scaping plays in aesthetics. He has made major upgrades in this area.

Striking, mature plantings, worked into the plan by Santa Anita's early designers, existed on the property before Guise arrived. For example, the hill that serves as the backdrop for the Hillside Course is graced with 200-year-old oak trees. Guise has enhanced this view by hydroseeding white and purple alyssum and California poppies. Thirty stately olive trees stand nearly 50 feet tall. Guise "laces them out" every year to enhance their shape and health. The 220 *Washingtonia* palm trees, stretching to heights of more than 80 feet, must be trimmed two to three times a year. Eight miles of hedges, some extending eight feet wide and 10 feet tall, snake through the property. They require trimming two or three times a year. To provide "feeder plant material in various growing stages," Guise has established a two-and-a-half-acre nursery. These are used to fill in gaps when plants are lost.

Guise selects plants personally, from 30-foot olive trees to puny packs of pansies. He seeks out the best growers and will search through 200-acre nursery fields to find exactly the right plant to complete or restore the symmetry of a setting. Once that plant is found, he'll have it prepared slowly for moving, and bring it back to the nursery so its care will approximate that of the existing plants. This assures that the symmetry will continue and the plant will be ready when the need arises. Plants in the nursery range from five-gallon containers to 60-inch-diameter tree boxes. Plants may also be placed elsewhere on the grounds to enhance a landscape scene until they are needed in a prime location. He also took over the selection and maintenance of the interior plantings with the 300-acre complex.

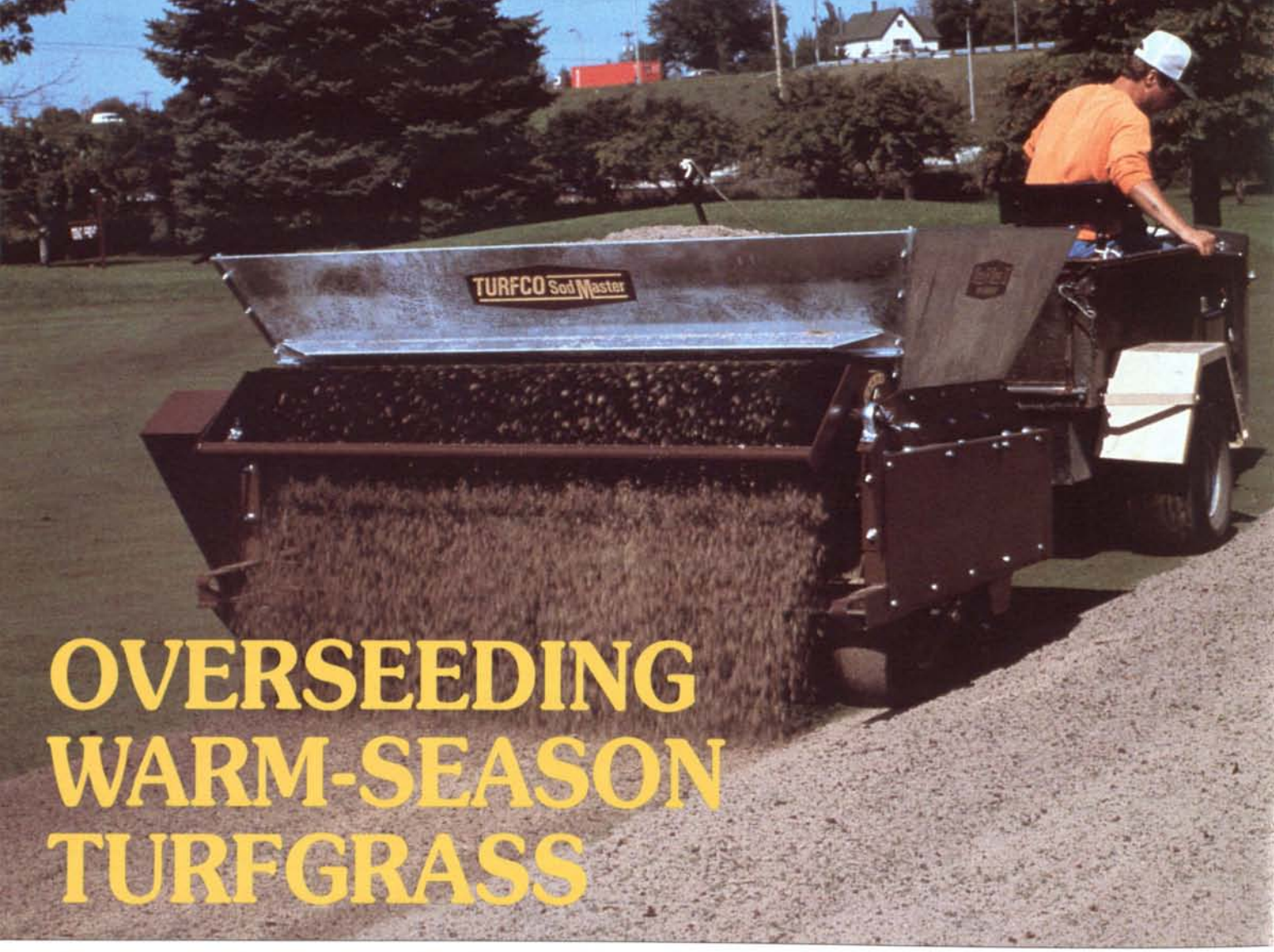
Remember those million flowers? Guise has taken the ho-hum, one-color, one-variety flowers beds to an ever-changing kaleidoscope of striking beauty. The winner's circle area turns to a blaze of color with mums, daises and primroses. The traditional yellow pansies of the Oaktree Meet have been augmented with begonias, snapdragons, dusty miller, cyclamen and impatiens. For the Christmas Meeting, red, pink and white cyclamen in full bloom turn the clubhouse into a wonderland. Plantings are checked daily and those with declining blossoms are immediately replaced.

