naturally Flowers wants to get in as many practices and games as possible. It can take up to 24 hours for one inch of rainfall to percolate through the native-soil field enough to allow play.

Flowers says, "We'll use cups to dip water from any puddles that form, and a submersible pump if necessary. Keeping an eye on where water collects helps us identify any low spots. We also rake the skinned base lines by hand occasionally to identify low spots and check for foreign objects. We'll mark low spots and bring them back to level as soon as the area is workable. Mix is moved in by wheel-barrow loads as needed, tilled in, raked and tamped level.

"We drag the infield after each game and practice, always dragging in a different direction and avoiding the turf edges. We first pull a nail drag behind the tractor, then follow with a mat drag. We stop dragging at a different spot on the field each time. We then hand-rake around the bases in a parallel direction along the grass edges, being careful not to allow lips to build up around the grass lines."

During pre-game preparation, Flowers uses water sprayed from a garden hose to achieve the right consistency for skinned areas.

The entire field is core-aerified once a month during the growing season. The cores are always dragged back into the soil. MSMA and Sencor are sprayed during the summer months to control weeds.

Flowers Overseeds with Topflite perennial ryegrass following the last home game in mid-October. He uses 150 pounds of seed on the infield and 700 pounds on the outfield and sideline areas. Prior to overseeding, they mark all sprinkler heads; then aerate the outfield and sideline areas in two different directions with a pull-behind core aerator.

"We use a verticutter in the infield and hand-rake to remove the thatch – which provides good seed-to-soil contact," says Flowers. "We'll then aerate the infield and spread the seed. Following seeding, we apply a 10-10-10 fertilizer. Approximately one month later we make an application of 30-16-10 slow release fertilizer."

Flowers doesn't tolerate worn areas on the field. Any divots resulting from batting practice and fungos are set back into place, along with a mixture of sand and Topflite perennial ryegrass seed.

He says, "We're currently using two old ten-foot by ten-foot tarps placed side by side to protect the grass in front of the plate area. (A new protective tarp is on order.) All batting practice is thrown from a four-foot by six-foot platform covered with Astroturf carpet, which is placed in front of the mound. We feel you can work hard in practice on our field and still keep it in great shape."

Flowers was one of the first to sod the home-to-first and third-to-home base

---

**Our New Pattern Will Change The Way You Top Dress.**

Turco's patented chevron belt handles all types of top dressing mixtures from sand to compost, wet or dry. The belt's chevron ridges, combined with ground drive, make sure that material flows consistently and spreads evenly. The top dresser assists in leveling out depressions and providing good drainage. Because there are no hydraulics the top dresser can be hooked up to any tractor or turf truck. There's less maintenance, lower costs, and no oil leaks on your field. Top dressers since 1961. Call 612-785-1000.

---

Turfo Manufacturing Inc., 1655 101st Avenue Northeast Minneapolis, MN 55449-4420, (612) 785-1000 Fax (612) 785-0556

Call 1(800) 817-1889 use Fax #1160596 and/or Circle 116 on Postage Free Card

May 1996 31
lines of a high school field. Under his extensive maintenance program, these areas hold up just fine. Eliminating that section of skinned area is a big timesaver.

Frustrated with the wear within the turfed-and-lined coaches' boxes and on-deck circles, and unwilling to "mar the field" with cut outs, Flowers stopped outlining those areas. Players and coaches still stay within bounds, but without a line to "stick to," turf wear is minimal.

During the playing season, Flowers assigns the players small cleanup duties after the game. As a result of 15 to 20 minutes of group effort, their teamwork increases, and they gain a closer connection to their field. Players also take part in frequent team work-days to help tackle the major tasks.

Always a Way

Flowers thanks his personal "booster club" - his wife, Cindy, and sons, 11-year-old Tripp and 8-year-old Clark - for understanding his love of the field and knowing that he "just can't leave until everything is right."

