Compost for turfgrass: multifaceted organic ally

BY **MARK HUSSEY AND CHRIS HARRISON**

Creating a strong, healthy, durable turfgrass for a soccer field is no simple matter. Because that ideal surface is so difficult to achieve, turf managers are really part of what should be called a solutions industry. At New England's largest public recreational area, compost is one of those solutions. It saved Mike Cabral, assistant public works manager for the Massachusetts Development Complex at Devens, $38,000 and gave him a better field, too.

Tally up the obstacles turf managers and supervisors have to face year round: too much moisture or too little; manipulating soil pH and quality with amendments; "going for the green" while respecting nature's complex climatic shifts—all this while having to keep the environment safe for human recreational use.

There are other challenges in the pursuit of turfgrass perfection. But what if there was a substance capable of addressing many of these issues at once? Well, there is. Cabral will tell you it is compost.

Devens is the former site of the famous Ft. Devens military base, which closed in 1996. Mass Development's 13 contiguous soccer fields on 44 of those acres (Rogers Field, officially) comprise the largest public recreational venue in New England.

"The word really needs to get out . . . the results we've seen with our compost plan have been excellent, and it just keeps improving as the years go by," Cabral says. "This season, in fact, conditions have been so favorable, we have not had to use any broadleaf prevention, or any pre- or post-emergent whatsoever so far."

Cabral's enthusiasm for compost-as-turf manager's ally spikes when he begins trotting out statistics that illustrate a huge positive economic impact: "In 2001 we were spending $75,000 for fertilizers and chemicals. Meanwhile, water usage was 3 million gallons a year and we seeded three or four times per season or more. In 2004, directly due to the incorporation of compost, our fertilizer and chemicals expenditures dropped to $28,000. Simultaneously, our water volume needs fell by nearly 2.5 million gallons," he says.

"We also were able to reduce seeding by roughly two thirds. All told, we experienced a $38,000 saving in our budget from previous years by going with a compost topdressing program," Cabral says. "The fields at Devens are heavily used for not only for soccer, but for lacrosse, field hockey, Ultimate Frisbee and other sporting events. And the truth is, those fields have never looked better."

Kathy Wiberg, recreation director at Devens, echoes Cabral's optimism, observing that the playing field surfaces are clearly more stress-resistant than she's ever seen at Mass Development.

"The turf will not brown or burn nearly so easily as it used to do; the fields are

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more vibrant, the grass looks, and is, obviously stronger and healthier. There's basically no comparison, then vs. now. Considering these fields are non-irrigated, the results with compost have just been outstanding."

The reasons for Cabral's compost program success at Rogers Field/Devens are many, and worth examining one at a time.

The type of compost selected for the Rogers Field includes decomposed wood chip shavings. The sponge-like quality of this mulchy compost boosts moisture retention efficiency, thus allowing root systems to absorb all the water that turf requires. Such water retention is a key factor at Mass Development, since the coastal soil of eastern Massachusetts is sandy, and vital nutrients do leach away in the absence of compost.

Another direct benefit of compost utilization: improved soil structure, porosity, and density for an all-around better plant root environment. When turfgrass roots are able to absorb more naturally occurring soil nutrients more easily, the need for amendments (synthetic or otherwise) will decrease. Due to compost topdressing, there's an abundance of nutrients for those turfgrass roots to absorb in the first place. Compost is not classified as a fertilizer, yet as a soil enhancement, it introduces vast numbers of helpful microbial organisms directly into soils where applied.

Among these microbes are specific fungi that work symbiotically with plant roots to aid in the extraction of nutrients from soil.

It should be noted too that compost, rich in organic content, encourages the proliferation of helpful earthworms in sub-surfaces beneath and betwixt root systems. Tunneling worms increase water infiltration and aeration, further boosting turfgrass well being.

Yet another advantage of compost topdressing is natural weed reduction. When the general health and resilience of turfgrass is on the upswing, weeds have a harder time taking root and thriving. The 2005 Spring season experience cited by Mike Cabral of not needing pre-emergent or post-emergent broadleaf sprays would seem to bear this out.

Another point of emphasis for Cabral is the fact that only a quarter or a half-inch of topdressing is required to get the impressive results seen at Rogers Field.

"You don't need to go crazy with this stuff, more is not going to necessarily going to be better. In fact it definitely won't be better. Just the one thin layer per year should suffice, depending on local conditions," Cabral says.

