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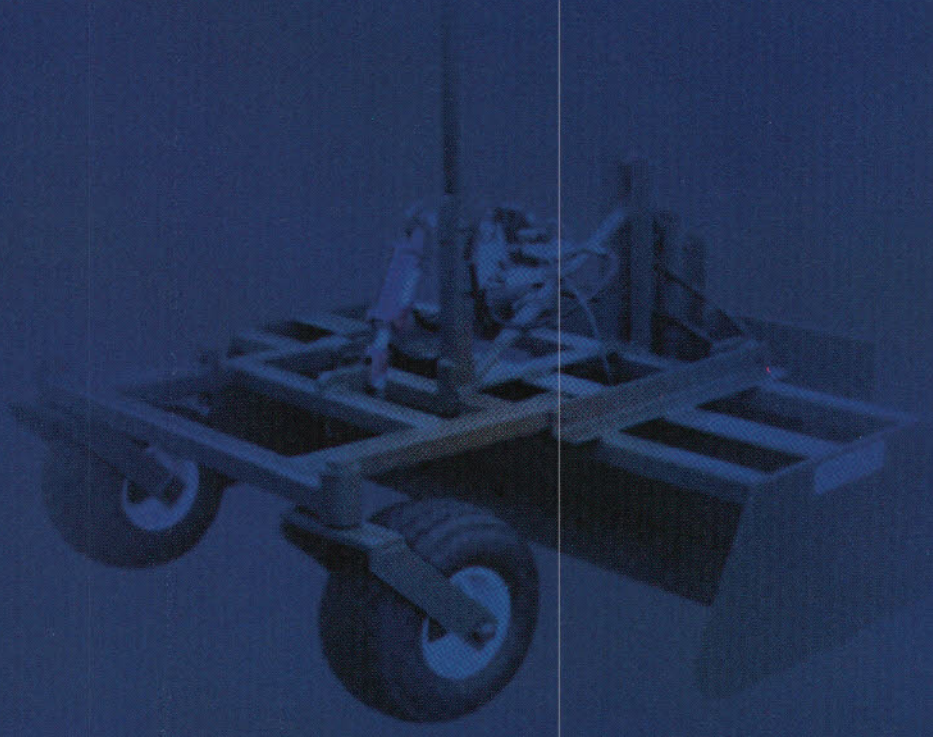

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John Mascaro's Photo Quiz

Can you identify this sports turf problem?

Problem: Dark square under soccer line
Turfgrass Area: Soccer Field
Location: Southeastern United States
Grass Variety: Bermudagrass

Answer to John Mascaro's Photo Quiz on Page 31

John Mascaro is President of Turf-Tec International

flowers in the spring through late summer).

The first step in doing this is to take a critical look at the overall condition of our field and correct any problems that exist on site. One of the most common problems with athletic fields are poor soil physical properties. Anything that can be done to improve soil drainage should be implemented prior to interseeding. If you don't do this you can expect more of the same to show up in years to come, and again stress our turf into nonresistance.

Next you need to set up a realistic budget targeted to correct these problems on site. Follow this by evaluating all species and varieties on site, as well as evaluating your local seed source, and cross compare this information against local NTEP information. These evaluations will give you the greatest long-term solutions on your field.

This is a critical part of the program, for the blend or mixture that we plant is no better than your weakest variety. As time goes on, for instance, if one variety is susceptible to a certain disease pattern, then all varieties in your formulation will become susceptible.

Also look for grasses that match color wise, are adaptable to current mowing and nutrient regiments, and offer strength to maintain themselves against the problems of disease, high traffic, high heat, and cold tolerance.

From a local perspective I like to use high chlorophyll content varieties. In recent NTEP studies, these performers have shown the strongest resistance to the day-to-day problems that most athletic fields go through in the Midwest.

One of the final steps is deciding when to seed. In the past seeding in the fall was the accepted norm. It gave the best chance for survival to young seedlings, especially on fields that had minimal irrigation capabilities. It was a time, except for football, when play was the least disrupted. Unfortunately, this is a time when grasses like Poa annua are at their strongest. If we are to compete, as mentioned before seeding on all athletic fields must be done on a regular and frequent basis. Any time the field is not in use, seeding with updated equipment designed not to disrupt play should be considered.

Determining rates

After timing, reconstruction, varieties, and species are selected, the next step is determin-

Field mowed at 1/2 inch, Eldridge, IA.

Rootzone of Eldridge, IA field.

Placing seed at moisture levels.

ing seeding rates. Current studies have shown another change on the horizon.