How does Guise squeeze it all in? Hard work is the main ingredient—60 to 80 hours a week of it. He's built an excellent crew. ("Great guys," he notes.) He's also a master of networking. He reaches out to other professionals through organizations such as the national Sports Turf Managers Association. He currently serves on the STMA board and hosted the California regional meeting in September 1992.

And then there's his "personal" crew, namely is patient wife Teresa, four-year-old Kelley, and two-year-old Megan. "They make it wonderful to come home," says Guise.

But when he's not at home, you can bet Guise is at the track, maintaining the high-quality surfaces and grounds horses owners, jockeys and races fans have come to expect from Santa Anita. Given his professionalism and no-nonsense work ethic—and that of his fine crew—the odds for success are well in his favor.

Editor's note: Bob Tracinski is the manager of public relations for the John Deere Company in Raleigh, NC, and public relations chairman for the Sports Turf Managers Association.



OVERSEEDING WARM-SEASON TURFGRASS

Pivotal to overseeding success, topdressing material should be sterile, free of debris and similar in texture to the existing soil. Photo courtesy Turfco, Inc.

By John Wildmon

Overseeding dormant warm-season turfgrasses with cool-season grasses is a common practice used to give color and furnish a renewable winter surface. There are perhaps as many different opinions on best practices for overseeding warm-season turfgrass as there are turfgrass managers—rightly so, since the technique used and species of seed selected depends on numerous factors such as intended use of the area, time allotted to do the job, budgetary constraints, equipment available, and condition of existing turf.

Several factors need to be considered before beginning an overseeding project. Proper planning includes selecting the appropriate species and seeding rate, picking the best seeding date, deciding on methods for preparing the seed bed and planting the seed, decisions on annual bluegrass control and facilitating necessary post-planting care.

When selecting seed, turf managers must decide between establishing either a monostand, a single species or cultivar, or a polystand, two or more species or cultivars. Polystands may also be blends, two or more cultivars of the same species, or mixtures, two or more different species. Ideal polystands consist of species or cultivars that complement each other. An example would be a mixture of rough bluegrass and creeping bentgrass. The rough bluegrass gives quick germination and establishment while the slower-to-establish bentgrass gives better heat tolerance and somewhat more wear resistance. When selecting grasses for overseeding, the manager should give consideration to color, texture, wear tolerance, heat tolerance, mowing height, establishment rate, spring transition and seed quality.

The following is brief summary of the characteristics associated with various cool-season species:

Annual Ryegrass

Advantages:

- Quick germination and establishment.
- Relatively low cost.

Disadvantages:

- Rapid vertical shoot growth.
- Poor disease resistance.
- Poor wear and cold tolerance.

Turf-type Perennial Ryegrass

Advantages:

- Quick germination and establishment.
- Good wear tolerance.
- Finer texture than annual ryegrass.