Flowers says, "Help is out there. All you have to do is let people know what you need and what getting it will accomplish."

"The people here are just amazing. The players' parents and the Booster Club can accomplish wonders. In November of 1989, we talked about getting a press box."

A group got together, and we went around checking out other fields to decide just what we wanted. By the spring of 1990, they'd funded and built what we decided on, a two-story press box with a concession stand and rest rooms. In 1992, they funded and helped install a six-foot-high chain link fence around the outfield and a backstop. Also in 1992, the dugouts received new roofs, shelves and bench seats. In 1993, they worked with the school and Coca Cola to erect a ten-foot by 20-foot Scorebrain scoreboard.

"This field is really a result of a total team effort by the players - past and present - their parents, the school, the Booster Club and all the Fike High School baseball fans. No matter what you have to start with and the limited size of your budget, a great field is possible, if you 'Just Do It!' "

Bob Tracinski is manager of public relations for the John Deere Company in Raleigh, NC, and public relations co-chair for the national Sports Turf Managers Association.
**Biological Insecticides**

By Alan Goforth

Environmental, worker safety and efficacy concerns are causing sports turf professionals to rethink insect control strategies. The past decade has seen a dramatic shift away from traditional “harsh” chemicals and toward a strategic approach that integrates the use of chemicals, beneficial insects and biological insecticides.

“The turf industry in general has often been looked upon as heavy pesticide users,” says Dr. Steven AIm, associate professor of entomology at the University of Rhode Island. “The industry is definitely now heading toward a more integrated approach.”

**Bacillus What?**

This changing landscape has opened the door for increased use of the biological insecticide *Bacillus thuringiensis*, commonly known as Bt. Although Bt, a soil-living bacterium, can be found almost anywhere, its exact function in nature is not completely understood. It appears to be readily consumed as food by other microorganisms and does not persist long after being sprayed.

Bt can be readily fermented in large quantities, making it the most commonly used bacterial pest control agent. In this process, the Bt produces a relatively large crystal, which occupies much of the inside of the cell. The particular strain or variety of Bt determines the shape and composition of the crystal, which is responsible for most of the toxic effect on pests.

The key to understanding Bt performance on turf insects is to realize it is not a chemical insecticide. The mode of action is completely different, which also means results are evaluated differently.

Bts work only if ingested by the insect, so they must be applied when pests are actively feeding. A specific pH and specific enzymes are required for the crystal to solubilize in the insect gut. After ingestion, the Bt binds to a specific site in the gut wall. As the wall deteriorates, the contents leak into the body cavity, while spores also can infect the insect body.

Insects generally die within two to seven days. However, there is no plant damage during this time, because body paralysis causes insects to stop feeding. Bt insecticides offer many benefits. They are extremely specific and not toxic to most non-target plants, insects and mammals, so beneficial insects survive to provide continued control. In addition, Bts degrade rapidly, have little or no environmental impact and can be highly efficacious.

**Promising Development**

So why haven’t Bts been used more widely? Dr. Harry Niemczyk, emeritus professor of entomology at Ohio State University, offers this assessment after working with Bts since 1971. “Bts are an excellent fit in many situations. However, the problem is that they have not been stable in the soil and have not given us effective insect control.”

A new product, on track for registration both nationally and in California, promises to move Bts into the forefront. Mycogen Corporation will market Bt *Buibui* under the name M-Press™ for control of white grubs. The organism (or bacterium), discovered in Japan in 1991, is distinguished by a spherical or ball-shaped crystal with a dark outer layer. It is highly specific and controls only certain scarab beetle grubs.

“Japanese beetle grub control will be the best fit,” says Paul Bystrak, manager of field development for Mycogen. “It’s a problem on the vast majority of U.S. golf courses, except California and Florida.

“In California, it will be effective on the green Junebug. They are large pests and leave clutter on the turf when controlled with insecticides above ground. M-Press controls them below ground, however, which will eliminate this problem.”

