

BY BRAD PARK

Renovation of Tiger Field, East Brunswick, NJ

Tiger Field is the home of the East Brunswick Vocational and Technical School baseball team and was awarded the Beam Clay Baseball Diamond of the Year Award in 1990-1991 sponsored by Beam Clay, Sports Turf Managers Association, and this magazine. Managed by Raymond Cipperly, it is a premier baseball field in central New Jersey and has hosted numerous events including the Greater Middlesex County High School Tournament and All-Star Game, the New Jersey Technical School Tournament, and the New Jersey State Interscholastic Athletic Association State Tournament and Finals.

In recent years, the outfield, consisting of a Kentucky bluegrass/perennial ryegrass mix, had become severely infested with annual bluegrass (*Poa annua*). Annual bluegrass is a prolific seed producer and plants that produce seed each spring create a large soil seed bank over time that allows the germination and establishment of additional annual bluegrass plants each fall, resulting in an ongoing, cyclical problem.

Cipperly had attempted selective postemergence herbicide applications in previous years, however was unable to control the highly opportunistic annual bluegrass population or keep it in-check. Seeking a solution to the continuing problem of annual bluegrass infestation in the outfield, Cipperly sought the advice of Rutgers University Center for Turfgrass Science.

Given the high population of annual bluegrass present in the field, a complete renovation of the outfield consisting of killing the existing turfgrass and weedy annual bluegrass, followed by overseeding a cool season turfgrass species was determined to be the best option.

While a nonselective herbicide containing glyphosate would be a cost-effective choice for killing the existing turfgrass stand, glyphosate would not address the large annual bluegrass seed bank that had built-up in the soil as this nonselective has no soil activity. Soil fumigation represented a chemical approach to eliminating both the existing vegetation comprising the outfield and the annual bluegrass soil seed bank.

East Brunswick Vo-Tech and Cipperly made the commitment to use Basamid Granular Soil Fumigant to renovate the outfield. Basamid is a soil fumigant that is formulated as a granule and the active ingredient (dazomet), which when applied to soil of adequate temperature and moisture, degrades to form a phytotoxic gas that is effective on numerous insects, disease-causing pathogens, nematodes, and weed seeds, including annual bluegrass. Basamid is currently marketed in the United States by Certis USA.

Because Basamid is formulated as a granule, it can be applied with a conven-

The outfield was severely infested with annual bluegrass. It was determined that fumigation with Basamid Granular was the best approach to renovating the field.

tional drop spreader. The product does not require soil incorporation via tillage following application. Additionally, application of this fumigant does not require the subsequent tarping of treated areas with large plastic sheets; the application does, however, require multiple irrigation cycles over several days following application in order to "activate" the fumigant and prevent quick volatilization of the phytotoxic gas. While research has shown that covering treated areas with plastic can enhance annual bluegrass control, tarping large areas such as the outfield Tiger Field is costly and cumbersome without specialized equipment. By keeping the soil surface moist following application, a "water seal" is created, thereby acting in-place of tarping.

Tiger Field proved to be an ideal site for this project because of the presence of a programmable irrigation system and an outfield wall and chain-linked fence surrounding the perimeter of the field to keep-out potential trespassers following fumigant application.

Site preparation began on August 6, 2004 with the mowing height of the outfield being dropped from 2-inch to 0.5-inch. Excess clippings were removed with a tow-behind sweeper unit. In order to remove excess thatch produced by Kentucky bluegrass, the outfield was verticut using a verticutter commonly used in warm season turfgrass management. A tow-behind sweeper was again used to remove debris from the field.

The outfield was core cultivated to a depth of approximately 3-inch with 0.75-inch tines. The field was core cultivated in two directions and cores were immediately reincorporated using a tow-behind drag. Debris was again removed from the playing surface.

It was important to perform site/seedbed preparation procedures before the application of Basamid, particularly core cultivation, because administering these tactics following fumigant application could potentially bring viable annual bluegrass seed to the surface.

