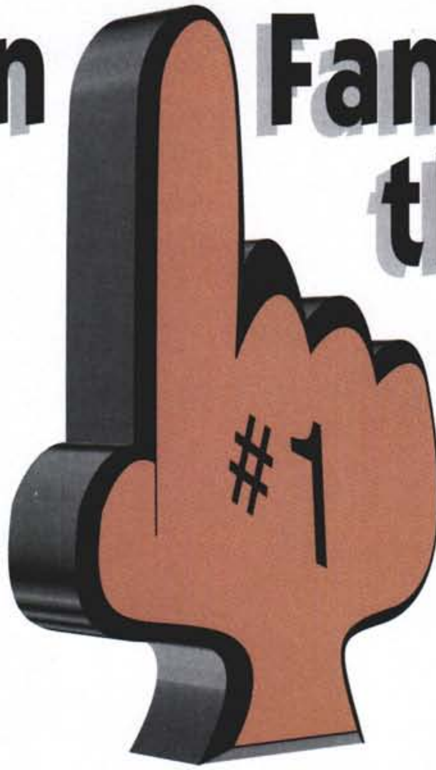
Category Blast Service

Use this new Category Blast Service to get FREE information on the products or service categories listed below which you are planning to purchase within the coming nine months. You will receive information, and possibly other follow up contact, from appropriate companies advertised not just in this issue, but throughout the year in ***sportsTURF***. Just circle the number(s) on the reader service card (opposite) corresponding to the product or service categories below and drop the card in the mail!

9001 **Aeration equipment**
9002 **Baseball Field grooming equipment**
9003 **Drainage**
9004 **Fertilizer / soil amendments**
9005 **Field covers**
9006 **Field marking paint / equipment**
9007 **Infield mixes**
9008 **Irrigation supplies**
9009 **Mowers**
9010 **Seed**
9011 **Site amenities**
9012 **Sod**
9013 **Turf equipment**

When Fans Take the Field



by Bob Tracinski

On September 17, 1998, over 107,000 people filled the stands of Neyland Stadium in Knoxville, TN, to witness that perpetual football challenge of the Southeast Conference: University of Florida versus University of Tennessee. When Tennessee squeezed out a 20 to 17 victory in the final seconds of overtime, the crowd swarmed onto the field.

Crew members protected the field's water canons by standing on the padded boxes that cover them during games, but they couldn't save the goal posts. Both came down, taking $110,000 CBS TV cameras with them.

"We thought once the goal posts were down, the crowd would clear out," said Bob Campbell, director of facilities for the University of Tennessee, "Instead, they went after the orange turf – the checkered sections in the end zones and the "T" in the center of the field."

When they couldn't pull it up by hand they used pocket knives, keys – whatever they could find to dig up chunks of orange-colored sod.

Once fans removed one segment of the sand-based field, adjoining sod became easier to scoop up. They carted it away, perhaps with the intent expressed by one souvenir seeker: "I'm gonna take it home and grow it."

Now what?

What do you do when fans take the field? If you're a professional like Bob Campbell, you thoroughly consider all the options, and the long- and short-term impacts of each.

When the field finally emptied at 1:30 am, Campbell and his crew surveyed the damage and weighed those options.

Most of the playing area was intact, but there were approximately 150 major holes in the end zones and at key spots at mid-field. The patchwork of holes averaged three to four inches deep, and ranged from a few inches to three feet across. The next game was six days away.

Luckily, the holes were scattered and surrounded by good, well-rooted turf. The crew immediate-

Souvenirs of Tennessee's victory left about 150 holes in the field at Neyland Stadium.
Courtesy: Bob Campbell

ly ruled out filling the areas with sand and covering them with regular-cut sod. There'd be little stability and nothing to anchor the patched sod.

They considered filling the holes with their sand medium and painting it to match the field, but decided areas that large filled with exposed sand would lack the stability to support play. Unfortunately, they didn't have a sod nursery on-site or a sod producer with a growing medium matching the field's soil profile.

They decided to use sod from under the players' benches to make the repairs. It seemed to be the only way to protect the field's integrity and stabilize the surface.

"The sod replacement was a trial and error process," said Campbell, "First, we used a square-point shovel to square off the edges of the damaged section before leveling out the bottom. Then we moved to the area beneath the benches and used the shovels to cut straight down, four to six inches deep, for sections of replacement sod.

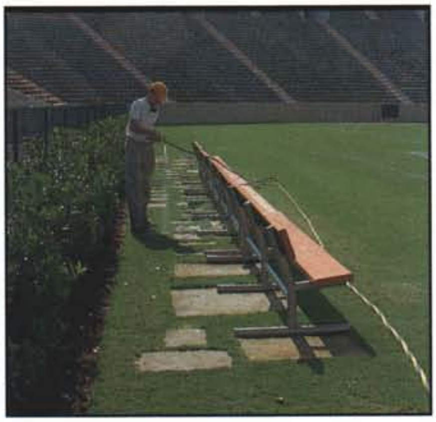
"We tried digging large blocks and cutting sections from it. But they were too heavy to handle, so we lost some of the soil medium in the process and didn't get the fit or stability we wanted. Then we found the solution.

