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T U R F G R A S S S E E D

Spring Topdressing

continued from page 20

and the elements.

- Helps reduce thatch buildup to ensure proper infiltration of water and fertilizers.

- Helps maintain moisture levels.
- Improves the rooting of stolons.
- Protects and insulates germinating seed and seedlings from excess heat and traffic injury.

An effective topdressing program requires light applications of material at frequent intervals, so that there's no development of layers, either of topdressing material or thatch. Proper topdressing will provide an excellent soil on which to maintain the field in the future.

Many errors in topdressing have a minimal short-term detrimental effect, but tend to have the greatest detrimental impact in the long-run.

Most sports turf managers topdress twice a year, in the spring and fall, following core aeration. Using a light application more frequently can be even more beneficial. Lighter topdressing applications can be made as frequently as once a month, depending on the field needs, turf type and condition, and the makeup of the topdressing mix.

Though topdressing offers many benefits, they must be balanced by the understanding of soil and topdressing compatibility. If the existing soil drains poorly and compacts easily, you may not want to topdress with the same soil, even though it would provide the greatest compatibility.

The same level of care when selecting and mixing materials during construction should be applied to the selection and use of topdressing materials. Talk to your local agronomist or consultant to determine the correct topdressing mix for your field needs. Don't just add something to the mix because you've heard it might be beneficial.

Precautions

Using a topdressing with a texture different than that of the existing soil carries a risk of layering. A surface layer can impede the movement of air, water, and nutrients in the rootzone.

Layering has been cited for disrupting decomposition processes in moist soil by creating anaerobic conditions, which result in black layer and other sub-surface problems. Surface water percolates down through a layer of well-textured surface soil to the heavier soil

Topdressing can help amend or augment the soil profile following aeration or modify the surface layer of soil.

below. The sub-soil becomes waterlogged, robbing bacteria and microorganisms of the air they need to properly decompose organic materials.

One way to avoid this problem is to aerify and then fill the holes created by aerification with topdressing material.

Soil/Sand Mixture Considerations

There's a preference to use sand, or a sand/soil-based mix for topdressing. Soil-based mixes may provide a better environment for maintaining adequate levels of desirable soil microorganisms, as well as water and nutrient relationships.

The makeup of soil/sand mixtures can only be identified after the sand content of the soil is identified. First, determine the sand content of the soil portion of the mix. Then the sand content of the entire blend can be determined by including the sand content of the soil with the sand that will be added to the soil. An appropriate mix might contain 80 to 90 percent or more of sand, even though the mix makeup is 70 percent soil and 30 percent sand. The additional sand would already be present in the soil itself.

The critical components of a soil-based mix are silt and clay. Research shows that approximately 10 percent silt, 5 percent clay is appropriate; that is, silt equals 10 percent and clay equals 5 percent of the total mix, which is a 2:1 ratio of silt to clay.

Even when standards have been set for the optimum topdressing mix for your field, test the mix prior to applications to ensure consistency among batches.

Sand Quality

Most agronomists prefer sand in the medium range. About 60 to 75 percent of the sand should be in the range of 0.25mm to 0.75mm. Coarser sand (1.0mm)

should be kept to a minimum. No more than 3 percent of the sand should be in the very fine range (0.05mm-0.10mm).

Generally speaking, the narrower the particle size range, the more pore spaces will be retained by the soil, and susceptibility to compaction will be lower. A sand with nearly equal percentages of each of the sand size ranges will be highly susceptible to compaction.

Sands with high silica content are preferred because they are hard and resistant to the effects of weathering. If possible, avoid using sands that have an appreciable amount of limestone-based materials because of the probability of pH problems.

Consider the particle shape of the sand (sharpness of grains).

Have the sand tested for pH, free carbonates, nutrients (including trace elements) and for the presence of soluble salts and other undesirable components before you buy or use it. Be sure the sand vendor can consistently provide the same size and quality of sand over the long-term. Keep in mind that sand used in topdressing should always be washed.

Straight sand as topdressing can change the existing water and nutrient maintenance schedule. Sand root zones require careful management and close watch on water. A good irrigation system is critical for sand-based athletic fields.

Topdress For Success

There are four prerequisites for an effective topdressing program:

1. Selection of quality sand or mix.
2. Application at the proper rate.
3. Application at the proper interval.
4. Evaluation of results, with adjustments as necessary.

The rate of topdressing application is determined by the time of year, temperature levels, and how quickly the material will be dragged into the field. For frequent, light topdressing, rates should range from 1/32- to 1/8-inch. It is not usually necessary to drag in these light applications.

After core aeration, a topdressing rate of 1/2- to 3/4-inch may be appropriate, depending on the size of the cores removed and the number of holes created by the process.

