of nitrogen fertilizer, and by making sure that the turf is not over-irrigated.

Culturally, you can topdress, lime and cultivate to control thatch.

Topdressing provides good contact between the thatch and the soil, promoting thatch decomposition. Topdressing programs should depend on

the rate of thatch accumulation. Some golf greens need no topdressing because of low turfgrass vigor or conditions that result in rapid decomposition of organic residues. For greens in which a thatch layer continues to develop, a good rule of thumb has been to topdress when the thatch layer becomes "pencil thick," approximately  $\frac{1}{4}$  inch. The amount of topdressing soil required under these circumstances would be about 1/5th cu. yd. per 1000 sq. ft., which provides a layer of approximately  $\frac{1}{8}$  inch. Essentially pure sand can be applied at rates as low as 1/10th cu. yd. per 1000 sq. ft.

In addition, frequent, light lime applications neutralize acidic conditions, allowing more optimal micro-organism activity.

But even with the best management practices, excessive thatch can accumulate over time—especially on highly-maintained turf. You will probably have to resort to mechanical, regularly scheduled thatch control.

Dethatching with a vertical mower may be required one to three times a year. In some areas where thatch is more than one inch thick, several aerifications per year may be necessary. On some golf greens and bluegrass lawns, thatch is so thick that the grass plants are growing in their own matted thatch. In this case, the area may need six to eight aerifications per year until the problem is solved.

At Purdue University, researchers lifted 283 lbs. of cores per 1000 sq. ft. from a

sand rootzone with  $\frac{1}{2}$ -inch aerator tines. They lifted 357 lbs. of cores per 1000 sq. ft. from a silt loam rootzone. These figures project to about 6 to 8 tons per acre.

Renovation annually or at least every other year for common bermudagrass turf has been a standard practice for many years. The hybrid bermudas are even greater thatch producers that can't be properly managed without a dethatching and renovation program.

The real key to thatch management is a total management program rather than waiting until serious problems develop.

Unless a thatch control program is put into practice within

the first year after establishment, low thatch-producers like perennial ryegrass or turf-type tall fescues should be considered for most general turf areas. Common bermuda should be used instead of hybrid bermudas. Because, where the management level is moderate to low, a quality turf can seldom be maintained with grass species that are naturally high thatch-producers. **LM**

—The preceding information comes from Dr. William B. Davis, "Turf Managers' Handbook" by Drs. W.H. Daniel and R.P. Freeborg, Dr. A.J. Turgeon in his text "Turfgrass Management," and Dr. James B. Beard in his text "Turfgrass: Science and Culture."

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## Chipper/vac can be used any time

White's self-propelled Yard Boss Model 800 chipper/vac is designed to tackle chores throughout the growing season. Equipped with an 8 hp engine for plenty of power, the Yard Boss consumes leaves with its 26-inch-wide vacuum and shreds them into a nutrient-rich mulch. It also chips branches up to 3 inches in diameter.

This piece of equipment will be on exhibit at Expo 96 in Louisville, Ky., next month.

For more information, phone (216) 273-7786 and mention LANDSCAPE MANAGEMENT, or

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## Mole cricket control gets registered

The Chipco "Choice" insect control system is more than just a new product, Chipco says: it's an innovative and complete approach to mole cricket control. The system has a worry-free, hassle-free product application (slit-seeded for optimum performance) and a performance guarantee.

Active ingredient is fipronil. The new EPA-approved label carries a "Caution" warning.

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## Lightning protection for golf courses

The new StormWatch system from Rain Bird's Golf Division, protects computer-controlled golf course irrigation systems from damaging lightning strikes. Using "tri-



disconnect" patented technology, StormWatch can detect lightning up to two miles away, automatically disconnect the irrigation system, and ground AC power and field wiring. Once the threat is gone, StormWatch automatically reactivates the system and restores power.

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| 0015 <input type="checkbox"/> Parks   | 0050 <input type="checkbox"/> Cemeteries/Memorial Gardens                                 |
| 0020 <input type="checkbox"/> Rights-Of-Way, Maintenance for<br>Highways, Railroads & Utilities | 0055 <input type="checkbox"/> Hospital/Health Care Institutions                           |
| 0025 <input type="checkbox"/> Schools, Colleges & Universities                                  | 0060 <input type="checkbox"/> Military Installations & Prisons                            |
| 0030 <input type="checkbox"/> Industrial & Office Parks/Plants                                  | 0065 <input type="checkbox"/> Airports  |
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|   | <input type="checkbox"/> Other (please specify) _____                                     |