"We'd square off a damaged area, then cut an identical matching section, ease it onto a piece of plywood, put the plywood on our utility vehicle, and bring it right to the spot. Then we'd slip the replacement sod in place, tamp it with the baseball mound tamp, and water it in.

"These pieces were an almost perfect fit and gained the stability of the surrounding turf mass. We set each section a bit high and then tamped and watered it into place to eliminate air pockets or low spots."

The crew worked until dark on Sunday. With the installed sections holding well, they continued the process all day Monday and until noon on Tuesday.

At that point, preparations and painting for Saturday's game became the priority. Only small holes remained and crews continued repairs on Wednesday, Thursday, and Friday.



Crews carved replacement sod from under the players' benches.
Courtesy: Bob Campbell

The crew had taken replacement sod from between the 25-yard lines on both sides of the field. They used topdressing mix to fill these spots, and then seeded them with perennial ryegrass. They overseeded the entire field with the same perennial ryegrass blend to counteract the damage, even though it had been overseeded a couple weeks earlier.

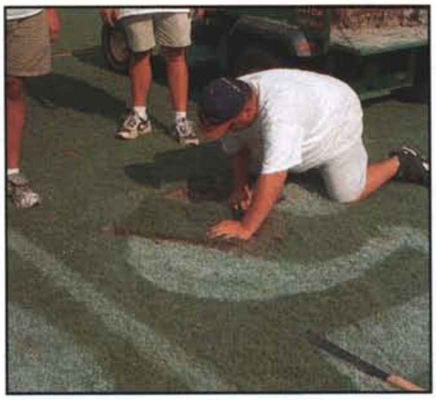
"Safety had always been our number one goal," said Campbell, "By Friday we felt the field was as safe as it could be. We did put some green pigment on it as a final touch up. The fence, bush, and stadium repairs also had been completed. You could only tell field damage had occurred if you knew where to look for it. And, we'd done nothing to challenge the integrity of the field."

The test

Play was the real test. But when the game was over, all the repairs had held and no player had slipped.

With three weeks before the next home game, crews fertilized the field, overseeded with more perennial ryegrass, watered, and mowed. No visible damage remained for the Alabama game.

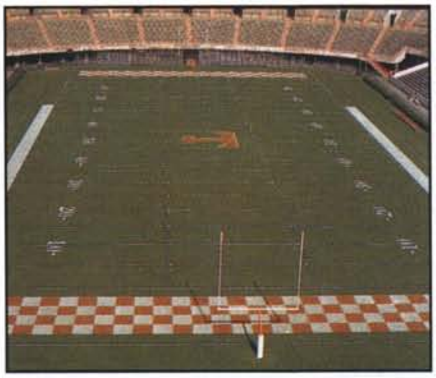
"This was a true team effort, in ideas and in execution, from our four full-time and six stu-



With another home game in one week, crews worked tirelessly to patch the holes.
Courtesy: Bob Campbell

dent crew members," Campbell said. "They worked through the baking sun and 90-degree temperatures, determined that the next game would be played here, on a good field. "Every situation is different. We were on the edge of the time line necessary to make the repairs with a process that protected field integrity. With just a little more damage, a less dedicated crew, or even a day of unworkable weather conditions, we'd probably have needed to strip a large portion of the field turf, install thick-cut sod, and deal with the long-range consequences. The bottom line is you've got to play the game and play it on as safe a field as possible.

"I think the field will look the same for fans and feel the same for the players. But with the repairs and all the compaction from that traffic, it will take a full season of extensive maintenance to get it back to its original condition." ❑



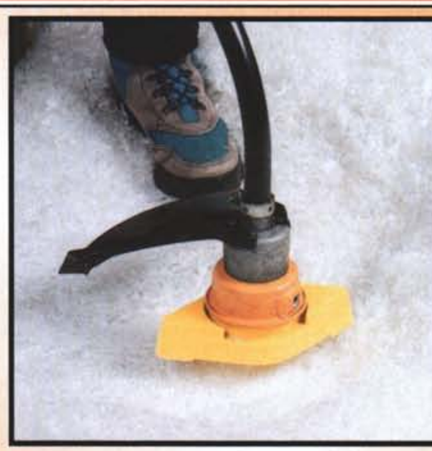
All of the patched sod held when game day arrived.
Courtesy: Bob Campbell

Bob Tracinski is business communications manager for John Deere in Raleigh, NC. He is public relations co-chair for the National STMA.