Basamid was applied directly to the prepared turf surface on August 18 at the high-labeled product rate for control of weed seeds (350-lbs./acre) using 8-foot wide tow-behind drop spreader. Immediately following application, approximately 0.5-inch of irrigation was applied to the treated area in multiple cycles to avoid potential runoff of the product.

An additional 0.5-inch of irrigation was applied to the outfield on August 19 over multiple cycles. Irrigation totaling approximately 0.25-inch was applied August 20. On August 22, several individual irrigation zones consisting of five sprinkler heads were scheduled to run due to differences in soil across the outfield. The soil at several locations in the outfield had reached saturation and allowing

the entire system to run could have potentially resulted in product runoff. Irrigation was withheld beginning August 23 and complete turfgrass kill was achieved by August 26. It was important to allow the treated soil to dry so that seeding equipment could be operated without the risk of soil rutting.

A Kentucky bluegrass blend consisting of five varieties was seeded on September 1. The blend consisted of certified seed and included the following, each comprising 20% of the blend: 'Serene', 'Midnight', 'Goldrush', 'Limousine', and 'Jefferson'. Rutgers turfgrass traffic tolerance research showed that Serene, Midnight, Limousine, and Jefferson displayed good tolerance to simulated wear and compaction applied in 2002 and 2003. Because Tiger Field was scheduled for play in March 2005, an important consideration in variety selection was early spring green-up. Jefferson was among a group of National Turfgrass Evaluation Program entries tested at Rutgers that displayed the earliest spring green-up in 2003, thus Jefferson was an important factor in the decision to use this blend.

Using two slit-seeders, Kentucky bluegrass was seeded at 3 lbs. seed per 1000 square feet in two directions to ensure uniform seed distribution. A complete starter fertilizer (N-P-K) was applied at a rate of 1 lb. nitrogen per 1000 square feet immediately following seeding. Cipperly programmed the irrigation system to deliver water in the following days for the purpose of keeping the soil surface moist and induce seed germination. Germination of Kentucky bluegrass seed was first noticed on September 9, eight days after seeding.

To ensure rapid turfgrass establishment, the outfield was fertilized with a granular, soluble nitrogen fertilizer approximately 2 weeks after seed germination.

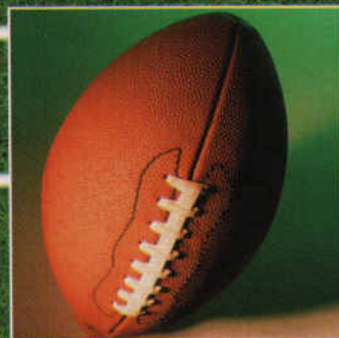
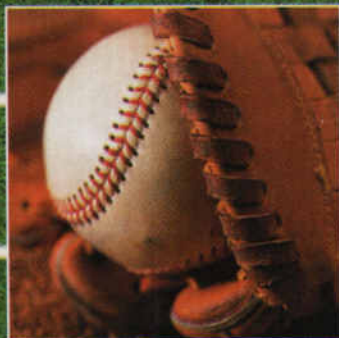
Research examining Basamid applications has shown that surges in turfgrass growth will occur following Basamid applications compared to non-fumigated sites. The reasons include increased plant-available nitrogen in the dazomet molecule as



Core cultivation was completed using 0.75-inch hollow tines before applying the fumigant. Cores were immediately reincorporated with a tow-behind drag.

well as nitrogen released from soil microbial populations killed via fumigation. While Cipperly initially mowed the East Brunswick Vo-Tech outfield with a walk-behind rotary unit, turfgrass establishment was rapid enough that he was soon able to begin using his reel mower to maintain the field at 2 inches.

Brad Park is a Sports Turf Education and Research Coordinator at Rutgers University, New Brunswick, NJ. He can be reached at park@aesop.rutgers.edu.



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BY **BOYD MONTGOMERY, CSFM**

Top 5 Reasons Why Athletic Field Construction Fails

Number 1

Not understanding that a sports turf manager is needed to give input and care for the facility.