The product also will be effective against masked chaferis in California and Texas, he adds.

**Success in the Field**

It takes a lot to impress Niemczyk, but he’s clearly excited about the potential for M-Press on Japanese beetles.

“I can’t think of a product we haven’t evaluated over the years,” he says. “I was absolutely surprised to have a biological agent like this actually move from the site of application (on the surface) through thatch and organic matter to the zone where grubs feed. I was pleasantly surprised by the control. We had never worked with a Bt with this degree of control.”

Niemczyk tested the product at four different rates in 1994. “We had what entomologists like to call an excellent infestation that year,” he recalls. “In untreated plots, there were 49 grubs per square foot. We applied M-Press in the latter part of August, at the second or third stage of development. We evaluated the results in late September, and the control was fantastic. At the highest rates, Bt *Buibui* gave us 96 percent control.”

AIm noted similar results in his research, although he targeted the Oriental beetle.

“The Oriental beetle is not found throughout the United States, but it can be as destructive as Japanese beetle larvae on turf,” he says. “I have tried M-Press for a couple of years on Oriental beetles, and it’s been very effective. I’ve gotten a 96 to 99 percent mortality rate, depending upon the rate.”

Bystrak’s challenge is achieving acceptable control at an acceptable rate, preferably in the two- to three-gallon-per-acre range. Complete control is not necessary, Niemczyk points out.

“You don’t need 100 percent control,” he says. “You just need to get populations below damage thresholds.”

Learning to integrate biologicals into insect control programs will be an ongoing process. Researchers apparently have only scratched the surface of potential Bt uses.

“One company has identified more than 10,000 strains of Bt, so there is great potential,” Niemczyk says. “I’m happy the industry is putting money behind biologicals.”
STMA Chapter News

Congratulations to the Minnesota Sports Turf Managers Association – it is now an official STMA affiliated chapter!

Minnesota Chapter: MSTMA's second Workshop on Wheels has been set for Tuesday, July 16, in conjunction with a St. Paul Saints game. For information on the workshop, the Minnesota Chapter or other upcoming activities, contact: Brian Deyak at (612) 255-7223.

Iowa Chapter: Special reminder: the Iowa Sports Turf Managers Association (ISTMA) will hold a Soccer/Football Facility Workshop at the Dubuque Soccer Complex on June 4 from 8 a.m. to 3:30 p.m. Registration opens at 8 a.m. Morning sessions begin at 9 a.m. and include the following: Volunteerism; Soil Sampling and How to Tailor a Fertilizer Program to Demonstration area. Afternoon activities include the following: Mowing Techniques and Demonstration; Irrigation Alternatives; Seeding/Overseeding Practices and Demonstration; and The Safety Inventory and Its Importance.

For more information on this meeting, the Iowa Chapter or other upcoming activities contact: Lori Westrum at The Turf Office at (515) 232-8222 (phone) or (515) 232-8228 (fax).

Florida Chapter #1: Special reminder: the Florida Chapter will meet on May 21 at Joe Robbie Stadium. Meeting topics will include the field's prescription athletic turf (P.A.T.) system. The field will be set up for baseball, and a tour of the facility will be provided. Meeting host is Alan Sigwardt, sports turf manager of Joe Robbie Stadium.

New: the Florida Chapter will meet on July 16 at the Orange Bowl, site of Olympic Trials Soccer. Meeting host is Dale Sandin, Orange Bowl sports turf manager.

For more information on these meetings, the Florida Chapter, and other pending activities, contact: John Mascaro (305) 938-7477.

Midwest Chapter: Special reminder: the Midwest Chapter's next meeting is scheduled for May 22 at South Park of the Park Ridge Recreation and Park District in Park Ridge, IL. The central theme is turf irrigation systems. Industry experts will discuss the pros and cons of different irrigation systems and methods.