Grand-L 10 Series Refined for '99

Kubota's 1999 Grand-L 10 Series diesel tractor line features four models, each equipped with a Kubota E-TVSC diesel engine, newly developed transmissions, and redesigned cabs. Other features include: enclosed, hydrostatic power steering; optional enclosed auxiliary remote-control valves; and choice of PTOs.

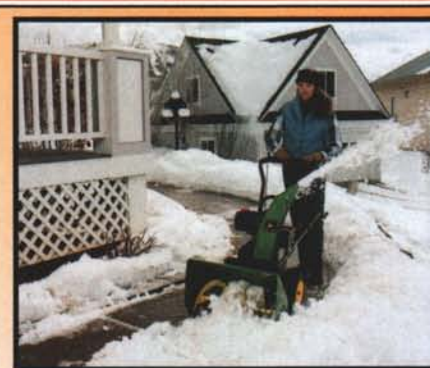
Kubota Tractor Corp.
Circle **200** on postage-free card



No more shoveling

The Sno-Buster fits 99% of gas-powered trimmers and it eliminates the back-breaking labor of snow shoveling. Glide the device from side to side while walking forward, and watch snow and ice disappear.

Grass Gator
Circle **201** on postage-free card

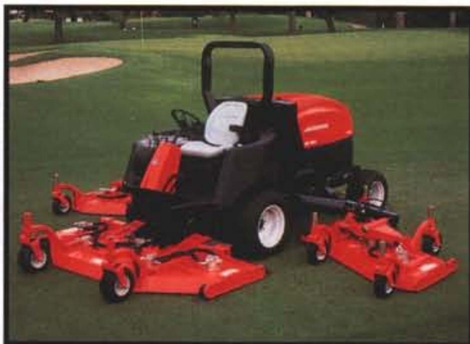


New snow blowers

John Deere's new 724D snow blower features a sturdy, mid-sized frame and a 24-in. cutting width. The blower's 7-hp. Tecumseh Snow King engine features overhead-valve design, a cast-iron cylinder liner, and automatic compression.

Also new this season, Deere's 5-hp. TRS22 (pictured) replaces the current 4-hp. model for extra strength.

John Deere Co.
Circle **202** on postage-free card

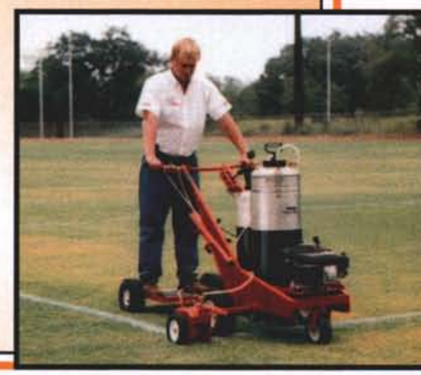


Turbo-powered mower

Jacobsen's HR 9016 uses three hydraulic, forward-mounted cutting decks to cut 16.5 acres per hour. Height of cut ranges from 1.0 to 5.5 in. Features include: Individual deck operation, foot-operated traction pedal, tilt steering wheel, top transport speed of 20 mph, and top mowing speed of 8.5 mph.

Textron Turf Care
Circle **203** on postage-free card

Liner features hydrostatic drive



Smithco's new Line Star field liner is self-propelled, powered by a 5-hp. Honda gasoline engine. Its hydrostatic drive eliminates problems caused by air compressors, pumps, belts, and chains. Paint pressure is supplied by a 20-lb., 1,000-psi CO_2 cylinder that will apply 400 gal. of paint.

Smithco
Circle **204** on postage-free card

Movement of Nitrogen Fertilizer in a Turfgrass System

by University of California-Riverside Research Team

Nitrogen (N) aids many plant processes and components. It's necessary for growth and development, appearance, and recuperative ability of all turfgrasses. However, its mobility makes N a potential environmental hazard.

In nitrate form, N won't bind with soil or organic colloids. It can move from the application site to ground/surface water or the atmosphere by leaching and runoff, or by volatilization.

Our study monitored N movement below the root system of cool-season turfgrasses. We looked at situations where N was applied at high rates and frequent intervals.

Methods

Turfgrass Research Project at the Agricultural Experiment Station of the University of California (U.C.) - Riverside provided study plots of mixed Kentucky bluegrass and perennial ryegrass.

We applied N at 2.5 lbs. per 1000 sq.ft. to Hanford fine sandy loam soil, and reapplied every eight weeks. We sampled the experimental plots through two consecutive application periods, and performed nitrate analyses with a Technicon Autoanalyzer II.

We used a randomized, complete block of 4-ft. by 6-ft. plots, and performed three replications. Weekly mowing maintained a 2-in. height of cut, and clippings were collected to limit thatch. Sprinkler irrigation replaced soil moisture according to estimates of natural evapotranspiration.