When topdressing to raise the level of a section of the field, the process should consist of several light applications over

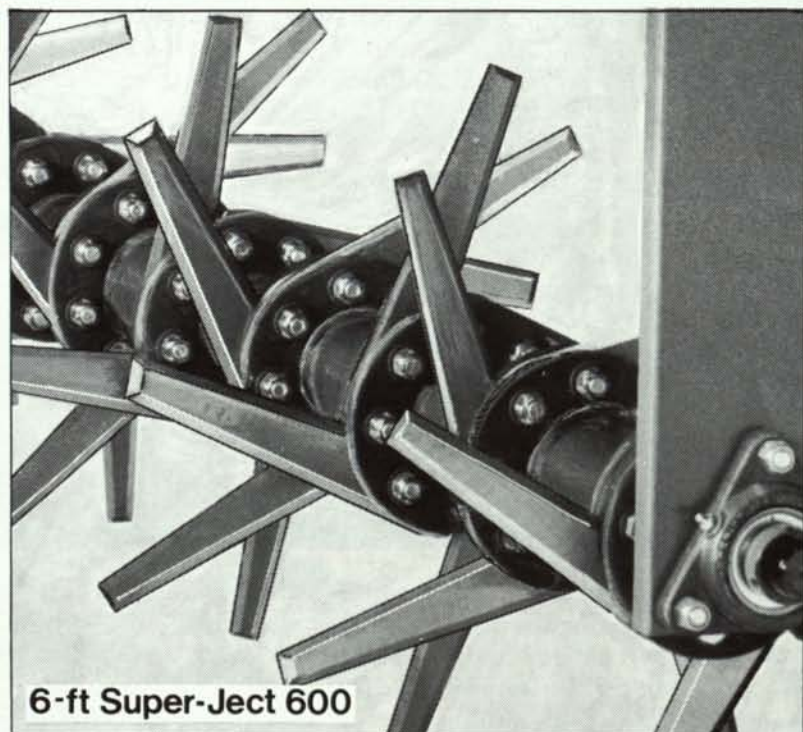
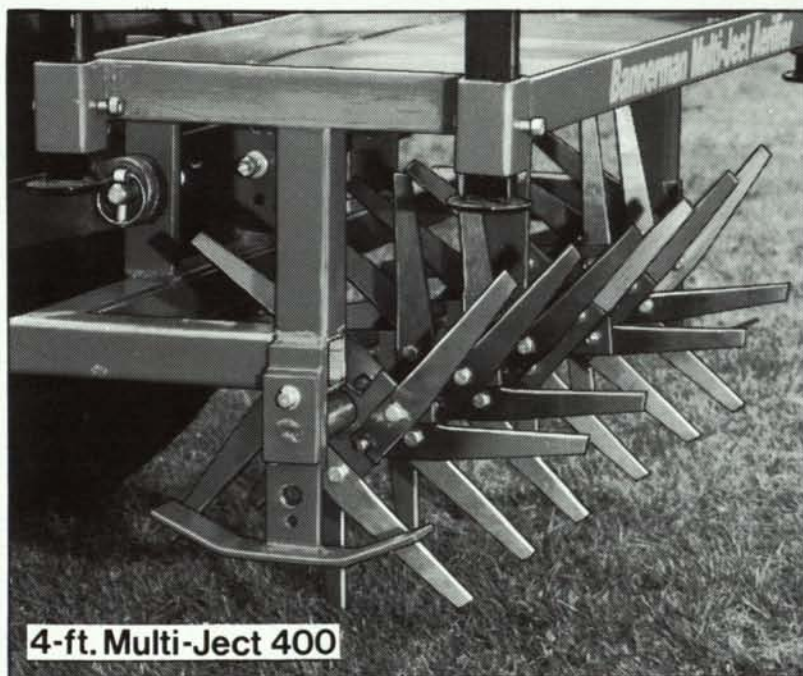
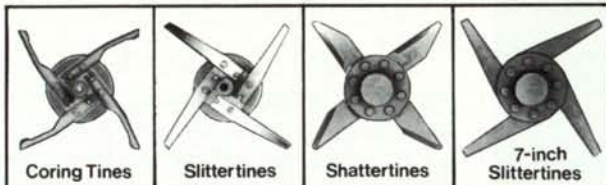
continued on page 28

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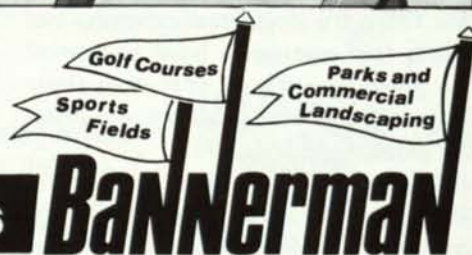
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Prevention Cures Irrigation Headaches

By Robert Healey



Your sports turf irrigation system should be treated like any other piece of equipment on site and given periodic inspection and maintenance to ensure proper operation. Often, the single most expensive tool sports turf managers have to control the growing cycle of turf are their irrigation system. Yet they are often the most neglected.