One study compared common standards of seeding rates versus higher seeding rates of new aggressive varieties (5-10 lbs. per 1000 sq. ft. with bluegrass and 10-25 lbs. per 1000 sq. ft. with ryegrass). The studies were conducted throughout the year with lowered mowing heights, and growth regulators being applied in conjunction with the interseeding programs. The higher seeding rates showed vast improvements in rates of establishment. If for any reason young seedlings are lost, reestablishment can occur from the seed bank established from higher seeding rates.

Once seeding rates are established, the next step in the process is placing the seed where moisture levels are the highest. In the past the practice has been to place the seed no deeper that three times the thickness of the seed into the soil. Unfortunately, most of the seed never came into contact with the soil at these shallow depths. Often we ended up placing the seed directly into the mat layer where young seedlings would dry out, die, and other species would take this opportunity to prevail once again. **It is imperative that seed is placed below the mat layer.** This will insure successful seeding and establishment. Placing the seed below the mat layer becomes critical to the success of the project. There are three things necessary for proper establishment of all species on site:

- Light
- Moisture
- Air

Reducing the height of surrounding plants for at least four to six weeks can give the added advantage of light and air to all young seedlings. Moisture will be up to you and Mother Nature.

Interseeding works if you are able to rethink and follow new guidelines for successful establishment. There are some superb varieties available today, and if incorporated into a successful overseeding program, improved stands of existing turf are possible without the disruption of total renovation. The long-term results equate to reduced maintenance and improved playing surfaces for all. ■

Mark G. Grundman is the senior technical manager for Jacklin Seed, and a member of the Wisconsin STMA chapter as well as the national association.

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Tailoring contracted maintenance to fit municipal needs

By Brad Park

Due to increasing labor costs, the need for specialized equipment, and the lack of adequately trained personnel, municipalities throughout the Garden State are increasingly relying on commercial contractors to apply pesticides, fertilizer, and lime, perform aerification, and conduct overseeding on sports fields.

Municipal administrators are often provided with a one-size-fits-all maintenance plan developed by contractors that involves redundancy, poorly timed applications, use of unadapted turfgrass species and/or varieties, and applications of nutrients and lime without soil testing.

Municipalities are challenged to maintain safe playing surfaces under intense field use and, combined with heightened public concern over pesticides applied on municipal properties, it is imperative that contracted maintenance plans be site-specific. These plans ensure that cultural practices are such that good turfgrass cover can be maintained and that pesticide applications are part of an integrated pest management (IPM) program.

New Jersey case study

An elected municipal official contacted me in the summer of 2006 to evaluate a maintenance plan provided by a contractor. This plan had been in place for several years on a high profile sports field. The municipal official wanted to determine whether the protocol for the field should be continued or adjusted for 2007. Furthermore, a similar plan was needed for a neglected field in the municipality.

Soil testing had not been performed recently on either field and the protocol submitted by the contractor did not provide for it. Thus, applications of fertilizers containing phosphorous (P) and potassium (K) as well as lime were being made in the absence of soil testing (Table 1).

Soil samples from the two municipal fields were analyzed by the Rutgers Soil Testing Laboratory with results indicating that soil P and K were 286 and 359 lbs/acre, respectively, and soil pH was 7.7 for the high profile field (Figure 1). The repeated applications of complete fertilizer (nitrogen [N], P, and K) and lime increased soil P, K, and soil pH to above-optimal levels.

In contrast, soil test results for the neglected field indicated below-optimal soil P and K levels (11 and 134 lbs/acre, respectively), and an acidic soil pH (5.2)(Figure 2). Additionally, soil calcium (Ca) was below optimal (1291 lbs/acre) and soil magnesium (Mg) was in the optimal range (254 lbs/acre).

As a result, the revised maintenance plan does not specify routine applications of P, K, and lime to the high profile field; however, the plan does allow a complete starter fertilizer at the time of overseeding (Table 1). The new fertilization plan focuses on N to ensure adequate turfgrass growth and recovery. The revised plan for both the high profile and neglected fields specify applications of a 30% water insoluble nitrogen (WIN) fertilizer. This is a more effective method of applying N at a rate of 1.0 lb N/1000 ft^2 compared to a completely water-soluble N source. Fertilizer and lime quantities

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Figure 1. Soil Test Results: High Profile Municipal Field

