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Developing a Phosphorus Fertilizer Training Program for Golf Course Personnel

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Developing a Phosphorus Fertilizer Training Program for Golf Course Personnel

Abstract

A new Extension program has been developed in Minnesota to train golf course personnel on managing phosphorus inputs in response to recently passed legislation restricting the use of P fertilizers applied to turfgrass. This article introduces the P legislation passed in Minnesota, describes the curriculum, and discusses survey responses from golf course personnel who have participated in the program. The data presented indicate that respondents found the program either useful or very useful with respect to the day-to-day management of P fertilizers applied to turf.

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Introduction

Minnesota recently passed legislation (SF 1555) restricting the use of all phosphorus (P) fertilizers applied to turfgrass in the Twin Cities Metropolitan Area (TCMA is comprised of 7-counties) and fertilizers with more than three percent P in non-TCMA counties. The law takes effect on January 1, 2004. Exceptions to the law include:

1. When a soil or tissue test performed within the last three years indicates that the levels of available P in the soil are not sufficient to support healthy turf growth;
2. When first establishing turf via seed or sod, but only during the first growing season;
3. When fertilizer containing P is used on a golf course under the direction of a person licensed, certified or approved by an organization with an ongoing training program approved by the Commissioner of the Minnesota Department of Agriculture.

The Turfgrass Science Program at the University of Minnesota was accepted by the Commissioner of the Minnesota Department of Agriculture (MDA) to be the "approved organization with the ongoing training program" that will "license or certify" the golf course personnel.

The objectives of developing the Extension program for golf course personnel were to:

1. Create a baseline understanding of the P fertilizer law, soil science and plant nutrition and

2. Provide detailed information on P chemistry, soil and plant testing, and fertilizer management.

Moreover, the program was designed so that other turfgrass organizations within Minnesota and other states that are considering such legislation may adopt a portion or all of the materials used.

Methods

A committee from the Minnesota Golf Course Superintendent's Association (MGCSA) and turfgrass/soil scientists from the University of Minnesota was formed to help guide the creation of the Phosphorus Fertilizer Training Program. Throughout the entire process, the committee felt it vital to keep the MDA informed as to the progress and major steps toward completion. Ultimately, the MDA is in charge of enforcement and evaluating the effectiveness of the P Fertilizer Training Program.

Finally, a curriculum was developed and a final meeting with all interested parties from the University of Minnesota, MDA, and the MGCSA were included for comment. The curriculum included the following:

1. Understanding the Law
2. Basic Soil Science - This includes soil formation, texture, structure, organic matter, essential nutrients for plant growth, pH, and cation exchange capacity.
3. Phosphorus Chemistry - This includes soil phosphorus cycling, factors affecting phosphorus losses and best turfgrass management practices to reduce P loss.
4. Soil and Tissue Testing - This includes soil sampling and analysis, plant tissue sampling and analysis, and interpreting soil and plant tissue results.
5. Fertilizer Management - This includes evaluating the mineral composition of plants and soils, cycling of essential nutrients in the soil and factors that affect plant uptake, sources of fertilizers, fertility programs, and application timing.

In addition to supplying printed slides and notes on the previously described curriculum in notebook form, supporting materials are also provided that include Extension publications on water quality, P cycling and fate, soil and nutrient interactions, fertilizer recommendations, eutrophication, and a copy of the P law.

The legislation also stated that this training must be "ongoing." Therefore, every 2 years, golf course personnel previously trained are required to attend one of three MGCSA sponsored educational events where a review of the P law and the current literature on P nutrition and environmental fate issues will be presented.

One judge of training program effectiveness is the number of attendees or success in reaching the target audience. Another measure is whether participants considered the program informative and useful. Survey data were collected to help evaluate program objectives and the comprehensive P resource notebook.

Results

Phosphorus fertilizer training participants were asked if the 4-hour seminar was very useful, useful, or not useful. Table 1 indicates the percentage of respondents that answered that the seminar was either useful or very useful. The data presented indicate that respondents found the program either useful or very useful with respect to the day-to-day management of P fertilizers applied to turf.

Table 1.
Percentage of Respondents that Thought the P Training Seminar Was
Either Useful or Very Useful (n=109)

Session	Percentage
Basic Soil Science	97
Phosphorus Chemistry	100

Soil and Tissue Testing	98
Fertilizer Management	100
P Training Notebook	99
Overall Rating	100

An estimated 475 people in Minnesota will need training prior to applying P fertilizer in the 2004 growing season. To accommodate this large number, four training sites were proposed that were strategically located across Minnesota. Each site represented a different training date. At each training session, continuing education credits were approved by the Golf Course Superintendent's Association of America. As of July 24, 2003, three of the four training sessions have been completed, and approximately 230 people have attended. The fourth training session will occur at the Minnesota Green Expo, which is the largest educational program for turf and nursery professionals. (Last year's attendance was 7100 people).

Conclusions

The Turfgrass Science Program at the University of Minnesota works closely with the MGCSA to develop and deliver educational programs. These programs help members of the MGCSA obtain continuing education credits used for both state certification and licensure, and for national membership requirements in the Golf Course Superintendent's Association of America.

The P Fertilizer Training Program is meeting the defined objectives set forth by the committee representatives and the MDA. This program is proving to be beneficial to golf course personnel and can easily be adapted for other professional turfgrass managers both within Minnesota and around the country.

Although Minnesota is the first state to restrict the use of a fertilizer applied to turfgrass, currently other states across the country are considering similar action.

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