Mowers receive tender loving care; washing after each use, daily oil checks, greasing, reels lapped, blades resharpened or replaced, and often yearly paint

jobs. But irrigation systems into the ground until something breaks, then one hears of how bad the system is.

How long would your turf maintenance equipment run efficiently and effectively if all that you did was gas it up when needed? Would you be happy with the resulting cut or performance that these "non-maintained" mowers give, or their durability? Yet, this is how irrigation systems are often treated.

A primary incentive to committing to regular irrigation system maintenance is the dilemma of down time. When

your mowers are down they can remain down for a day or two. There are always the options of adapting other mowers to cut specific turf areas, borrowing equipment from a neighboring course or supplier, or purchasing a new machine. Rarely will any permanent turf damage occur because of a crippled mower.

However, if your irrigation system is "down" for even one day, there is the prospect of irreversible turf damage. Too often, the value of an irrigation system is not appreciated until it goes down. Sports turf managers must be equipped and prepared to limit these down times and bring their irrigation systems back on-line quickly.

Preparing for Failure

By identifying common areas and causes of down time, the superintendent is better prepared to curtail or circumvent system failure.

For example, pumps can fail mechanically, or lose power under storm conditions.

I strongly recommend having an emergency backup PTO pump if your system employs a pump. You should consider a PTO pump that will connect your tractor to your pump house, enabling you to bypass the down pumping system and, at a minimum, get water to areas that need it.

Another suggestion is to modify your irrigation system's isolation valves to minimize the area of the turf hung out to dry in the event a mainline pipe breaks.

Spare irrigation parts should be inventoried and maintained to handle the most common failures, so parts needed for any repairs are on hand. These parts include all sizes of piping and repair couplings, isolation valves, electric valves, quick-coupling valves, swing joints, fittings, concrete for thrust blocks, a spare satellite, a wire tracer, wire, wire connectors, a volt meter and other necessary parts unique to your system.

Finally, organize an irrigation inspection program. Learn to identify and repair malfunctioning irrigation equipment before it becomes a problem. During the busy season, an irrigation specialist should be monitoring irrigation functions daily. This technician should continually inspect the entire system as follows.

Checking Sprinklers

When inspecting sprinklers, use the following guidelines:

A—Check the coverage of full- or

part-circle heads. Be sure the sprinkler is covering the area of its intent. Measure radius of throw and be sure the head is turning completely. Ensure no surrounding plant material is blocking coverage, and trim these plants as needed.

B—Check disbursement at the nozzle or nozzles of each head. Note the nozzle pattern and look for clogging or clogged orifices. Minor problems can usually be handled in a few minutes by removing the nozzle, then cleaning and flushing the head and riser.

C—Use a Pitot Tube to check the discharge pressure of the nozzles and log the data for future reference and comparisons. If several heads in-line or in a group become weak or inoperative, a rock or other debris may have entered the line clogging a valve; or the piping may have sprung a leak. Follow your pipe layout plan, this helps to locate the probable area of trouble.

D—Check the sprinkler housing, particularly impact heads, and remove any sand, grass or other debris. Also look for damage.

E—Check the height of each head ensuring discharge is clearing the turf. Check the level of the turf and look for scalping around each head. Be sure the head is level.

F—Twice yearly, check the nozzle size using a drill bit to compare to the original size. Even brass nozzles will eventually erode and enlarge, thus changing flow rates, precipitation rates and coverage.

G—Check for weeping at all valve-in-heads and electric valves. Weeping usually indicates the presence of debris that should be removed. If this doesn't work, visually check the tubes or diaphragm and clean, blow out or replace as needed.

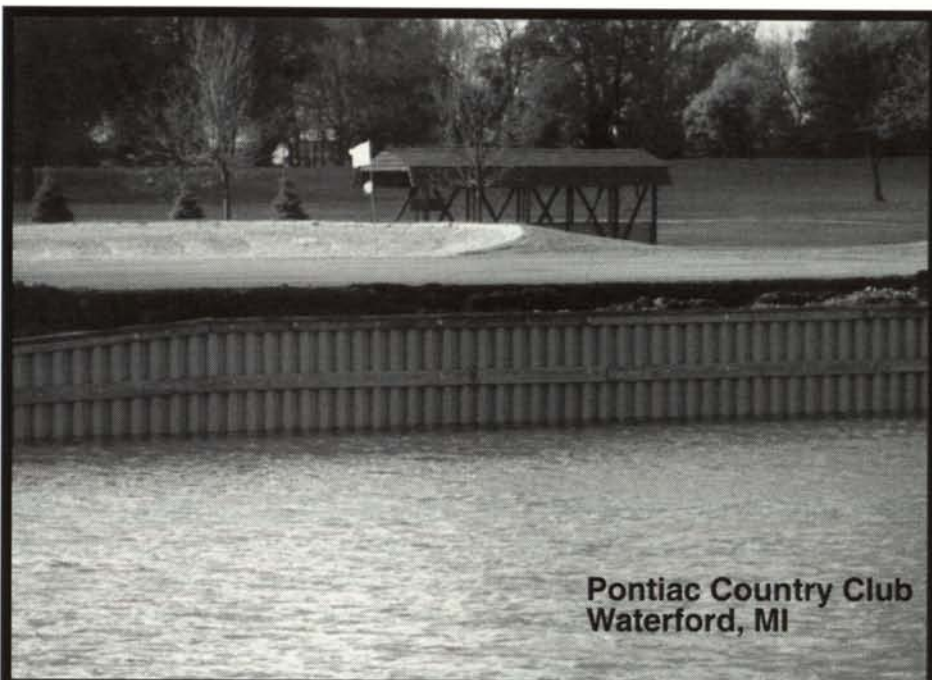
H—Check low heads for drainage. Drainage may indicate a valve is weeping or you may need check valves.