The sports turf manager is like any other member of the team and has a wealth of knowledge and resources that can help guide in any phase of the project. CSFMs (Certified Sports Field Managers) can help everyone understand the complexities of growing and sustaining healthy viable turf. Too many times the process goes as follows: hire the architect, design and bid the project, hire the contractor, begin construction, hire a sports turf manager. While this may seem like a good process to many, it should be looked at as the wrong way to build proper fields. The sports turf manager should be the first person hired, and they will then help in every process along the way. Not having a good foundation to start equals failure or struggles down the road.

Number 2

Not involving an expert on the design and construction phases.



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The design phase of any project is one of the most critical input stages that everyone involved in the project must be able to give guidance. This stage should be a team input effort and everyone from the end user, to the person caring for the facility should be on the team. Too many times the design phase is completed before the sports turf manager can provide any input on the project. Sports turf managers are a vital key and should be consulted or used during every step of the design phase.

The sports turf industry has a wealth of experts to consult with during this phase.

Let's define experts! Sports turf managers who have been in the industry have a proven track record of success in construction and maintenance practices. Certified Sports Field Managers, and consultants have specialized in construction and design of successful sports turf facilities. As in any process, make sure that management does its homework when hiring a consultant. Would you hire a person for your business unless you checked the background and references?

Number 3

Hiring the architect that designed your new and expensive recreation center.

Too many times when a project starts, management does not understand the need to seek qualified architects. Usually, they hire architects that might be great at designing the newest and hottest recreational centers, but have very limited or no understanding of the complexities of design for athletic fields. Architects should be chosen on the successes of the facility. In order to find that out, this means management will need to conduct background checks with previous project owners to see how the project went.

In simpler terms, you would not hire a building architect to build a multi-million dollar golf course or athletic complex! Architects need to be experts at understanding the different regiments of use and needs to design a soil that will hold up with the proper maintenance to the use of the facility.

Number 4

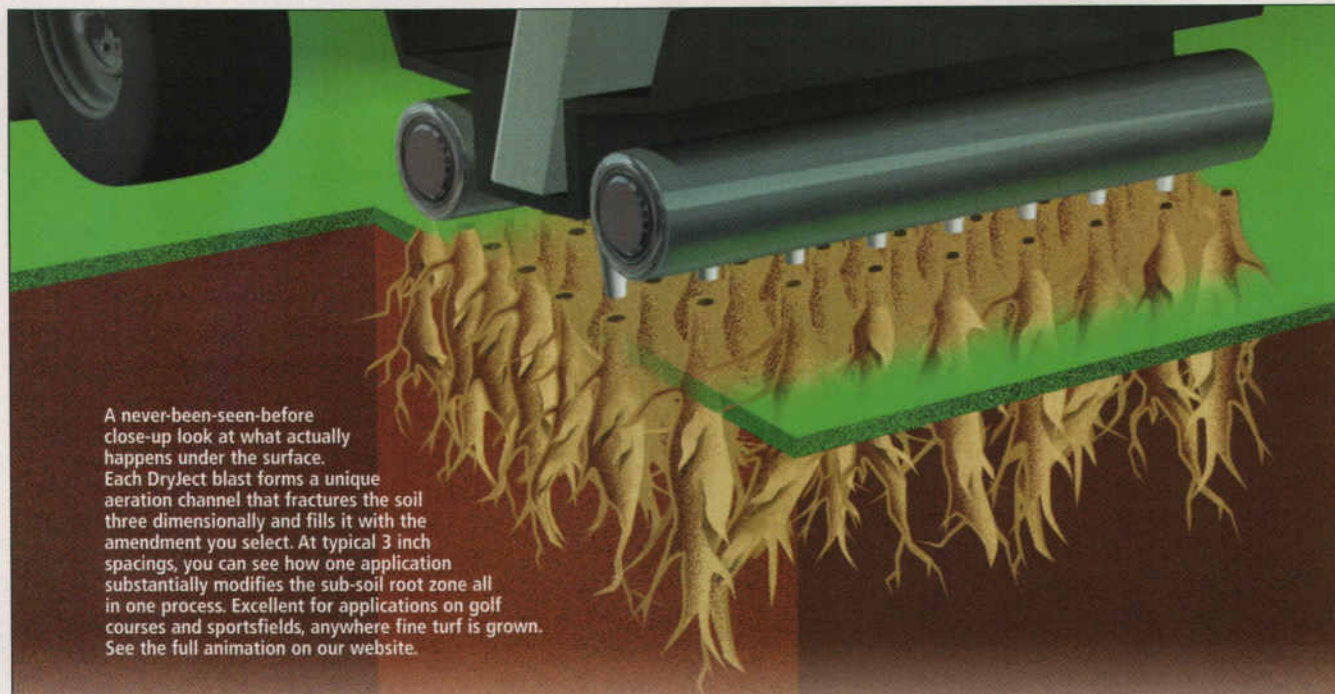
Writing construction contracts with the word "topsoil" instead of "growing medium" and/or "soil structure."