Disadvantages:

- Rapid vertical shoot growth.
- Some varieties too persistent in spring.

Tall Fescue

Advantages:

- Good wear tolerance.

• Good heat tolerance.
Disadvantages:
• Intolerant of lower cutting heights.
• Very coarse textured.

Fine Fescue
Advantages:
• Very fine texture.
• Good winter color and cold tolerance.
Disadvantages:
• Poor heat tolerance.
• Intolerant of wet conditions.

Rough Bluegrass
Advantages:
• Fine texture.
• Quick germination and establishment.
• Excellent cold tolerance.
Disadvantages:
• Poor wear tolerance.
• Yellow-green color.

Creeping Bentgrass
Advantages:
• Fine texture.
• Good heat tolerance.
Disadvantages:
• Slow to establish.
• Only moderate wear tolerance.

Quality cool-season seed should have percent germination and purity in the high 90s, a minimum of weed seed and no noxious weed seed. Buying certified seed (seed with a blue certified tag) will help to avoid mistakes, but it is also a good idea to have the seed tested by a qualified seed-testing laboratory prior to planting. Seeding rates and selection vary considerably depending on the intended use of the area.

The following recommendations should give good results:

Low-maintenance athletic fields: 60/40 mixture by weight turf-type perennial ryegrass/annual ryegrass at 10 to 15 pounds per 1,000 square feet.

High-maintenance athletic fields: turf-type perennial ryegrass or blends of turf-type perennial ryegrasses at 12 to 20 pounds per 1,000 square feet.

Golf course fairways: annual ryegrass, turf-type perennial ryegrass or a mixture of the two at five to 10 pounds per 1,000 square feet.

Golf course tees: turf-type perennial ryegrass or blends of turf-type perennial ryegrasses at 12 to 18 pounds per 1,000 square feet.

High-traffic golf course putting greens: turf-type perennial ryegrass, blends or turf-type perennial ryegrass or 85/15 mixture-by-weight, turf-type perennial ryegrass/rough bluegrass, at 20 to 35 pounds per 1,000 square feet.

Low-traffic golf course putting greens: same as high-traffic greens or creeping bentgrass at two to five pounds per 1,000 square feet.

Alternatives for golf putting greens: rough bluegrass at eight to 12 pounds per 1,000 square feet; two pounds creeping bentgrass with six pounds rough bluegrass per 1,000 square feet; or one pound creeping bentgrass with 10 pounds fine fescuegrass and six pounds rough bluegrass per 1,000 square feet.

Overseeding for color (i.e. lawns, parks, etc.): annual ryegrass at four to

continued on page 14

Proper planning includes selecting the appropriate species and seeding rate, picking the best seeding date, deciding on methods for preparing the seedbed and planting the seed.

Overseeding

continued from page 13

six pounds per 1,000 square feet.

Seed Preparation

Picking an appropriate seeding date is extremely important for successful overseeding. Seed must be established late enough in the fall so that problems with disease, heat and competition from the warm-season grass are minimized, but early enough that seed germinates and establishes quickly. Overseeding dates can be selected one of two ways, based on either geographic area or soil temperature. A USDA Plant Hardiness Zone Map can be used to predict approximate dates based on geographic area. Turfgrass in zone 10 should be overseeded between November 15 and December 15, zone nine between October 15 and November 15, zone eight between October 1 and October 15, and zone seven between September 15 and October 1. Dates in southern New Mexico, Arizona, and Nevada may be two to three weeks later.

Overseeding based on soil temperature should be done when the soil temperature at the four-inch depth is between 72 and 78 degrees Fahrenheit. Seed that is slow to germinate and establish should be planted early in the above periods. Seed that germinates and establishes quickly can be planted later in these periods.

Overall preparation for overseeding begins in early summer and includes ordering seed early, controlling excessive thatch and testing the seed prior to planting. Preparing the seed bed prior to overseeding in order to obtain good soil/seed contact is also very important. The amount of seedbed preparation varies considerably depending on the site and budget. In general, more extensive seedbed preparation results in better germination and quicker establishment. However, extensive seedbed preparation also typically results in more problems with spring transition. At minimum, seedbed preparation should consist of light verticutting and, if possible, a light topdressing of about 0.25 cubic yard per 1,000 square feet. Seed should then be uniformly distributed and brushed in with a broom or drag mat.