I—Check your satellite zones; review scheduling; look at the connections at the controller box and check for animal damage or insect larvae.

J—Log all work and keep records of nozzle sizes, pressure at head, radius of coverage and speed of revolutions (this is especially important for two-speed heads). Major changes in the time for one complete turn can indicate developing problems in the sprinkler.

Comparing these logged records can show the beginning of pressure and

continued on page 26



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Irrigation Headaches

continued from page 25

radius loss, and identify many other developing situations before they become serious problems. Good records can often identify trouble before a visual inspection can.

Checking Valves

When inspecting valves, use the following guidelines:

A—Check access to all valve boxes, where applicable.

B—Check flow controls.

C—Check all wire connections.

D—Check to ensure electric valves close and open, both electrically and manually. If a single valve doesn't open, check the solenoid, wiring or tubes. Check your plan for wire or tube route from the satellite, and track to locate a break or weak link (look at recent areas of construction or work). If the problem is electrical, it can be either the common or hot wire. Testing for continuity can help isolate the problem. If several zones are down, check the satellite for both input and output power. If the power is good, check the area to the first zone for damage to the hot or common wires. Again, target the areas of recent work.

E—Check all gate and ball valves to ensure they open and close, and all are clear of debris and accessible. Leaking

around the top of a manual valve indicates that the packing nut needs tightening. Leaking through the valve indicates that debris lies between the disc and seat, or the disc is damaged. Applying more pressure does no good. Open and close the valve several times to try and flush the blockage. If the valve is still leaking, open it, inspect the seat or disc, and repair or replace if needed.

F—Check the pressure setting on all pressure-regulating valves against logged data to ensure proper settings. A difference of five to 10 pounds can seriously affect intended precipitation rates.

Checking Field Satellites

When inspecting field satellites use the following guidelines:

A—Check connections.

B—Check grounding and test once or twice yearly.

C—Check irrigation schedules, and test manual operations of the zones that you checked that day.

D—Test for continuity, and voltage input and output from the satellite.

E—Check and remove larvae.

F—Test any rain, moisture or shut-off devices.

G—In northern climates, consider removing the satellites for storage during winter.

H—Have wire-tracking tools on hand to locate weak or broken wires.

Checking Pipes

Use these guidelines:

A—Traverse the pipe route looking for puddles, flowing water, wet spots, places where equipment suddenly scalped the turf and new lakes or ponds that may have developed overnight.

B—With help, activate zones and listen for sounds of water hammer or other unusual pipe noises.

Like any other piece of equipment, an irrigation system needs a scheduled preventive maintenance program for optimum operation. Proper use of your system, and proper procedures in daily maintenance inspections help keep the system running at peak efficiency. The time spent in a complete irrigation inspection, maintenance and preventive maintenance program will help ensure limited down times.

Again, your irrigation system is likely your most expensive and complex tool; treat it as such. With respect and care, you will be the benefactor over the years, and other sports turf managers will wish that they had a system like yours—one that never breaks down. □

Editor's note: Robert Healey ASIC-CID is an irrigation consultant and owner of Irrigation Management Services in Natick, MA.

Coliseum System Survives Quake

Damages are still being assessed at the Los Angeles Memorial, home of the Los Angeles Raiders and the University of Southern California Trojans, after the January 17 earthquake that caused widespread damage in Los Angeles and Ventura counties.

Despite damage to the upper portion of the Coliseum structure, officials at the facility were relieved that the first phase of a \$15 million renovation project completed last May, which included a new irrigation system survived the quake with minimal or no damage.

"The sprinkler system itself held up well," said Clayton Peet, director of operations for the Coliseum. "Once we repaired the mainlines, it worked fine."

