

Penn State

Effects of Trinexapac-ethyl Applications on the Divot Resistance of Kentucky Bluegrass on Soil-Based Fields. In the January 2009 issue of *SportsTurf*, we presented the results of a study evaluating the effects of trinexapac-ethyl (TE) applications and cultivation practices on the divot resistance of Kentucky bluegrass grown on a sand-based rootzone. We found that by applying TE monthly from May through July and then stopping applications once the season began, divot size was reduced by up to 20%. Based on our results, applications of TE can serve as a pre-stress conditioning treatment before the football season by getting the turf ready for play through increases in tiller density and root mass.

We are currently conducting a follow-up study to see if the same effects occur on a silt-loam soil rootzone. Initial results indicate similar effects from TE applications; however, improvements are less than those observed in the sand-based rootzone trial. Applying TE from May through July decreased divot size by approximately 5% on silt-loam soil. Continuing applications of TE through October neither increased nor decreased divot resistance. A combination of vertical mowing and core cultivation in the spring was found to be as effective at improving divot resistance as TE applied from May through July.

Nine cultivars of Kentucky bluegrass were also included in the trial so that we could evaluate the divot resistance of cultivars commonly used on athletic fields. 'Julia' and 'Princeton 105' (P105) were the most divot resistant cultivars, with divot size approximately 15% smaller than the most divot prone cultivar, which was 'Cabernet'. Divot resistant cultivars in the original sand-based study were 'Limousine', 'P105', and 'Rugby II', while the most divot prone cultivar was Midnight. Based on the results of both studies, divot resistance on fields used only in the fall can be improved by applying TE in the months leading up to the season and by selecting divot resistant cultivars.

Thomas Serensits, Andrew McNitt, and Dianne Petrunak, Crop and Soil Sciences

Synthetic Turf Research at Penn State's Center for Sports Surface: Beginning in the spring of 2010, Penn State's Center for Sports Surface Research will embark on a comprehensive series of studies focusing on the safety and playability of synthetic turf. With support from FieldTurf, research will focus on current issues related to synthetic turf such as surface temperature and injury prevention.

A multi-disciplinary team of experts from several world-renowned Penn State research departments such as biomechanics and toxicology will play an active role in the research process and provide scientific, unbiased results. Additionally, athletic trainers from Penn State will serve as a valuable resource, bridging the gap between research and the athletes themselves. Graduate students from both agronomy and kinesiology will be assigned projects, allowing for collaboration between disciplines.

Playability parameters such as traction and field hardness will be evaluated and compared to a number of natural turfgrass systems, such

as sand-based and soil-based fields containing Kentucky bluegrass, perennial ryegrass, and bermudagrass. Because of the widespread popularity of synthetic turf and a lack of extensive research, information obtained from the various studies that will take place will offer consumers current information that would otherwise be unavailable. Information about the Center for Sports Surface Research at Penn State as well as up-to-date synthetic turf and natural turfgrass research conducted at Penn State can be found at <http://ssrc.psu.edu/>.

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Ohio State

The turfgrass program at OSU is lucky in that we have tremendous financial, product and equipment support from both the turfgrass industry and also our state turf associations (Ohio Sports Turf Managers, Ohio Turfgrass Foundation, and Ohio Lawn Care Association). One of the most important things our state associations did recently was to undertake a survey to see what the turfgrass industry is worth to the state of Ohio:

- The key findings of that survey were:
- 3 billion dollars in direct economic output
- 4.6 billion dollars in total economic output
- Over 41,000 employed
- Over 4 million acres of turfgrass maintained
- 841 million dollars spent on turfgrass maintenance supplies
- 639 million dollars in labor costs, payroll taxes
- 338 million dollars in contracted services

These findings have given our industry a big boost and just recently the Ohio Senate has recognized our industry further by voting to designate the last week of May "Ohio Turfgrass Week."

Dispersible Granular Technology. This year we have worked a lot with The Andersons Group on their new dispersible granular technology. One of the products we have worked with is "Governor," which is a granular form of the plant growth regulator trinexapac-ethyl (TE). The purpose of developing a granular form of TE is to make it more available to turf managers that don't have spray equipment. The research has been undertaken to evaluate application methods and efficacy of the product. Results so far have been very favorable, especially using the formulation that includes a 4-0-0 fertilizer. Even under drought conditions, the product has suppressed growth ~50% while maintaining healthy turf and promoting color and density, like the liquid versions of TE.

Organic and Synthetic Fertilizers. Two issues we are looking at with regard to turf fertilizers are the removal of phosphorus (P) from maintenance fertilizers and the trend towards using natural sources of fertilizer, such as manures and composts. We started a study in 2008 in collaboration with The Ohio Lawn Care Association to evaluate 14 sources of fertilizer (synthetic, natural and combined), with some of the fertilizers containing no P. Overtime we are measuring soil organic