You tend to see the word "top soil" used often in construction projects where money or knowledge seems to be lacking. Trouble begins when this word is used because there are so many definitions of topsoil. The architect will have one, you might have another, and I can guarantee the contractor will have another.

Why is this important? Turf in athletic fields is a living, breathing

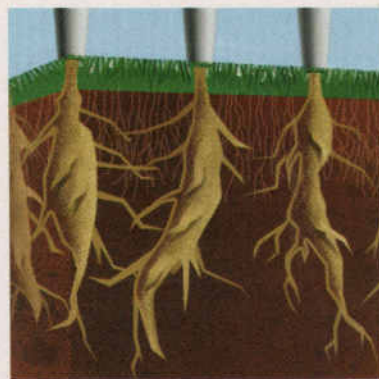
organism and it needs to have a support system designed in order to support success. If you start with a poor surrounding, then you will have poor results!

Understanding that you need to define "topsoil" into the growing medium or soil structure is critical to the success of the construction. Instead of getting the cheapest topsoil available, by defining it, you are able to specify the soil texture, soil porosity, soil infiltration rate, etc. These now give you a tight specification that is better defined and easier to hold contractors accountable if testing shows (continued on page 40)



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turf maintenance equipment



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The Toro Company has introduced the Line Pro 1200 line painter. Features include the Express Clean System with an on-board fresh water tank to easily flush the lines at break time and at the end of the day. Toro recommends placing the paint head in the rear of the machine to allow for truer, straighter lines in conjunction with the pointer positioning. The Toro Company/800-348-2424 For information, circle 057 or see <http://www.oners.ims.ca/4571-057>



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(continued from page 37) the product is not correct.

Number 5

Hiring the wrong contractor for the project.

Contractors must be hired who have an understanding of how to build athletic fields. Street contractors, generally low bidders, are not acceptable contractors!

Construction is generally awarded to those low bidders and you end up with poor results! Why? Because these contractors, while experts at building streets, have no understanding of the importance of proper construction of athletic fields.

For one, compaction needs to be looked at differently. For streets, the goal is to compact, compact, compact the sub-base. In athletic fields we all know what happens when this occurs.

Another thing is the equipment. While large excavators are great and fast, athletic field construction requires lighter equipment that may add additional time to the project.

Understanding that contractors, just like architects, need to have a complete understanding and successful history of construction is vital. Management must understand that they must do their homework before they award the contract.

Low bid is always a problem at some levels of this industry, and it should not be. The reason this should not be an issue is that the bid documents must be written with the specific qualifications required, and you should be able to eliminate any contractor that is not qualified to build your fields. Then you can feel comfortable awarding the low bid because that contractor meets all the qualifications. Be more specific than just requiring a contractor who builds athletic fields. **ST**

Boyd "Rob" Montgomery, CSFM, is Treasurer of the STMA Board of Directors and Director of Facilities and Maintenance for the Sylvania (OH) Recreation Corp. He can be reached at turfman@thewavz.com.