Flexibility throughout the irrigation configuration was the key to preventing damage. Plastic pipes were

installed during the renovation last spring, and all the new sprinklers were equipped with swing joints. This combination reduced rigidity in the system and kept the equipment from cracking or splitting during the earthquake.

The plastic feeder lines to the controller, which sits atop a concrete pad, were intentionally given two to three extra inches to reduce rigidity. During January's vertical-motion earthquake, in which the ground moved up and down rather than rolling side-to-side, the loose lines stayed connected to the controller even though it is highly unlikely the controller moved in exactly the same ways as the field.

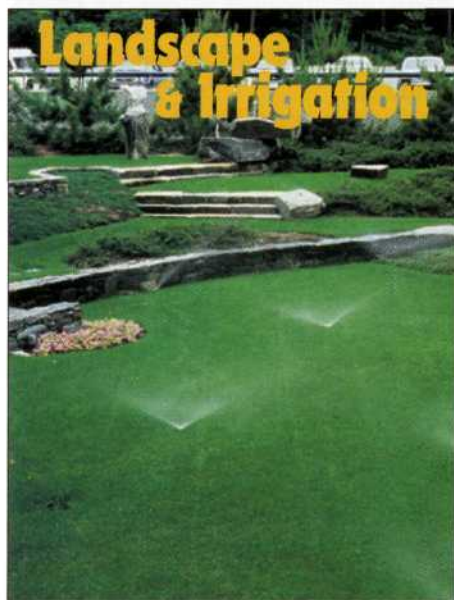
Jerry Nielsen, assistant general manager of the Coliseum, believes compaction of the irrigation piping with the sand under the playing field may have been another factor in the pre-

venting damage to the system. "The compaction occurred purposely during installation so the growing medium would produce a firm, playable field," he said. "That probably helped in keeping the system in place."

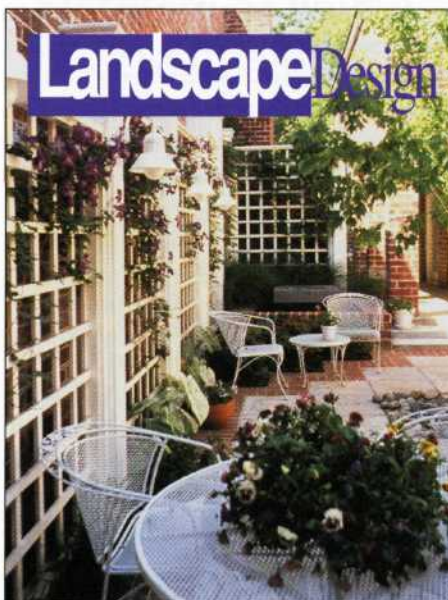
The extent of the damage to rest of the Coliseum is still being studied by structural engineers. During the first week of February, the Federal Emergency Management Agency appropriated \$10.9 million to the Los Angeles City Council for rehabilitation of the facility.

Until the Coliseum can be repaired and re-opened for public use, grounds crews will continue normal maintenance of the field. "We're in our winter mode right now, and we are certainly taking care of the field so we can be prepared to have an event whenever we're allowed," said Peet. □

