Evaluating Mowing and Fertilizer Practices for Re-establishment of Sports Fields in a 60 Day Growing Window

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Introduction

There are over 10,000 sports fields in the state of Michigan on which thousands participate annually. These sports fields serve a variety of functions, from hosting sporting events to sites of community gatherings. The sports field complex is a vehicle for physical and mental well being in society. At a minimum, these sports fields should be safe and playable. The major issue is that a high majority of these sports fields are overused and abused, and this problem is compounded by these sports fields having inadequate funding for routine maintenance and turfgrass reestablishment. Ultimately, the goal is to educate decision makers on the inputs required to maintain these sports fields. In the meantime, research practices must be explored to reduce costs, and increase the turn around time for a sports field to be ready for play again. For the Michigan sports field manager, the windows of opportunity to reestablish turfgrass are quite limited due to either use or climate. The need to cost-effectively evaluate rapid, timely establishment procedures, specifically for sports fields, is crucial for long term success.

Objectives

If a sports field manager has only 60 days to get a sports field ready in the summer, what is the quickest way to re-establish these high traffic areas if there is minimal to zero turfgrass cover? This study will evaluate mowing and fertility regimes for re-establishment of sports fields during the summer growing window. By evaluating these two cultural practices, the objective is twofold; first, to evaluate the reduction of weed encroachment and the impact certain weeds have on the playing surface. Second, we are evaluating "plant fitness" for when the sports field needs to be ready for its target date. In essence which combination of regimes will perform better once traffic has been initiated.

Materials & Methods

The design of the experiment was a two factor study with three replications over two seasons (Table 1). This study was conducted at the Hancock Turfgrass Research Center (HTRC) on the campus of Michigan State University in East Lansing, MI. Due to other experiments taken place on these plots in the last ten years, Basamid was used to sterilize the soil. After the quarantine period was over, a 30:70 sports grass mixture of perennial ryegrass (Lolium perenne var. SR4400, SR4500 and Manhattan III) and Kentucky bluegrass (Poa pratensis var. Champagne and Rugby II) was seeded for both experiments at a 4#/1000ft^2 rate. Experiment I was initated to evaluate plant fitness heading into a playing season. In Experiment II, weed seed was inoculated into the sports grass mixture. The four weed seeds used for this experiment were dandelion, black medic, crabgrass and clover. Establishment took place on May 31 for Expt I and June 1 for Expt II. Germination blankets were placed over the top of the seeded areas and removed after 12 days for both experiments. They will be evaluated on percent cover, number of weeds, and soil temperatures over the next 60 days. A three week traffic regime will commence

on 12 August. At this point of the experiment, playing surface characteristics (surface hardness and traction) soil moisture and plant counts have been evaluated and will be discussed.

Table 1. Individual treatments for the mowing and fertilizer study.

Factor A	**Mowing - (2x/week)**
	1) Mow at 1.5" throughout the study
	2) Mow at 3.0" for 40 days and slowly drop the height to 1.5"
	3) Mow at 3.0" for 59 days and chop to 1.5"on day 60
Factor B	**Fertilizer - (13-25-12 starter fertilizer @ 1.0# N/M for the first application on June 1)**
	1) 46-0-0 – July 1 @ 1# N/M
	2) 46-0-0 – 0.33# N/M every 2 weeks
	3) 39-0-0 – SCU @ 3# N/M
	4) 43-0-0 – Polyon @ 2# N/M (0.1# N/wk)
	5) 43-0-0 – Polyon @ 3# N/M (0.2# N/wk)
	6) 44-0-0 – Polyon @ 4# N/M (0.4# N/wk)