He says benefits are exponential: each year brings greater, more visible benefits. The compost benefits picture in 2005 is considerably brighter than it was when the program was first intro-

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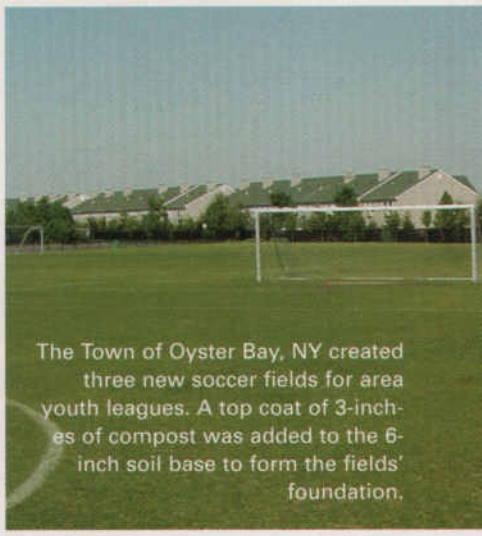
If it all sounds like a "can't-miss proposition," Tim Gould agrees. Gould is VP at Agresource, Ipswitch, MA (www.agresourceinc.com), a major supplier of compost to the green industry in New England and New York. Agresource is the source for the compost used at Rogers Field/Devens. Gould, whose team has served as compost consultants to Mike Cabral's crew, says, "There are several types of compost available, and while all are beneficial, distinct gradations of quality exist, in our view. The core issue, really, is providing sufficient organic matter, and the right compost for the application at hand. So, for the Mass Development Rogers Field, it was clear a compost with biosolids was called for.

"Mike Cabral decided on our Agresoil Compost as the primary topdressing: a product that's a blend of nitrogenous and carbonaceous materials that usually includes biosolids, gelatin and food processing residuals, sawdust, wood chips and leaf and yard waste," Gould says.



The Town of Oyster Bay, NY created three new soccer fields for area youth leagues. A top coat of 3-inches of compost was added to the 6-inch soil base to form the fields' foundation.

As a conscientious and committed turf manager, Mike Cabral is concerned with more than just the robust quality of the turfgrass surfaces in his charge.

"The environmental aspect is a very big issue with us here. We have precious aquifers in this region and want to do all we can to protect freshwater resources. Going to the compost plan is already showing that improving soil quality substantially keeps more moisture where it belongs, closer to the surface. With stronger, healthier, more resilient turfgrass allowing us to use far less fertilizer, we really don't have to worry very much about runoff, and potential toxic damage to deep underground aquifers."

While engaged in the fury of their many competitions throughout the year, athletes participating at Mass Development's Rogers Field have little or no awareness of the importance of compost to the quality of their games. But ask Mike Cabral or Kathy Wiberg, and they will tell you the story behind the story: compost works on athletic fields like nothing else they've ever come across. It has had a decided and measurable impact on turfgrass surface quality at Devens. **ST**

To learn more about the benefits of using compost for new turfgrass applications and upgrades of existing sports fields see the website of the US Composting Council, which is rich in important links, at www.compostingcouncil.org.

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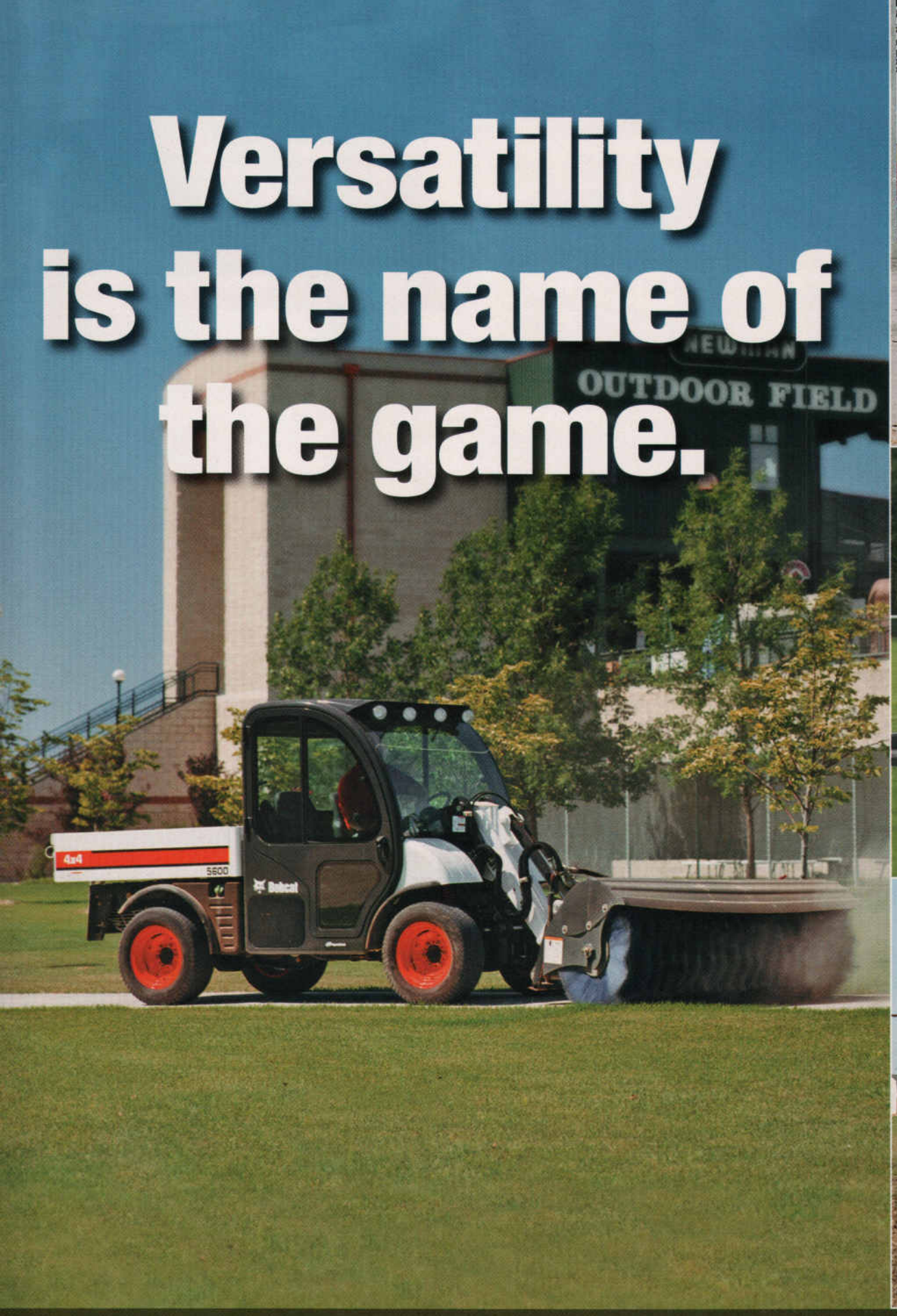