More extensive preparation will give a quicker, more uniform cover and be desirable for high-maintenance areas such as golf course putting greens. Preparation of such areas should begin five to seven days in advance by lightly scalping the turf and light verticutting in two directions. Debris should then be removed using a sweeper, and, if possible, followed by a turf vacuum. Two to three days prior to seeding, mowing should cease. This will allow some regrowth, which will help hold the seed in place. Phosphorus and potassium should then be applied at a rate of one to 1.5 pounds per 1,000 square feet each. The day before seeding, apply topdressing at a rate of 0.25 to 0.35 cubic yards per 1,000 square feet and brush in with a broom or drag mat. If the topdressing is done the day of seeding, the seed and topdressing can be brushed in simultaneously. Topdressing material should be sterile, free of pebbles and other debris, and should be similar in texture to the existing soil. Seed should be applied uniformly in two directions using a centrifugal spreader. Very fine seed such as bentgrass may need to be diluted with sand or sewage sludge or applied with a drop spreader. An application of pre-emergent herbicide, such as Kerb or Surflan, a couple of weeks prior to seeding will also help define such edges. This technique will also prevent germination of seed tracked or otherwise accidentally introduced outside of the intended area. However, care must be taken not to contaminate areas to be seeded.

Follow-Up Seed Care

Follow-up is probably the most critical aspect of any overseeding, regardless of the amount of preparation. Initial overseeding is at best very shallow rooted in a mediocre seedbed. Newly germinated seedlings can be lost in a matter of hours if allowed to dry out. Frequent, light spraying will be necessary in the initial days following planting. Watering frequency can be gradually decreased as the seedlings become established. Foliar applications of nitrogen and micro elements on a weekly basis will be very helpful. If fertigation is available, this is an ideal tool for establishing and maintaining overseeding. Judiciously monitoring for diseases such as pythium and brown patch is also a must. Overseeding consists of young seedlings often planted at extremely high rates. This is an open invitation to disease. Use of fungicide-treated seed will reduce disease incidence.

Mowing can begin as soon as the seedlings are firmly rooted. Sharp mower

blades are important to avoid pulling up young seedlings. Initial cutting height should be approximately two or three times the final height of cut and then lowered incrementally over a period of two to four weeks as the seedlings mature.

Annual bluegrass control must also be considered. Several techniques are currently utilized. The simplest but least effective method is to do nothing other than germinate and establish overseeding quickly and early in the season. The resulting competition will help minimize annual bluegrass germination and establishment. Other options involve the use of pre-emergent herbicides. The obvious paradox is that this will interfere with germination of the desired overseeding.

Follow-up is probably the most critical aspect of any overseeding, regardless of the amount of preparation.

Three options exist to overcome this problem: 1. Use Rubigan, which inhibits annual bluegrass germination but has relatively little effect on some overseeded species. 2. Time the pre-emergent herbicide application such that the residual has run out before overseeding is applied. 3. Apply the pre-emergent at the usual time of the year and then "deactivate" using activated charcoal.

Each one of these has it's advantages and associated problems. Option one is very effective in terms of annual bluegrass control. However, it is expensive and the rate and timing of the application is critical to avoid damage to the overseeding. Also damage to the overseeding can vary depending on the species and environmental conditions. Option two is the least expensive, but it involves some major league guess work. Residual of pre-emergent herbicides is affected by numerous factors, such as temperature, precipitation, soil type and application rate. A bad guess can result in a window in which annual bluegrass can establish poor to erratic germination of overseeding due to herbicide residual. Option three is reasonably sure fire, but is the most troublesome. Activated charcoal must be very finely divided and applied at relatively high rates to effectively deactivate pre-emergent herbicides. It is very difficult to apply uniformly. Mixing it with topdressing solves most of the problems, but makes it impractical for large areas.

Overseeding still occupies an important nitch in the Southern United States. Successful overseeding hinges on several factors. Proper planning, planting and post-planting culture are all essential. If the time, labor and money aren't available, the likelihood for success is greatly diminished. Remember, spring transition can demand additional resources and also must be planned for. Overseeding may not be necessary on all areas. Dormant warm-season turfgrass can be very functional for numerous purposes and offer a dramatic contrast to overseeded areas. One way to live within the constraints on a given site is to carefully pick and choose where overseeding will be utilized. ❑

Editor's Note: John Wildmon is an instructor at Lake City Community College in Lake City, FL.

