

2006 MTF Proposal (Continuing Project)

Developing Phosphorus Recommendations for Turfgrass

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Phosphorus use in turfgrass has come under great scrutiny in the past year in Michigan and legislation restricting use is currently being developed. Professional turf applicators have reduced or eliminated phosphorus from their fertilization programs based on the assumption that soil phosphorus levels are supplying adequate amounts of phosphorus to the turf. This research will investigate the effects of phosphorus fertilization programs on turfgrass performance, and monitor soil and plant tissue nutrient levels to determine the impact of the programs. Expected outcomes are definitive phosphorus recommendations for turfgrass in Michigan.

The nitrogen treatments are 2, 3.2, and 4.25 lbs. N/1000 ft.²/yr. The low, medium, and high nitrogen treatments will be applied over 2, 4, and 6 applications, respectively. Nitrogen will be applied using a formulation containing slow and fast release nitrogen sources that are representative of typical home lawn fertilizers. The phosphorus treatments are 0, 0.5, and 1.0 lbs. P₂O₅/1000 ft.²/yr. Phosphorus will be applied using mono potassium phosphate. Phosphorus will be applied according to the application schedule for the nitrogen treatments. For example, the low nitrogen treatment will be applied over two applications and all phosphorus applications whether zero, medium, or high that are applied with the low nitrogen treatment will be applied over two applications.

In 2004, a low phosphorus soil was sodded with Kentucky bluegrass and fertilizer treatments were initiated. For 2005-2006, data collection will include weekly visual color rating, chlorophyll index rating using Spectrum Technologies Chlorophyll Meter CM-1000, bi-weekly quality rating, bi-weekly clipping yield and tissue analysis (leaf NPK content), monthly soil sampling and analysis, disease and weed incidence as necessary.

An additional irrigation x fertility x turfgrass species research project was initiated in 2005. Irrigation treatments include: no irrigation, irrigation weekly, and irrigation every other day. Fertility treatments are synonymous with the above described P trial, however the soils on this site test high for soil phosphorus level. Turfgrass species/mix are: tall fescue, Kentucky bluegrass, and a three way lawn mix containing Kentucky bluegrass, fine fescue, and perennial ryegrass. This trial will add to our knowledge for making fertilizer BMPs with respect to phosphorus.

MTF Research Funding Requested for 2006: \$10,000

This research is supported by Project GREEN at \$6685/yr. Lesco Inc. has supported this trial to the amount of \$20,000 in the last two years.