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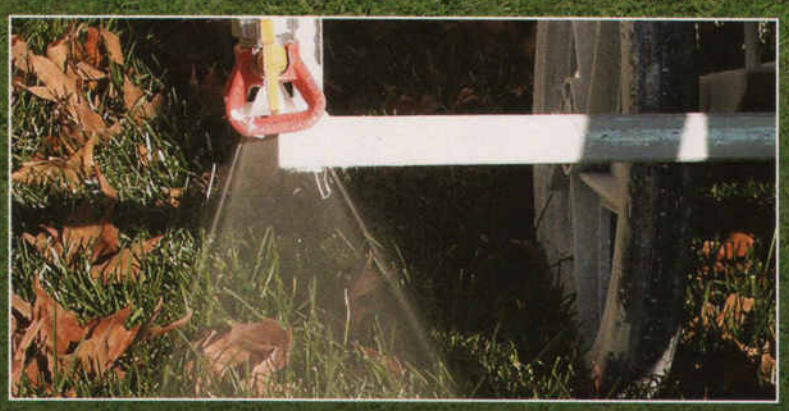

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North Scott Community (IA) wins Schools/Parks Soccer FOY

Congratulations to John Netwal, CGCS, and the North Scott Community School District for winning the 2004 STMA Schools/Parks Soccer Field of the Year. In the spring of 2001, the district approved the construction of a new sand-based soccer field to meet the demands of this growing program. Until this commitment, the soccer program was limited to practicing and playing all their events on the practice football and outdoor physical education areas. These areas had historically been overused and were always in poor condition due to these demands.

The newly authorized sand-based soccer field was to be built to the standards of a modified USGA golf green. These specifications called for the elimination of the 2-inch intermediate sand layer, if suitable materials were available. Early test reports indicated that suitable materials were available locally for this method of field construction.

Midway into the project, additional material testing indicated that three out of five particle size analyses were failing to meet the necessary bridging requirements for this specification. Uncertainty about whether or not to proceed with these materials brought the project to a halt. After some debate, it was suggested that the district look at adding intermediate sand between the growing medium and gravel bed to provide the bridging characteristics desired, but cost estimates of this alternate plan were prohibitive. Further discussions led to a variation of this plan that permitted for the use of an intermediate sand layer directly above the drainage lines. This cost-saving modification to the alternate plan provided the bridging characteristics sought in the original specifications and fell within the project budget.

This solution called for the removal of the 4-inch gravel layer over the base pad and due to the removal of this drainage feature, it was recommended that the number of the original tile lines be doubled to make up for this loss. It was reasoned that this modification would make up for any loss in drainage characteristics by the elimination of the four-inch gravel bed. The tile lines were back filled with pea gravel up to within 2 inches of the top of the trench and then capped with intermediate sand. This strategy provided enough gradient between the particle sizes of the growing medium, the intermediate sand and the gravel to permit satisfactory bridging, without sacrificing drainage.

The construction of this field began with a completely compacted 380 x 275-foot base pad. This pad was then laser leveled, re-compacted, and "GPS'd" for the new design of the modified drainage system. A laser-guided trencher then cut the tile lines across the field with a 1% slope. Once this was completed a geo-textile fabric was laid across the entire floor of the base pad and into the exposed trench lines before installing tile and pea gravel.

The irrigation system was then installed on the floor of the base pad and consists of 56 Hunter I-40 heads in a block system that is controlled by a Rain Bird ESP 16-station satellite. The 4-inch irrigation mainline was completely looped around the exterior of the field cavity to maximize the system pressure from the municipal water source, and to keep the valves outside of the playing surface.

The 12-inch deep 85% sand 15% Dakota Peat growing medium was pushed out by bulldozers and then laser leveled. The field was then seeded to a five-way blend of Sure Shot low growth Kentucky Bluegrasses. Spectator mounds were also constructed on each side of the field. The field is completely surrounded with 6-foot security fencing and