Professional Diamond Of The Year:

Murray Cooks At West Palm Beach

By Steve and Suz Trusty

Left: West Palm Beach Municipal Stadium, spring home of the Atlanta Braves and Montreal Expos. Photos courtesy Murray Cook.
Top: Murray Cook with Houston Astros manager Art Howe at an exhibition game between the Astros and the Atlanta Braves last year.

Shining like a beacon in the warmth of Florida, the manicured fields of West Palm Beach Municipal Stadium, 1992 Diamond of the Year in the Professional Category, lure those reliable harbingers of spring—Major League baseball players.

During spring training, from February 15 to April 6, all nine fields of the complex will be used every day as the Atlanta Braves and the Montreal Expos sharpen their skills for the coming season. Field consistency is vital. In order to compete successfully, players must have the opportunity to concentrate on their game without problems caused by poor field conditions.

That job goes to Murray Cook, his assistant Budgie Clark and their crack grounds crew. Working as a team, they've honed field maintenance to near-perfection.

Team-Building

Chosen as *sportsTURF* 1990 Man of the Year, Cook is a dynamo with combined skills of master technician, teacher and salesman. He began studying baseball field maintenance at age 13. He combined his interest with a college background in horticulture, and from there steadily climbed up the groundskeeping ladder from single-A to the big leagues.

In addition to his work at West Palm Beach, Cook is a field designer and consultant. He's consulted on fields around the country. His latest consulting job was for Tulsa County, OK, converting an artificial surface to a natural field. He's even consulted on fields as far away as the former Soviet Union, where he was the groundskeeper on Eastern League All Stars' Diamond Diplomacy Tour.

Clark came to the program with an extensive field maintenance background of his own. He was instrumental at another award-winning field, and served as a catalyst for many of the improvements at West Palm Beach Municipal.

Crew members Issac Porter and John Whitehead have 32 years of combined experience at the facility. City spray technician Cindy Unger is an expert at scheduling chemical applications around games.

"Every member of the crew brings a high skill level and dedication to the job," Cook asserts.

However, even this cohesive, talented team couldn't accomplish its goals without management collaboration. Rob Rabenacker, general manager of operations for the West Palm Beach Montreal Expos, and Pete Skorput, general manager of operations for the West Palm Beach Atlanta Braves, add enthusiasm and cooperation to the year-round program.

Sizzling Pace

West Palm Beach Municipal Stadium was built in 1962 to support and showcase the Atlanta Braves' spring training program. In 1982, the Montreal Expos became another tenant of the facility. To accommodate the change, locker rooms, fields and other team amenities were expanded within the existing facility.

Between 1982 and 1989, the teams' needs outgrew the facility's capabilities. More than $4 million has been invested in improvements since 1988. City Manager Ron Schutta and Director of

Leisure Service Tim Vanatta implemented the funding. Cook directed improvements and monitored the day-to-day progress of the projects. Those improvements included a $150,000 automatic irrigation system in 1989.

The facility has an active year-round schedule. Fantasy Camp starts January 1, with the Braves staging two weeks—the Expos one week—of "pay for the glory" amateur-pro play. After Fantasy Camp ends, both clubs hold winter workouts with Major League spring training starts on February 15.

Beginning March 1, there's a game a day for 32 days, plus workouts and practices. Following spring training, the extended spring work begins in unison with the Florida State League's West Palm Beach Expos. When extended spring work ends on June 8, the Gulf Coast League season begins. This runs in tandem with the Florida State League until August 31. Also during the summer, the Palm Beach Post 12 Legion season and playoffs are held at the facility.

Of course, there have been a few "extras" for the crew to contend with, such as the 1991 Sunshine State Games and opening ceremonies. On September 15, the instructional league begins for both the Atlanta Braves and Montreal Expos clubs, and the New York Mets, ending in early November.

At this point, the crew takes a deep breath, then tackles renovation. In just one and a half months, the cycle begins again.

Maintenance Strategy

The stadium complex is located on the site of an old swamp. Groundwater lurks three to four feet below the field surface. Despite relatively good drainage provided by the sand profile, and a four-inch base of 90 percent medium grade sugar sand and 10 percent sphagnum peat, there's a constant battle to eliminate excess moisture. Even with swells between the added fields, sump pumps and Super Soakers come into play. The challenge has been furthered by this year's weather. Temperatures have been cooler than usual. Nine inches of rain fell in January; six inches in mid-February.