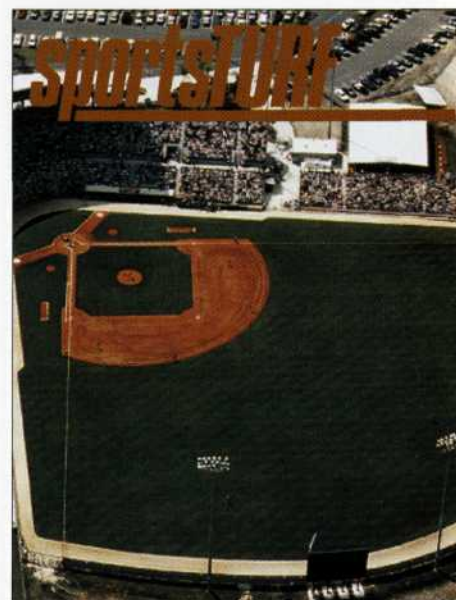
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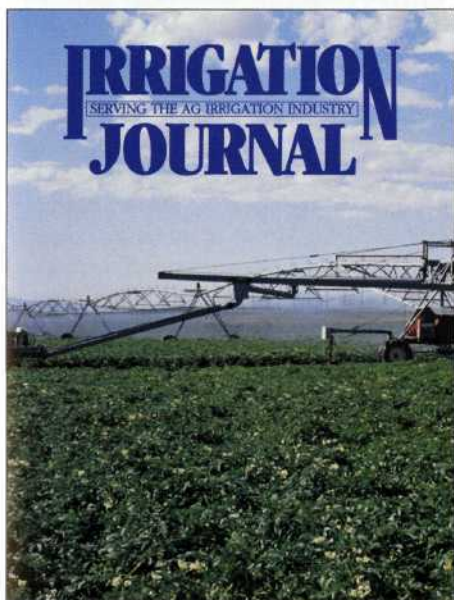
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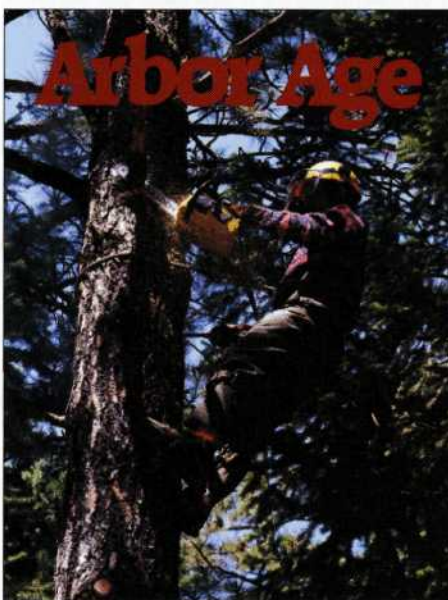
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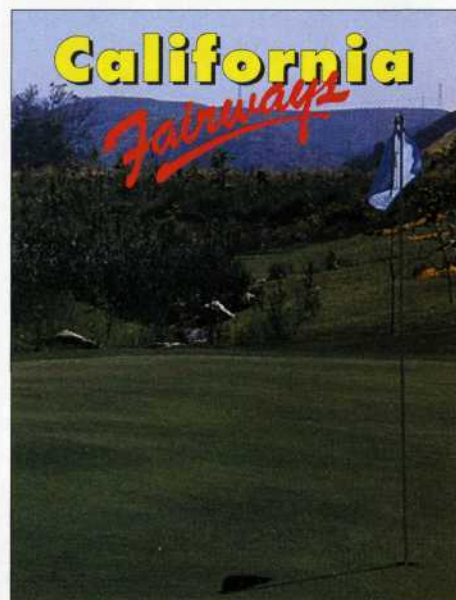
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Spring Topdressing

continued from page 22

a prolonged period. For example, a two-inch adjustment might best be handled over a two-year period, with no single application made at a rate at above 1/2-inch.

Topdressing success depends largely on the ability to control the amount of the application. Uniformity of application, accuracy, and reliability must all be considered when choosing topdressing equipment.

Sports turf managers should take core samples of topdressed areas regularly to check root growth, moisture, and compatibility.

The Bear Facts

*Ken Mrock, Chief Groundskeeper
Chicago Bears*

The winter of 1993-1994 has been hard on turf. Many cool season grass fields have faced extreme cold temperatures and drying winds, long periods of ice and snow cover, or both during alternating periods. Some fields entered the winter already stressed from overly wet or overly dry conditions. To minimize damage and create safe, playable conditions as quickly as possible, spring preparations will need to begin as soon as turf starts to break winter dormancy.

As soon as the soil is workable, core aerify at least two directions to relieve compaction.

If the field's existing soil structure is acceptable, the best seedbed and topdressing material is the same soil. Allow the cores to dry, then use a woven mental drag mat to drag them back in and provide a suitable seed bed. Any thatch debris should be removed from the field.

Pregerminating seed can speed the spring seeding process. For Halas Hall, the Chicago Bears practice facility, we pregerminate a 50:50 mixture of bluegrass and perennial ryegrass in 55-gallon drums. The drums are filled with warm water to which one-half to one pint of high-phosphorous liquid fertilizer has been added. The water is changed every day for five days. The barrels are drained on the sixth day and the seed is spread out to dry on a clean, concrete surface. We use the floor of the garage or, if conditions are favorable, the concrete apron adjacent to the garage. Drying time will depend on temperatures and humidity levels. With ideal outdoor conditions, the seed will dry sufficiently within one-half hour. Indoor drying will take longer.

Proper topdressing will provide an excellent soil on which to maintain the field in the future.

Once the pregerminated seed has been dried adequately, we add a small amount of our standard topdressing mix of calcined clay, shredded peat, sand and native soil to make uniform application easier.

If you decide to incorporate pregerminated seed into your spring seeding program, the next step is to broadcast the pregerminated seed and topdressing combination into any sparse areas of the field.

Follow this with applications of ungerminated seed in your preferred seed mix. Depending on the existing field conditions and the state of your turf entering the winter season, it may be best to increase your standard seeding rate. For example, we'll increase our seeding rate by one to two pounds per 1,000 square feet this spring to counteract damage to the existing turf caused by last fall's prolonged wet conditions. Where possible, use a slit seeder and sow the seed mix in two directions.

Next, apply a starter fertilizer with a high phosphorous content to promote seed development. We prefer to use a fertilizer formula that also has a relatively high nitrogen content to stimulate growth of the existing turfgrass.

As a precaution against pythium (damping-off), consider applying a pythium control product. Treatment for snow mold may also be necessary.

