

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.

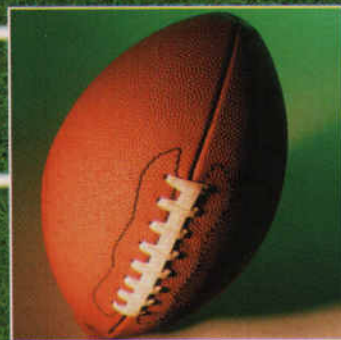
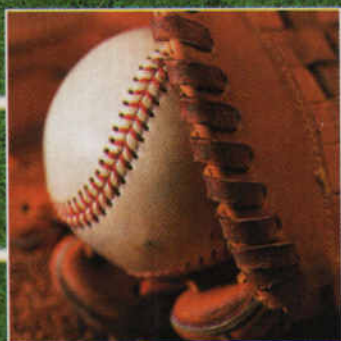
Research examining Basamid applications has shown that surges in turfgrass growth will occur following Basamid applications compared to non-fumigated sites. The reasons include increased plant-available nitrogen in the dazomet molecule as



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.

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