The maintenance program must be high-level, and Cook makes sure it is nothing less. Pitching mounds are packed with Beam Clay pitching mound mix. Mounds are worked daily during the 10-month season, weekly during the short off season. Home plates are packed with Beam Clay home plate mix. Again, the daily-weekly regimen is followed to keep areas up to grade. The infield mix, an 80/20 sand and clay combo, is watered, scarified and screened daily.

Manicuring the mound and home plate area of each field takes 45 minutes of hard labor. Holes are swept to show bare clay, then watered and left to soak for 10 to 15 minutes. The clay is then hand-raked and the holes packed tightly.

The mound landing areas, which extend 45 inches on both sides of the pitching rubber, are packed tightly for a solid footing. The plateaus on the mounds are also packed to keep the mound in correct form and to ensure level "falling back" areas. After being packed, the mounds are stiff-matted, then thoroughly soaked and allowed to set for approximately 30 minutes before being covered with tarps.

The four-by-six-foot batters' boxes on both sides of each field's plate are also packed tightly for firm footing. Home plates are stiff-matted and soaked, then allowed to set for about 30 minutes prior to tarping.

continued on page 18

West Palm Beach
continued from page 17

Fine Terragreen red is used for drying the field during rains. Crews also incorporate stabilizer mix into the infield for improved drainage. For mounds, the crew uses course Terragreen red because it is easier to clean.

Base areas and baselines are watered and hand-raked to remove ridges. After the water has soaked in, these areas are stiff-matted to keep the clay level. The infield clay also is watered, then scarified with an A-frame or another ripping device to remove the ridges and humps created during the game. After the water has soaked in, the clay is flex-matted to keep it smooth and level. Before game time, the infield clay, mound and home plate are cocoa-matted and watered.

Infield turf is cut daily on game days. After mowing, the turf is hand-watered for 45 to 60 minutes. Outfield turf is usually cut every other day, and also watered after cutting. A greensmower is used for the infield, a triplex for the outfield. Because of heavy use, a one-inch fairway cut is used.

For the past three years, Double Eagle perennial ryegrass has been overseeded at the rate of five pounds per 1,000 square feet between late November and mid-December, as dictated by temperature changes. The base turf is Tifway 419 bermudagrass that, with the Deep South location of the field, stays green year-round. The perennial ryegrass helps ease some of the wear caused by 60 consecutive days of play on the main diamond.

As the prime growing season for bermudagrass approaches, Curb is applied to cut back the perennial ryegrass. This eliminates the transition period and minimizes fungus problems.

The $60,000 annual chemical budget also covers all fertilizer needs. The base fertilizer is Granular 15-5-15, applied at the rate of six to eight pounds per 1,000 square feet annually. This program is augmented with liquid nitrogen sources, applied bi-monthly through a chemigation system. For liquid application, 32-0-0 and 16-4-8, with a barrage of micronutrients, are alternated.

Mole crickets and fire ants are the facility's major pest problems. Crickets are controlled with Triumph, Orthene, and a bait mix called Consume. Cook notes that a Dursban product specifically designed for mole cricket control was extremely successful in 1991.

Team Effort

The City of West Palm Beach maintains the entire stadium complex and parking lots. The total annual operating budget is $1.2 million. As with cities around the country, budget restraints are a constant. Far from a drain on city funds, however, the facility's "economic impact" for the community is estimated at $25 million.

During the past three years, the stadium and complex have been used for several groundskeeping demonstrations for neighboring county and recreation departments. The year-round use enables participants to observe programs and renovation projects in progress. As an additional service, minor league baseball franchises are allowed to send their new groundskeepers to the facility to work with the top-notch ground crews during game situations.

Cook and his crew are continually fine-tuning maintenance practices. "If anyone has new products or a new piece of equipment that they'd like to have tested, send it to us," he says. "Our philosophy is to learn as much as we can about what there is by using it in our complex."

Success seems to follow Cook, not mention the teams who call the complex home, at least in the spring. The Atlanta Braves were National League Champions in 1991 and 1992. The West Palm Beach Expos were Florida State League Champions in 1991 and Division Champions in 1989 and 1990. Palm Beach Post 12 has been American Legion Post 12 champs three years in a row.