Training with the Bears is planned for Wednesday, July 24, at the Chicago Bears Training Facility in Lake Forest, IL. The meeting will include a tour of the new state-of-the-art training facility.

For more information on these meetings, the Midwest Chapter or other upcoming events, call: The Chapter Hotline (847) 459-4727.

Colorado Chapter: CSTMA will be holding its Summer Seminar on June 5 at Coors Field in Denver, CO. Educational sessions will be held in the morning followed by field tours in the afternoon. Seminar host is Mark Razum, head groundskeeper of the Colorado Rockies' Coors Field.

CSTMA will also hold a Mid-Summer Seminar on July 12 in Grand Junction, CO. For information on these seminars, the Colorado Chapter or other upcoming events, call the 24-Hour CSTMA Chapter Hotline/FAX: (303) 438-9645 and leave a message, or contact: Troy Smith, Denver Broncos, at (303) 649-9000.

Southern California Chapter: For information on the Southern California Chapter and upcoming activities, contact: Chris Bunnell at (619) 432-2421.

STMA Chapters on the Grow

Arizona: The newly forming Arizona Chapter has already held two meetings. For more information on the Sports Turf Managers Association of Arizona, on upcoming events or to find out how you can get involved, contact: Bill Murphy, City of Scottsdale Parks and Recreation Department, at (602) 994-7954.

Kansas: A new chapter is developing in Kansas. The group is meeting regularly on the last Wednesday of each month. A mid-September seminar is in the planning stages. The same seminar format will be repeated during the designated week at different sites across the state – starting in east Kansas and then moving on to central and west Kansas locations. For more information on monthly meetings, the September seminars – and especially to get involved – contact: Mark Schimming of Wichita Baseball, Inc. at (316) 292-2907, extension 205.

Mark Your Calendars

The 1997 STMA Conference and Exhibition will be held January 15-19, 1997, in Colorado Springs, CO. More details will be announced soon!
ROOKIES

Turf Covers

COVERTECH Fabricating introduces two types of turf covers. Both are made of tough, lightweight polyethylene material, are UV treated for longer life, are mildew and rot resistant and come with pegs and storage bag.

The Supreme Green is designed specifically for seed protection and germination. Creating a greenhouse effect, the cover keeps the temperature several degrees warmer than uncovered areas. This stimulates rapid growth and enhanced root development, and can extend the season at least one month in the fall and spring.

The second cover, Green Shield, is designed for applications where water will not run off the green, causing a severe ice buildup as the temperature drops. Acting as a barrier, the Green Shield protects the grass plant from the damaging ice.

COVERTECH FABRICATING INC. Circle 122 on Postage Free Card

Rake and Thatching Tool

The new RAKO by Zeltine dethatches, rakes, does light tilling and gathers debris without the user bending, stooping or twisting. Designed to do these jobs by simply pushing it, the American-made, all-steel tool has no moving parts.

RAKO COMPANY, INC. Circle 123 on Postage Free Card

New Varieties of Turf Seeds

E.F. Burlingham and Sons has just announced three new varieties of seeds.

The first, called Renegade turf type tall fescue, is among the leading tall fescues in quality judged in color, speed of germination, disease resistance, and mowing in recent U.S. studies.

Celebration perennial ryegrass blend, the second new offering from Burlingham Seeds, consists of new Wizard and Excel perennial ryegrass varieties. It’s noted for its dark green color and short growth pattern.

The third new blend, Southern Choice (MB-25-92) turf type tall fescue, is a high performing, dark green, intermediate variety. In 1993 and 1994 NTEP results, it was ranked in the top five in turf quality out of over 90 tall fescues. It has excellent drought and heat tolerance, germinates rapidly and fills in quickly. A good choice for turf in full sun or shaded areas, it also has very good brown patch disease resistance.

E. F. BURLINGHAM AND SONS Circle 124 on Postage Free Card

WHAT?

You’re not an STMA Member?

WHY NOT?

Not sure what’s in it for you?

