Evaluating Mowing and Fertilizer Practices for Re-establishment of Sports Fields in a 70 Day Growing Window

J.T. Vanini and John N. Rogers, III
Department of Crop and Soil Sciences

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 70 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. We are evaluating "plant fitness" for when the sports field needs to be ready for its target date. In essence which combination of mowing and fertility 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. 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, establishment took place on 1 June this year. A 30:70 (by seed count) 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 at a 4#/1000ft^2 rate. Germination blankets were placed over the top of the seeded areas and removed after 15 days. The treatments will be evaluated on percent cover and soil temperatures over the next 70 days. A three week traffic regime will commence on 11 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 66 days and chop to 1.5"on day 67
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)

Mowing and Fertility Study 03

Objective – To evaluate the best interaction of mowing and fertility regimes for re-establishment in regards of plant fitness before the playing season starts.

Mowing

1 – 1.5" – 2x/wk
2 -- 3" – 2x/wk – 20-30 days – 1.5" (Y)
3 – 3" – 2x/wk – chop – 1.5" (R)

Fertility (all plots 1# N/M of 13-25-12)

A – 46-0-0 → July 1 @ 1# N/M
B – 46-0-0 → 0.33# N/M every 2 wk
C – 39-0-0 → SCU @ 3# N/M
D – 43-0-0 → Poly @ 2# N/M (projected 0.1# N/wk)
E – 43-0-0 → Poly @ 3# N/M (projected 0.2# N/wk)
F – 44-0-0 → Poly @ 4# N/M (projected 0.4# N/wk)

N ↑

2C	3E	3D	3A	2A	3A
1F	3C	2D	2C	2D	1C
3D	1B	3B	1D	2C	1D
2B	2E	1A	3F	3E	3C
1E	1A	2E	2B	3D	3F
3A	3B	2A	1F	1F	1E
2F	2D	1E	3C	1A	2E
3F	1D	3E	1C	3B	2F
1C	2A	2F	1B	2B	1B

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