**B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:**

- |  |   |
|--|---|
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| 0110 <input type="checkbox"/> Lawn Care Service Companies                        | 0130 <input type="checkbox"/> Land Reclamation & Erosion Control            |
| 0112 <input type="checkbox"/> Custom Chemical Applicators (Ground & Air)         | 0135 <input type="checkbox"/> Extension Agents/Consultants for Horticulture |
| 0120 <input type="checkbox"/> Tree Service Companies/Arborists                   | 0140 <input type="checkbox"/> Irrigation Contractors                        |
|  | <input type="checkbox"/> Other Contractor or Service (please specify) _____ |

**C. SUPPLIERS:**

- 0210  Sod Growers, Turf Seed Growers & Nurseries    0215  Dealers, Distributors, Formulators & Brokers    0220  Manufacturers

**2. WHICH OF THE FOLLOWING BEST DESCRIBES YOUR TITLE? (check ONE only)**

- 10  **EXECUTIVE/ADMINISTRATOR:** President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Director of Physical Plant  
 20  **MANAGER/SUPERINTENDENT:** Arborist, Architect, Landscape/Ground Manager, Superintendent, Foreman, Supervisor  
 30  **GOVERNMENT OFFICIAL:** Government Commissioner, Agent, other Government Official  
 40  **SPECIALIST:** Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist  
 **OTHER TITLED AND NON-TITLED PERSONNEL** (please specify) \_\_\_\_\_

**3. SERVICES PERFORMED: (check ALL that apply)**

- |  |  |  |
|--|--|--|
| A <input type="checkbox"/> Mowing              | F <input type="checkbox"/> Turf Fertilization    | K <input type="checkbox"/> Paving, Deck & Patio Installation |
| B <input type="checkbox"/> Turf Insect Control | G <input type="checkbox"/> Turf Disease Control  | L <input type="checkbox"/> Pond/Lake Care                    |
| C <input type="checkbox"/> Tree Care           | H <input type="checkbox"/> Ornamental Care       | M <input type="checkbox"/> Landscape Installation            |
| D <input type="checkbox"/> Turf Aeration       | I <input type="checkbox"/> Landscape/Golf Design | N <input type="checkbox"/> Snow Removal                      |
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**4. WHAT IS YOUR ANNUAL BUDGET FOR EQUIPMENT, CHEMICALS, SUPPLIES? (please check one)**

- 1  Less than \$50,000    2  \$50,000-\$100,000    3  \$100,001-\$250,000    4  \$250,001-\$500,000    5  More than \$500,000



### Tractor comes with front and rear attachments

Cub Cadet's model 7274 compact tractor features a 27 hp, 3-cylinder diesel engine with direct fuel injection, hydrostatic power steering, a fully-synchronized gear drive with two-state clutch, and a wet disc brake system.

It will be on exhibit at Expo 96 in Louisville, Ky., next month.

For more information, phone (216) 273-4550 and mention LANDSCAPE MANAGEMENT, or

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### Utility trailers ideal for landscape use

Triton Corp. offers a unique line of aluminum utility trailers for homeowner or landscape use. Lightweight, rust-free mainframe provides years of reliable use, the company says. Standard features: extruded mainframe; hassle-free lighting and wiring; lifetime marine plywood deck. Tilt and Ramp models, and full line of accessories, are available.

It will be on exhibit at Expo 96 in Louisville, Ky., next month.

For more information, phone (800) 232-3780 and mention LANDSCAPE MANAGEMENT, or

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### Versatility from this riding rotary mower

The 4000 Series is the pinnacle of the Excel Hustler line, the company says. Four front-mount models feature true zero-degree turning. Diesel and gasoline powerplants range from 30 to 54 hp with mowing widths ranging from 60 inches to more than 12 feet. These tractors can power the widest range of attachments in the industry, Excel claims.

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For more information, phone (800) 524-1662 and mention LANDSCAPE MANAGEMENT, or

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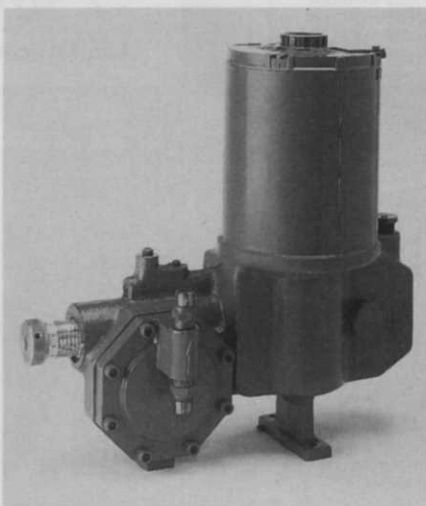


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TM 200	TRAILER	200	20 250	6HP KOHLER
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