The crew members of West Palm Beach Municipal Stadium are champions themselves. As 1992 Professional Diamond of the Year recipients, they know what it takes to win. ❑

Editor's note: The Diamond of the Year Awards are jointly sponsored by Beam Clay, sportsTURF Magazine and the Sports Turf Managers Association. Look for the College Division winner and profiles of the Major League judges next month.

Topdresser Maintenance

By Kevin Kyello

Of all the machines used in turf management, topdressers are among the most simple and reliable. However, even these durable, seemingly indestructible machines require some preventative and ongoing maintenance to stay in top shape.

In a sense, maintenance begins on the day you receive your machine from the distributor. Start with a visual inspection, examining all nuts, bolts and fasteners for tightness. Check all oil levels covering hydraulics and gearboxes, as well as all grease points for lubrication.

Operator Precautions

Be sure to read your owner's manual thoroughly prior to topdresser operation. Also, before loading your machine you should first operate it empty. Make sure all the parts run smoothly and quietly.

Most manufacturers recommend checking nuts and bolts for tightness before using the machine daily. Check for any alterations or machine conditions that affect safe operation.

Check tire pressure periodically. Some topdressers are ground-driven and it is important to maintain recommended tire pressure for proper operation.

Consult the operator's manual for maximum towing speeds, as well as maximum loading capacity of your machine. Also, make sure the towing vehicle has adequate power—and brakes—to handle the weight of the unit.

Preventative Maintenance

Topdressers are built tough, but no machine is indestructible. Storing your topdresser out of the elements will prolong the life of drive belts, chains and conveyor belts.

Your entire machine should be kept clean of all debris. Topdressers should be washed after every use. Pay particular attention to cleaning conveyor belts and other moving parts.

Keep all chains lightly lubricated with grease, oil or dry graphite. Maintain proper alignment of conveyor belts and chains. Proper tension of belts and chains is equally important.

Although topdressers are generally among the most low-maintenance turf management tools, consistent routine maintenance keeps them running efficiently and preserves resale value. Photo courtesy Dakota Peat & Blenders.

Periodically check tire pressure for the recommended psi. This will help prevent ground compaction caused by vehicle weight.

After checking the hourly maintenance guide in your owner's manual, lubricate the machine accordingly. If the topdresser does not have sealed bearings, make sure you grease them after every washing.

Periodically check all oil levels and change oil in accordance with your operator's manual. Make sure to maintain records of oil changes, as well as all maintenance performed.

Additional information can be found in the "trouble-shooting" section of most manuals. Reading this section thoroughly can save you valuable time in diagnosing problems should they occur.

The result of consistent, thorough, ongoing maintenance is an efficient, long-lasting machine. If worn or damaged parts are found during your inspections, replace them immediately. Remember, the level of any machine's performance, regardless of make or model, is directly related to the service it receives. Paying attention to regularly scheduled maintenance reduces operating costs while preserving resale value. ❑

Editor's note: Kevin Kyello is the assistant national sales director for Dakota Peat & Blenders.

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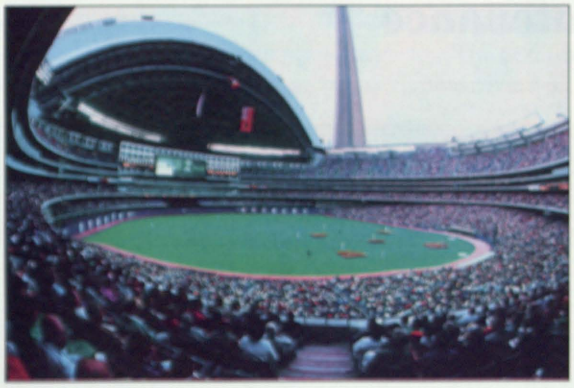

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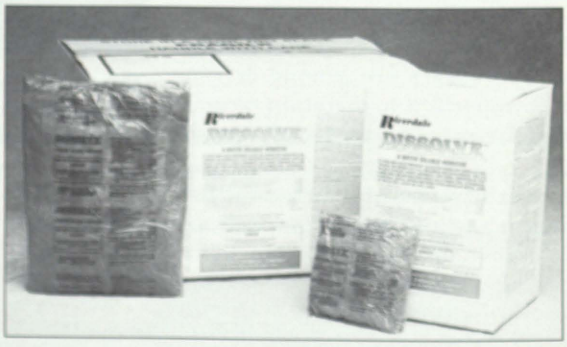

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