Our seeding process concludes with a light topdressing of our standard topdressing mixture on any areas that show winter desiccation. Because we use lightweight, perforated poly covers to protect the entire seeded area, this is all the topdressing that is needed. The covers act as a greenhouse to speed germination and seed establishment, keep the seed in place, protect the seed and young seedlings from washing out in heavy rains, and help encourage early growth from the existing turf.

For fields without access to such covers, a light topdressing, ranging from 1/32-1/8-inch, may be necessary to provide adequate protection for both the pregerminated and ungerminated seed.

Keep a supply of pregerminated seed available to fill in sparse areas and repair any damage caused by heavy spring rains. Apply a light topdressing as a protective covering over these spot seedings.

Irrigate as needed to keep the seed and young seedlings from drying out. This may require several light watering intervals throughout the day.

Monitor the growth of the existing turf during this period. If may be necessary to mow, following standard mowing procedures, before the new seed is established.

As the young seedlings mature, gradually adjust your irrigation program to the infrequent, deep watering pattern of mature turf.

Germination and establishment periods will vary with the seed varieties selected, the amount of pregerminated seed used, and the weather conditions. Once the young turf is well established, apply fertilizer containing slow-release nitrogen for sustained growth and a high level of potassium to improve hardness. And give the young turf as much time as possible to mature before subjecting it to the pound of play. □

Editor's Note: In addition to his responsibilities with the Chicago Bears' Halas Hall practice facility, their "McBubble" indoor practice facility, and Soldier Field, Mrock is currently a board member of both the national Sports Turf Managers Association and the Midwest Chapter of the STMA. Montague is an active member of the national STMA, as well as the newly forming Minnesota Chapter.

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Stetson University Using Reclaimed Water

Stetson University in Florida is now using reclaimed water to irrigate part of its 150-acre campus, a National Historic District. "We feel it is important from a conservation standpoint," said Graves Edmondson, Stetson vice-president for business and finance. "We are recycling wherever we can."

The City built a primary transmission main up to East Michigan Avenue, at the edge of campus, and Stetson is putting in the internal lines necessary to use it. The cost of the new lines is offset by the fact that Stetson will no longer have to maintain its pumps at the old well sites, which are expensive to repair or replace when they fail or are damaged by lightning. In addition, Stetson will save the cost of the electricity necessary to pump water from the old wells.

Reclaimed water is odorless and colorless; its quality is closely regulated by the state. The university's drinking water system, which uses city water, is completely separate from the reclaimed water lines, however.

New Certification Program for Turfgrass Professionals

At a November 17 press conference, the Professional Lawn Care Association of America (PLCAA) announced the availability of the new *Principles of Turfgrass Management* training course and certification program. The program, developed in conjunction with the University of Georgia, leads to the designation of Certified Turfgrass Professional. Structured a home-study, correspondence course, it covers 14 topics appropriate for all regions of the United States.

In addition, Georgia has become the first state to recognize the new certification program as satisfying its requirements for pesticide recertification credit.

Petry Elected President of STMA

Mr. Greg Petry, Superintendent of Park, Waukegan Park District, Waukegan, IL., was named president of the Sports Turf Managers Association at the professional society's Annual Conference and exhibition held in Baltimore, Maryland in November.

"I am extremely pleased and honored that the members have given me the opportunity to serve," said Petry. "I am looking forward to the coming year—the challenge of expanding member services and developing a strategic plan that will carry STMA organization into the 21st century."

Serving on STMA's board for three years, Petry brings nearly 15 years of sports turf related experience in parks and recreation, education development and programming and association leadership to STMA's top position. Petry founded the Midwest Chapter of the STMA in 1989, served on the Board of Regents for the National Recreation and Park Association, Midwest Institute of Park Executives and is a past Director of the Parks and Natural Management Section of Illinois Park and Recreation Association.

EPA Addresses Ground Water Contamination

As part of a regulatory initiative designed to address potential pesticide contamination of groundwater resources, EPA has provided states with guidelines for "*pesticides and groundwater state management plans*." Ultimately, EPA intends to require state management plans (SMPs) for certain specific pesticides to promote the environmentally-sound use of those pesticides that the Agency believes may otherwise pose an unreasonable risk to ground water resources. In short, the SMP approach will offer states the opportunity to allow continued use of a pesticide that would otherwise become unavailable due to EPA cancellation or lack of registration.

Consumption Tax Proposed

There are rumors that legislation will be introduced in congress to replace the current Income Tax with a consumption-type tax. It appears that Senators Sam Nunn (D-GA) and Pete Domenici (R-NM) are going to be the primary sponsors.

A consumption tax is basically a sales tax that is added to a product at each stage of manufacture and distribution. Depending on how it is structured, it can substantially impact most businesses.