Our nitrogen sources included granular urea (46-0-0), sulfur-coated urea (SCU: 37-0-0), and blood meal (13-0-0). These sources are classified as soluble, slow-release, and natural organic, respectively. They represent a range of nitrate-leaching potential. An untreated control balanced the study.

We collected two samples from each plot every week using Irrometer lysimeters. Samples of tap water from the irrigation source and deionized water accompanied each batch of leachate samples.

Results

Granular urea provided the highest concentration of nitrate sampled. The concentration peaked 10 to 14 days after application. At no time did nitrate leachate exceed federal safety limits.

Sulfur-coated urea treatments demonstrated significantly less leaching of nitrate than urea during peak leaching times. SCU regularly showed more evidence of leaching than blood meal and the untreated control, but there was no significant difference among the three treatments at any rating date during the study.

Even at very high N fertilization rates, there was little probability of significant nitrate leaching from any of the tested sources. Only urea gave levels that were above tap water content, but these readings still fell below federal guidelines.

Discussion

Other studies found similarly low levels of N leaching. A Michigan State University researcher recovered less than 0.2% of applied N below the turfgrass root system. The N he detected was well below the drinking water standard.

A Nevada study reported a total leachate loss of 1.0% or less for tall fescue and bermudagrass turf, and another study at Cornell University found minimal N leaching.

In contrast, a Washington State University study found that nitrates could leach from newly constructed sand putting greens in golf course applications. In this creeping bentgrass study, leaching was strongly tied to N application rate, and was strongly modified by rooting medium and application frequency. N leached more from pure sand than from a sand-peat medium.

Leaching was much greater in the first year of the study than in the second, possibly due to more extensive rooting in the second season. Modified-sand rooting medium, moderate levels of total annual N, and frequent applications produced the lowest leaching loss (3-5% annually).

Studies show further that gaseous loss of N can be minimized by applying water immediately after application. This ionizes ammonia that can be produced by rapid mineralization, and prevents it from escaping into the air.

Gaseous N loss can also result when microorganisms chemically reduce nitrate. This produces elemental nitrogen and nitrous oxide gasses. Further research is necessary to explore this phenomenon.

Fertilizer nitrogen applied to a dense, mature, well-maintained turf is normally used rapidly by the turfgrass plant and soil microorganisms. There appears to be little chance of downward movement of nitrogen other than on pure sand with immature turf present. The following cultural practices help minimize potential leaching:

- Water-in fertilizer immediately following application.
- Do not over-apply N.
- Use low application rates or slow-release sources on sands.
- Avoid over-irrigation directly after application. ❑

University of California Researchers Victor Gibeault, Marylynn Yates, Jewell Meyer, and Mathew Leonard contributed to the study. Their complete report is published by the University's Cooperative Extension in California Turfgrass Culture Vol. 48, Nos. 1 and 2.

Product Spotlight

Compact Utility Tractors

by Bob Tracinski

Maintaining playing fields and surrounding park grounds is an ideal application for compact utility tractors (CUTs). The versatile machines mow, dig, till, and move materials, and they can grade, level, and smooth play areas.

Not every CUT is the same. They all share the same multi-purpose utility, but different CUTs have distinct capabilities that make them particularly suitable for individual jobs. Taking time to determine what size CUT is best for you is the first step in making a worthwhile investment.

Factors to consider

Most manufacturers offer both gear and hydrostatic transmissions. Hydrostatic transmission has generally been a better choice if tasks require a front-end loader. It allows you to shift easily from forward to reverse without a clutch.

Ergonomics is also an important factor. A comfortable work station reduces operator fatigue on long jobs. It increases morale and productivity.

Available attachments will also factor into your choice of CUT. Most machines include a front-end loader. Mowers, rotary cutters, box scrapers, backhoes, and rear blades are some other popular attachments. Tillers, cultivators, rotary brooms, harrows, posthole diggers, flail mowers, and snow blowers are also available.

Material collection systems are common in many grounds maintenance applications where clippings can't be left on the turf. A CUT with a rotary mower and a material collection system can make short work of time-consuming, labor-intensive jobs.

The bigger the better?

Your horsepower needs depend on the kinds of attachments you typically use. A 20-horsepower CUT can operate a 60-inch rotary mower, but to operate a 60-inch rotary tiller or heavy-duty turf aerator, your CUT will need to be at least 30 horsepower. For operations that require you to use two or three attachments at once, a 40-horsepower CUT may be needed.

CUTs with high horsepower support larger attachments. They generally perform jobs significantly faster than smaller models. Operating at the same ground speed, a seven-foot mower designed for a 30-horsepower CUT will cut grass about 40-percent faster than a five-foot mower on a 20-horsepower CUT.

Increased power doesn't necessarily equal increased output. The size that fits your needs will be determined by the amount of work you have to do, the size of individual jobs, physical locations, variety of attachments, and speed. ❑