

Optimizing Cultural Practices to Improve Athletic Field Performance

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Turfgrass researchers have long extolled the benefits of proper mowing and fertilization practices to maintain vigorous and healthy turfgrass surfaces. Proper cultural practices (mowing, fertilization, irrigation and cultivation) allow turfgrass stands to compete with weeds, tolerate insect feeding, and better recuperate from disease, drought and traffic. As participation in recreational and interscholastic sports continues to increase and the limited numbers of already well-used and tired fields become overused, unplayable and even unsafe, enhancing the recuperative potential becomes even more important to field performance.

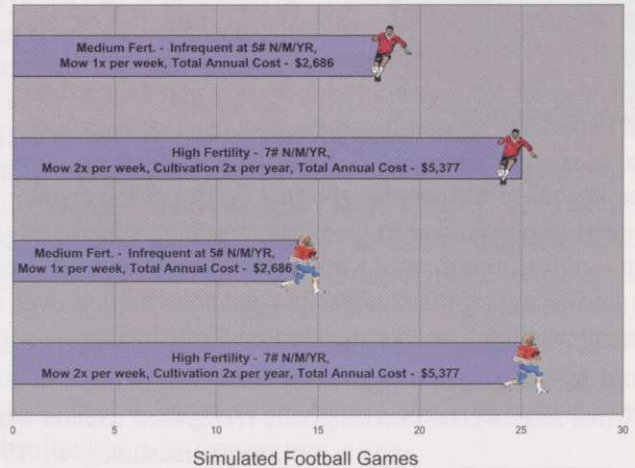
Until recently, however, the effect of cultural practices on the performance of a turfgrass stand had not been studied in a way that made possible a cost-benefit analysis. It is often said that increased mowing frequency and judicious fertility will "improve" a field or make it "better." But it would be difficult for school administrators or municipal officials to justify allocating funds to make the soccer and football field "better" without knowing what "better" is. Researchers at MSU have measured critical field performance characteristics (density and recovery) as affected by various cultural practices and combinations on a per field basis. Knowing the return on investment should allow school administrators and municipal officials to make informed decisions about the maintenance of their athletic fields.

Seven Savvy Suggestions for Super Sports Surfaces

- Mow at least twice per week throughout the growing season.
 - Maintain cutting height between 1.5 and 2.5 inches.
- Fertilize frequently (seven to 10 applications) throughout the season. Apply no more than 0.5 pound of nitrogen per 1,000 square feet per application. Rate should be reduced or eliminated during hot and dry periods unless irrigation is available.
- Reduce overall fertilization on heavy soils by 20 to 40 percent.
 - Cultivate (aerify) twice per year (spring and fall).
 - Implement an adequate irrigation system.
- Maintain general turf health to limit weed pressure and increase disease and insect tolerance.

Studies conducted by MSU examined the basic cultural practices of mowing frequency (one or two times per week), fertilization program (medium/infrequent, medium/frequent, high/frequent) and core cultivation (never or

Effect of Fertilization, Mowing Frequency and Cultivation on Number of Simulated Football Games with Acceptable Turf Cover



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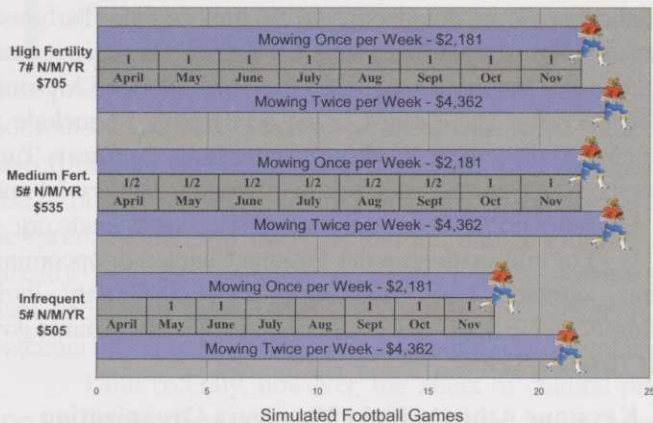
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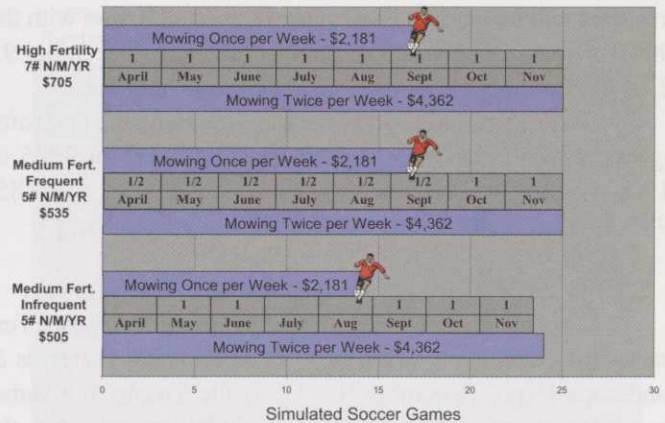
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Effect of Fertilization and Mowing Frequency on Number of Simulated Football Games with Acceptable Turf Cover



Effect of Fertilization and Mowing Frequency on Number of Simulated Soccer Games with Acceptable Turf Cover



two times per year). Two traffic simulators were used to impose realistic wear on the plots during the fall of each season. The Brinkman Traffic Simulator (BTS) was used to simulate the typical wear of a soccer game, and the Cady Traffic Simulator (CTS) was used to impose typical wear between the hash marks and between the 20-yard lines of a football field, where previous estimates say that 80 percent of a football game takes place. Traffic was applied to half of each plot between the last week of August and mid-November, simulating a total of 25 games.

The major objectives of this research were to determine the most effective maintenance practices for increasing field performance, quantify increased field performance (expressed in number of games) and estimate the costs associated with maintenance practices. The estimated costs for each treatment are given in the charts. It is our hope that this information will be useful to school administrators budgeting for athletic field maintenance and scheduling field usage.

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From Michigan State University Extension Bulletin, E18Turf, December, 2002.

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