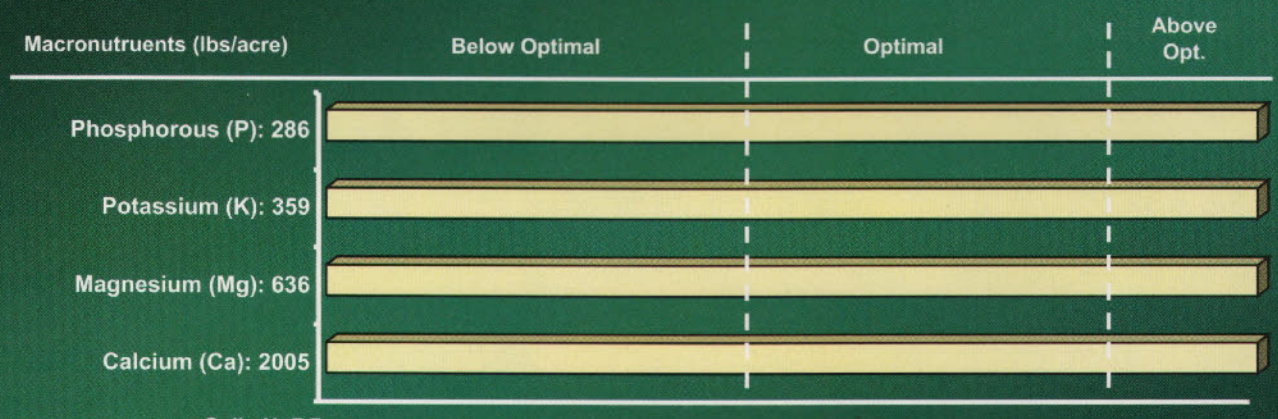
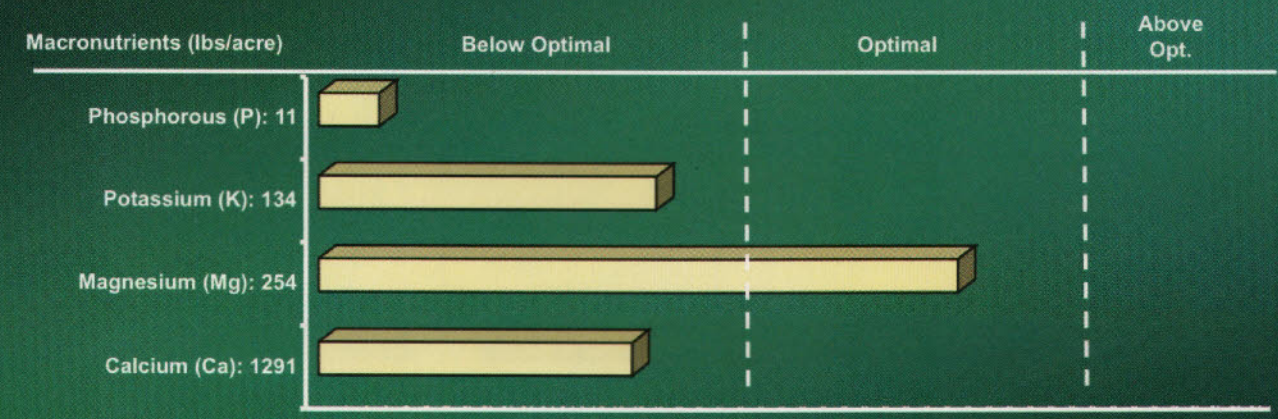


Figure 2. Soil Test Results: Neglected Municipal Field



for the neglected field were based on recommendations made in the soil test reports. Calcitic lime (as opposed to dolomitic) was specified for the neglected field as the soil test indicated soil Ca to be deficient.

Addressing pesticide applications

The initial contract specifications called for four applications of a broadleaf herbicide between late spring and early fall (Table 1). The initial contract did not, however, provide for preventative control of white grubs. In recent years, New Jersey sports fields have been decimated by white grubs and animals that forage for grubs in early fall; thus, new specifications that replaced redundant broadleaf applications with a preventative white grub control application was clearly justified.

The initial contract plan for preemergence crabgrass control did not fit the municipality's needs given the differences in turfgrass cover present on the high profile and neglected fields. The high profile field had been re-established with sod within the last year and turfgrass cover was greater than 90%; thus, a preemergence herbicide applied in the spring made sense because spring overseeding was not required (Table 1). However, the second (split) application specified in the initial plan was eliminated because of perennial ryegrass overseeding scheduled for late summer, taking note that the preemergence herbicide label stated that overseeding was not recommended until 4 months after a split application.

In contrast, the neglected field had less than 50% cover and a spring overseeding was needed; therefore, a preemergence herbicide that

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Table 1. A contracted maintenance plan that included redundant herbicide applications and fertilization without soil testing was amended to include site-specific practices to better suit the needs of a New Jersey municipality.