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Exclusive contour-hugging design stimulates growth and incorporates seed and fertilizer. Adjustable penetration. Excellent for smoothing rough edges or preparing seedbeds in new construction. **Breaks up and scatters aerifier plugs without clogging!** 3-pt. lifts available. Sizes from 4' to 24'.

Call or write for details.
1825 West Hovey
Normal, IL 61761

800-682-6251

FLEXIBLE HARROWS

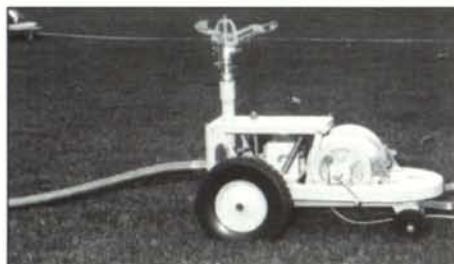
PARMITER

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ROOKIES

PRODUCT UPDATE

Traveling Sprinkler



The Rain Train by Pioneer is an easy, efficient method for watering athletic fields. It's ideal for groundskeeping departments not equipped with an expensive, high maintenance, underground sprinkler system. Just plug a 1-inch hose into the back, draw the guide cord to the end of the desired run, and turn on the water. Water pressure powers it down the field up to 200-feet. Adjustable speed allows light, moderate or heavy waterings in a single pass and an automatic shut-off triggers at the end of the run.

PIONEER MANUFACTURING CO.

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Fertilizer/Herbicide Combo

By using Par Ex® with IBDU® slow-release nitrogen to give turf a slow, predictable supply of nutrients—and combining the Par Ex with Barricade® pre-emergence herbicide—dependable, quality performance and season-long weed control is now within reach.

Par Ex is available in regionally-formulated blends for use in all climates around the country. And, when combined with pre-emergent weed control from Barricade, it gives turf professionals an environmentally-responsible way to meet their nutritional and weed control needs.

VIGORO INDUSTRIES, INC.

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Mid-Sized Topdresser

The model 75TD topdresser/spreader from Millcreek Manufacturing is, rugged, affordable, easy to operate and versatile. Featuring patented Power-Brush™ spreading action, the model 75TD applies a wide variety of materials to turf, including sand-and-peat top-dressing, compost and more.

The 75TD has a two cubic yard capacity, and operates behind a 24 horsepower compact tractor. It is PTO driven, with an engine drive option available.

It also incorporate high-density polyethylene flooring made from recycled milk cartons which Millcreek guarantees for 10 years.

MILLCREEK MANUFACTURING

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Grass Seed Blends

Confidence™ is a family of grass seed blends and mixes formulated specifically to meet today's environmental concerns. Each contains genetically advanced material—varieties that are endophyte enhanced, naturally resist common plant diseases, and perform well under a variety of climatic conditions. They achieve high levels of performance with reduced chemicals and irrigation.

ZAJAC PERFORMANCE SEEDS

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Soil Amendment

Profile, by Aimcor, is a porous ceramic aggregate engineered from illite clay, formed through the accumulation of porous volcanic ash. The clay is sized, kiln baked and screened. The result is a very stable, highly porous aggregate that is the approximate size of a medium sand.

The honeycomb structure and moisture and oxygen exchange characteristics make it a unique material. Profile not only improves infiltration, but absorbs excess moisture, slowly releasing it again as the soil dries. As water is absorbed, oxygen is forced from the pore spaces, bathing the root zone with oxygen.

AIMCOR

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Riding Mower

Walker introduces larger area mowing capability with a 62" side discharge deck. This is the largest deck offered for the mid-size Walker Tractor, fitting either the Model D, or Model T. It's designed for mowing rough areas as well as fine turf, using belt driven blades

and a reinforced deck housing. Also new for '94 GHS models is a power dump option for the grass catcher. Using a toggle switch, the operator dumps the catcher while sitting in the seat. The power dump may be factory or dealer installed on the Model D or Model T.

WALKER MANUFACTURING CO.

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Top Dresser



Ransomes America Corporation introduces the Cushman TD 1500 top dresser. When Mounted on the Cushman Turf-Truckster work vehicle, the TD 1500 can deliver high performance and time-efficient top dressing for greens, fairways or athletic fields. The large hopper cuts down the number of time-consuming refills, while the unique conveyor belt design ensures even coverage of top-dressing material. The unit can be operated from the driver's seat by using an auxiliary hydraulic control.

RANSOMES AMERICA CORP.

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Dethatchers

Easy Rake offers a complete line of spring-tine dethatchers for every application. The Easy Rake uses its patented spring tine design to pluck dead grass and thatch out of the yard without tearing or damaging the existing root structure. With its flexible tines it "combs" grass only 1/4-inch into the soil so it cannot penetrate into the root structure.

If you desire a more vigorous dethatching and aeration, try an Easy Rake vertical slicer which cuts into the soil with its hardened steel slicing knives.

EVERGREEN

INTERNATIONAL INC.

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