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Dark Green Color

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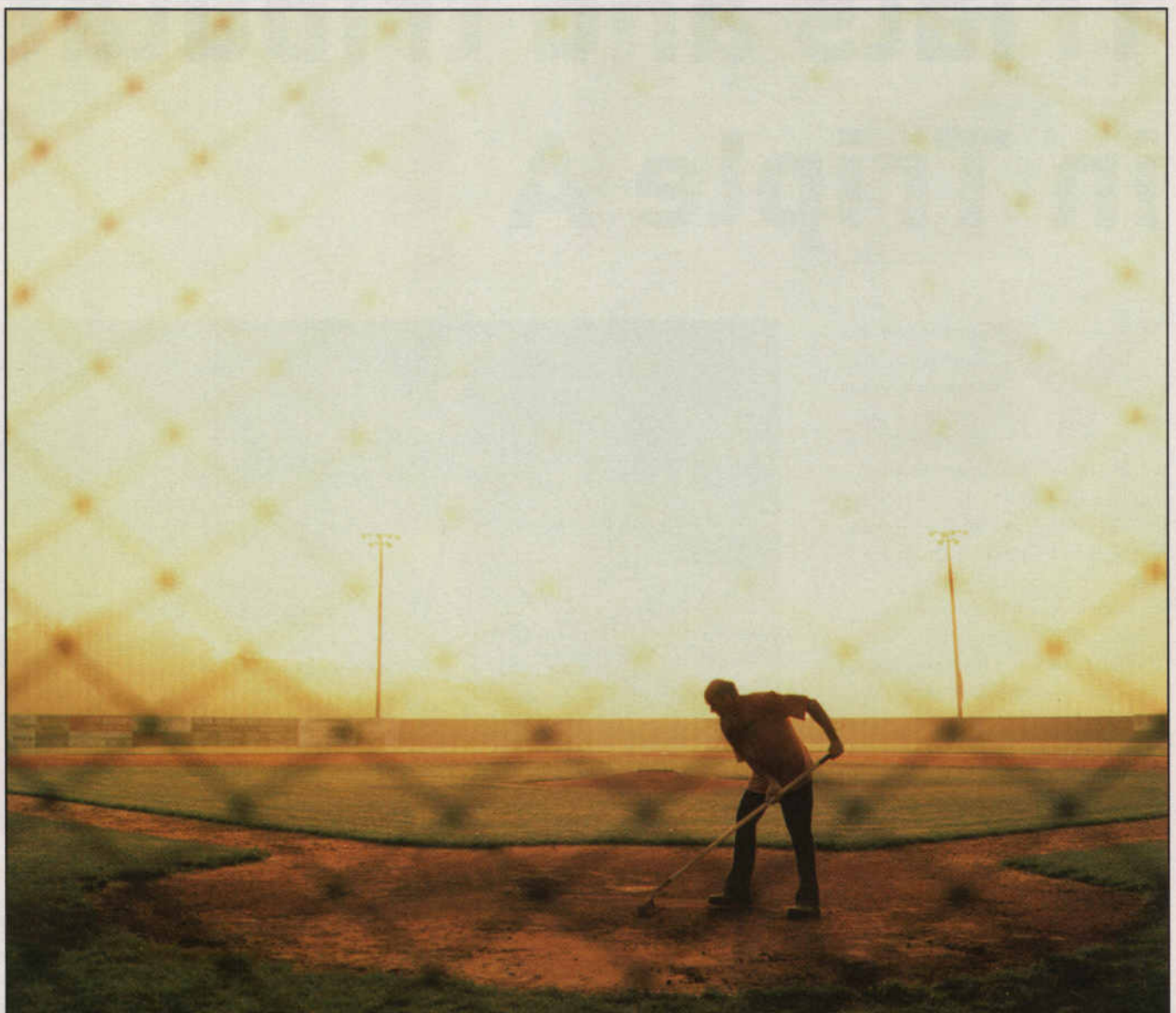
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