Original specifications provided by contractor		New specifications for High Profile Field		New specifications for Neglected Field	
Early Spring:	*Preemergence for crabgrass control*	**Early Spring:**	*Core aerification*	**Early Spring:**	*Core aerification*
	Complete fertilizer (N, P, and K)		*Preemergence crabgrass control*		*Perennial ryegrass over seeding at 6.0 lbs seed /1000 ft2*
Late Spring:	*Preemergence for crabgrass control*		*N Fertilization: 1.0 lb N/1000 ft^2; 30% N WIN*		*Fertilization: 12.5 lbs 8-20-10 + 1.5 lbs 0-0-50/1000 ft2*
	Complete fertilizer (N, P, and K)	**Mid Summer:**	*Preventative white grub control*		*Calcitic Lime: 50 lbs/ 1000 ft2*
	Broadleaf weed control	**Late Summer:**	*Core aerification*	**Early Summer:**	*Postemergence application of quinclorac (Drive ®) or fenoxaprop (Acclaim® Extra) for control of crabgrass*
Early summer:	*Complete fertilizer (N, P, and K)*		*Perennial ryegrass overseeding at 6.0 lbs seed/1000 ft^2*	**Mid Summer:**	*Preventative white grub control*
	Broadleaf weed control		*Complete starter fertilizer (N, P, and K): 1.0 lb N/1000 ft^2*	**Late Summer:**	*N Fertilization: 1.0 lb N/1000 ft2; 30% N WIN*
Late summer:	*Broadleaf weed control*	**Early Fall:**	*N Fertilization: 1.0 lb N/1000 ft^2; 30% N WIN*	**Early Fall:**	*N Fertilization: 1.0 lb N/1000 ft2; 30% N WIN*
Early Fall:	*Broadleaf weed control*	**Late Fall:**	*N Fertilization: 1.0 lb N/1000 ft2; 30% N WIN*	**Late Fall:**	*N Fertilization: 1.0 lb N/1000 ft2; 30% N WIN*
Late Fall:	*Complete fertilizer (N, P, and K)*		*Spot treatment of broadleaf weeds*		*Spot treatment of broadleaf weeds*
	Aerification & Overseeding		*Soil test*		*Soil test*
	Lime				

would negate overseeding efforts could not be recommended. Given the history of the field and prevalence of crabgrass, it was determined that a postemergence herbicide applied in early summer was the best option for crabgrass control. The labels for quinclorac (Drive) and fenoxaprop (Acclaim Extra) require 28 days between emergence of perennial ryegrass and herbicide application.

Choosing turfgrasses for overseeding

Municipal Department of Public Works employees described the annual overseeding conducted by the contractor as unsuccessful. While intense field use contributes to the difficulty in maintaining turfgrass cover, the use of turfgrasses not adapted for sports fields only compounds the problem. Records provided by the contractor to the municipality indicated that the seed used for overseeding was comprised of nearly 40% annual ryegrass and 20% creeping red fescue by weight (Table 2). The mixture did contain perennial ryegrass and Kentucky bluegrass but the varieties were not stated.

The lack of overseeding success was at least partially attributed to this seed mixture. Annual ryegrass is a poor choice for sports field use given the expectation for perennial turfgrass cover. The poor traffic tolerance of creeping red fescue also makes this seed mixture a poor choice for these municipal fields.

Because heavy use on the neglected field was anticipated soon after spring renovation procedures, perennial ryegrass was the only species that could be used successfully. The slow establishment rate of Kentucky bluegrass and tall fescue make the successful use of these species unrealistic for this field. Additionally, the rapid germination and establishment rate of perennial ryegrass is highly desirable for a spring seeding to compete against simultaneously germinating summer annual weeds.

Fortunately, the municipality was willing to close the neglected field during the spring to aid turfgrass establishment. Field use was to be transferred to the high profile field; thus plans for the greater-than-normal use on the high profile field were needed. Consequently, overseeding in conjunction with core aerification was scheduled in late summer on the high profile field (Table 1).

A commercially available perennial ryegrass seed blend that contained the traffic tolerant varieties "Citation Fore" and "Manhattan 4" was located (Table 2). These are top performing perennial ryegrass varieties based on tests of simulated wear and compaction in Rutgers turfgrass trials during 2002-2003. Gray leaf spot disease can devastate young stands of perennial ryegrass; therefore, it was necessary to consider gray leaf spot resistance in variety selection. "Paragon GLR" perennial ryegrass was recommended for the seeding blend since this variety has good resistance to gray leaf spot, and the variety was available at a local distributor.

It was strongly recommended that the municipality assume responsibility for overseeding these heavily trafficked fields with the perennial ryegrass blend mentioned and that over-