

TURFGRASS RESEARCH FOR HIGH TRAFFICKED AREAS
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1999 was another busy year for turfgrass research for high trafficked areas. This year we concentrated our research on finishing up some existing research projects as well as beginning a number of new studies. Copies or extended versions of these reports are also available via the World Wide Web at www.css.msu.edu.

Major areas of research include:

- 1) EFFECTS OF TRINEXAPAC-ETHYL AND WETTING AGENT ON ESTABLISHMENT RATE OF *POA PRATENSIS* IN A SAND-BASED ROOT ZONE.
- 2) MANAGING *POA SUPINA* SCHRAD.
- 3) AMMENDMENTS FOR LOW BUDGET ATHLETIC FIELDS.
- 4) QUEST FOR TRACTION IN THE ALTERNATIVE SPIKE WORLD.
- 5) ENGINEERING AND AGRONOMIC PROPERTIES OF SOIL MIXES.

Each of these areas will be reviewed in this paper and/or in subsequent papers within these proceedings.

**EFFECTS OF TRINEXAPAC-ETHYL AND WETTING AGENT ON ESTABLISHMENT RATE
OF *POA PRATENSIS* IN A SAND-BASED ROOT ZONE.**

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Objective

The objective of this research was to investigate the use of a plant growth regulator and wetting agent to aid in establishment and subsequent development of Kentucky bluegrass (*Poa pratensis*) in a sand-based root zone. Our hypothesis was that one or both of these chemicals could enhance establishment, leading to a more rapidly established turfgrass stand.

Introduction

The challenge for the sports turf manager is to sustain a dense turf stand throughout the competitive season. However, often times, regardless of proper management practices, areas of the field or entire fields can be worn very thin or even bare due to their intense use. Consequently, when the turf wear resistance reaches its breaking point, the perennial focus of athletic field management is the establishment of a new turf stand, often as quickly as possible. The objectives of these studies were to evaluate the effects and interactions of both Trinexapac-ethyl and soil surfactant applied during the establishment process. Plant growth regulators have been researched for a number of uses. Plant growth regulators use on mature sod has been investigated for a variety reasons, including installation and management (Hall and Bingham, 1993). Trinexapac-ethyl has also been investigated for its potential in aiding in establishment of mature sod (Wynne *et al.*, 1998, Bingham and Christians, 1998). Trinexapac-ethyl applied to established turf has been shown to enhance the lateral growth (Watschke and Dipaola, 1995). This study was designed to evaluate various Trinexapac-ethyl rates applied at different times during the establishment process to determine effects on the establishment rate of *Poa pratensis*. If density can be increased early during the establishment process, then wear tolerance could be increased (or the establishment process shortened) from this perennial activity.

Today's top athletic fields have an additional characteristic other than intense use that can make the establishment of turf difficult: high sand content root zones. High sand content root zone mixes are desirable because they drain very well and resist compaction, but these mixes can present some problems, particularly during establishment. Sand particles tend to have high surface tension causing them to be hydrophobic, making moisture retention for seed germination difficult. One way to reduce the surface

its quick recuperative potential via stolons, while maintaining a lesser stand of Kentucky bluegrass to utilize its ability to increase stability and shear strength via rhizomes. A combination of a supina bluegrass and Kentucky bluegrass may in a sense mimic a cool season version of Bermudagrass; which, is a turfgrass that provides superior turf conditions for high wear athletic fields, as a result of its aggressive stoloniferous and rhizomatous growth habit.

AMENDMENTS FOR A LOW BUDGET ATHLETIC FIELD
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A study has begun at the Hancock Turfgrass Research Center on the campus of Michigan State University to investigate cultural practices while operating within a low budget. The study is being conducted to provide information to budget decision makers as to how resources relate to improved athletic field quality. The motivation for this study comes from the number of athletic injuries induced by poor field conditions (Harper et al, 1984). High schools are often forced to operate within a fixed budget for athletic field maintenance. Because of this, it is thought that they can not afford the machinery, products, and staff required for a high maintenance field and it is questioned where to invest their resources. As a result, it is assumed that they are incapable of maintaining a high quality, safe athletic field. However, as we have seen so many times in the past, more is not always better. Therefore, Michigan State University is conducting a study to discover the potential of minimum inputs combined in such a way so as to maintain a quality athletic field while still operating within a low budget.

The objectives of this study are to demonstrate the differences in field quality based on cultural inputs and to relate the inputs to maximizing events. The study is a three-factor design with mowing, fertility, and cultivation as variables. It is being conducted on both a sand-based root zone and a native soil field. Fertilizer will be applied at levels of 4 lb N/1000 ft² four times per year, 4 lb N/1000 ft² eight times per year, or 6 lb N/1000ft² six times per year. Mowing will be done once or twice per week and cultivation will be done none or twice per year. Different combinations of each treatment will be applied. In addition, half of the treatments will receive a traffic application of approximately twenty-five games per year. Establishment of the plots was begun in the spring of 1999. Treatments were begun in the fall of 1999 and are expected to continue through the summer of 2001.