(Read the membership brochure in this issue)

But wait a minute—

The issue is—

What Do You Have To Contribute?

This is your profession—only you and your peers can make it better—Together you can improve the standards of professionalism throughout this industry.

You are Important—You are needed

All new members signing up between May 1st and June 15th will be eligible for a SPECIAL drawing. The Grand Prize is a FREE registration for the 1997 Annual Conference & Exhibition, January 15-19 in beautiful Colorado Springs, CO!! Five lucky new members will receive an STMA shirt.

As an added incentive to ACT NOW! the first 20 new members to sign up using the membership insert will receive an STMA cap.

CAN YOU BELIEVE IT! All the benefits of belonging to the national Sports Turf Managers Association AND PRIZES TOO!

NOW, aren’t you ready to fill out that application? Don’t miss out — Just Do It!

MEGA Versatility!

with the new Goossen Super Rake

With the introduction of its new interchangeable deck system, the Goossen Super Rake has become the ultimate turf maintenance machine. The new six-foot floating Mow ’N Vac deck grooms the turf, with its vac and cut system lifting grass to full height before trimming to provide a uniform cut. Clippings are transferred to a 150-bushel collection unit. These features combine to make the Goossen Super Rake the best value on the market today for maintaining quality turf on golf courses, parks, cemeteries, athletic fields... wherever you need the versatility you’ve come to expect from Goossen.

For details on this and other fine Goossen products:

Call Toll-Free: 1-800-228-6542
In Nebraska: 402-223-4226
Fax: 402-223-2245

Goossen INDUSTRIES

P.O. Box 705 • Beatrice, NE 68310

5 DECKS NOW AVAILABLE

✓ Thatch ’N Vac — Rotating flails, brush and vacuum combine to power rake and vacuum turf.
✓ Mow ’N Vac — High-lift design allows vacuum to lift grass for even cut.
✓ Brush ’N Vac — A 10” counter-rotating brush and vacuum sweep turf areas clean of small debris.
✓ Finger Sweeper — Replaces the brushes on the Brush ’N Vac with six-inch rubber fingers for thatching and removing pine needles.
✓ Vacuum Only — Concentrates power of a 32” blower in a 96” swath.

Goossen INDUSTRIES

P.O. Box 705 • Beatrice, NE 68310

Call 1(800) 817-1889 use Fast Fax #1030596 and/or Circle 103 on Postage Free Card
**SCOREBOARD**

**CLASSIFIEDS**

- **Display Rates:** (Per Column Inch)
  - 1x: $8140
  - 3x: $8130
- **By The Word Rate:**
  - $8.95 per word, per insertion. Initials and abbreviations count as full words. Minimum charge $85.
- **Business Card Rates:**
  - 1x: $8300
  - 6x: $8275
  - 12x: $8250
- **Deadline:**
  - The 15th of the month prior to publication date.
- **Note:**
  - All classifieds are payable in advance.
  - Ads using cuts or special borders will be charged at display rates.
  - Ads are non-commissionable. Blind ads will be charged an additional $10.
- **For Space Reservation Contact:**
  - Linda Serio, Classified Sales
  - 2101 S. Arlington Heights Road
  - Arlington Heights, IL 60005-4142
  - (847) 427-2085 • FAX (847) 427-2006

---

**HELP WANTED**

**TECHNICAL GROUNDS PRODUCTS REP**

Opti-Gro, a division of a world-wide manufacturing corporation, is looking for a motivated individual with a life-science background. We manufacture and market a complete line of technical grounds care products. Our sales representatives enjoy financial growth and the opportunity to advance. Customers include municipalities, institutions, industry and many others. We offer:

- Thorough Training
- Local Territory
- Repeat Sales

If you have a successful background and are willing to make a commitment, please send resume to:

John Hawkins
Opti-Gro
One Mack Centre Drive
Paramus, NJ 07652

or fax resume to 201-261-7882

Positions available in the North East

---

**SPORTS TURF & SPECIAL EVENTS COORDINATOR**

Lead Groundskeeper, vacancy listing # 0775, $1979-$2347/month, final filing date 6/3/96. Become the team leader of the University of California at Davis Sports Turf Team. This position offers the opportunity of working on one of the largest intramural sports programs in the country and working with NCAA Division II Intercollegiate Athletics including sports programs such as lacrosse, rugby, football, baseball. Must have a proven record of successful experience in sports turf and special events coordination with advanced knowledge of turf management practices. Candidates will work flexible hours including evenings and weekends depending on sports and special event calendars. Requires pre-placement exam. Include resume with your application materials. Apply to UCD, Employment Office, TB 122, Davis CA 95616, by 5PM on the final filing date. For required materials call 916-752-1760, TDD 916-752-7140. EOE.

---

**POND AND LAKE LINERS**

Buy direct from fabricator
- 20, 30, 40 mil PVC, Hypalon, HDPE & Polypropylene.
- Custom fabricated panels of up to 25,000 S.F. Material only, Material & Supervision or Complete Installation Service available.

Colorado Lining COMPANY

(800) 524-8672
1062 Singing Hills Rd.
Parker, CO 80134
(303) 841-2022
FAX: (303) 841-5780

---

**FOR CLASSIFIED ADVERTISING**

CALL LINDA SERIO TODAY.
(847) 427-2085

---

**ADVERTISER INDEX**

- Anchor Industries, Inc. ................. 14
- Beam Clay Awards .................. 23
- Befco, Inc. ....................... 18
- Goossen Industries .......... 35
- Kubota Tractor Corp ............ 38
- McCord Tire ..................... 27
- Millcreek Manufacturing Co. .... 12
- National Mower Co. ............. 24
- Partac/Beam Clay .......... 32
- Pennington Seed Co. ........... 2, 17
- Reif Industries .......... 37
- Roots, Inc. .................... 13
- Seed Research of Oregon, Inc. .. 25
- Smithco, Inc. ................. 29
- Star Transportation, Inc. .... 15
- The Toro Co.-Commercial Products Div. 3
- Thomas Brothers Grass ...... 32
- Turf Specialists Corporation ... 34
- Turfco Manufacturing Co. ..... 31
- West Coast Turf ................. 9
Reif Industries, Inc. has developed a true concentrated liquid fertilizer R3 10.7-7.2-7.2 Equivalent to R3 42-28-28. Compared to granular products, our product is safer, easier to store, mix and apply. It is less corrosive, will not clog your equipment, and is economically competitive to granular products prices. Available by the pallet in 5-gallon containers to all 50 states.

Our product aids in germination, does not burn or harm turf, trees or shrubs and encourages turf to retain its dark green color longer.

A custom N-P-K blend can also be formulated for customers with a use for 4,000 gallons or more.

AGRI-CHEMILIZER - A division of REIF INDUSTRIES, INC.™ Specifically for providing irrigation and our fertilizers to the agriculture industry available now.

PARKWAY LAWN & GARDEN PRODUCTS™
PACKAGE OFFERED

Spray nozzle and two containers of each of the following in an Introductory Package.

6.5 oz. R12 9.75-26-8.4 Equivalent to 24-65-12 Pat. Pend. tomato and garden vegetables food.

Introductory Offer On Complete Package Of Food $49.95 Thru June ’96. Sales tax, shipping & handling not included. additional products can be ordered at any time. 100% guarantee return within 30 days unused portion if not satisfied.

Available all year thru 1-800-422-2297 phone services only except for selected garden stores.

For Information or To Order Please Call 1(800) 422-2297
Dealer Inquiries Welcome.
REIF INDUSTRIES, INC.
P.O. BOX 55
SPRINGBORO, OHIO 45066
FAX: (513) 683-0016 PHONE: 1(800) 422-2297