

Program Spotlight

What if we had to be certified to apply fertilizer the way many turf managers have to be to apply pesticides? What if the government set a limit on the amount and type of nutrients you could use in a season? While these seem farfetched, there are some signs that fertilizer regulation is on its way.

Coming to a State Near You: Nutrient Management

Nutrient management is a key aspect of golf turf maintenance. Fertilization influences many aspects of turfgrass management including playability, visual quality and wear tolerance.

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We have grown accustomed to environmental regulations for irrigating golf courses and using pesticides. Nutrient management, specifically fertilizer use, has heretofore been immune to the rash of regulations.

New Laws in the Midwest

Consider that a state law went into effect in Minnesota on January 1, 2004 and a local ordinance effective January 1, 2005 in Madison, WI regulating the application of phosphorus (P). These regulations are intended to reduce overall use of P in an effort to minimize P loading of surface water bodies. The MN law includes golf courses while the Madison ordinance does not, for now.

The contribution of P to lakes and streams results in severe algal blooms that degrade water quality for recreation and consumption by

reducing dissolved oxygen levels. The “greening” of the lakes in these sensitive Midwestern communities has made turf management an easy target: fertilizers run off lawns and pollute the lakes.

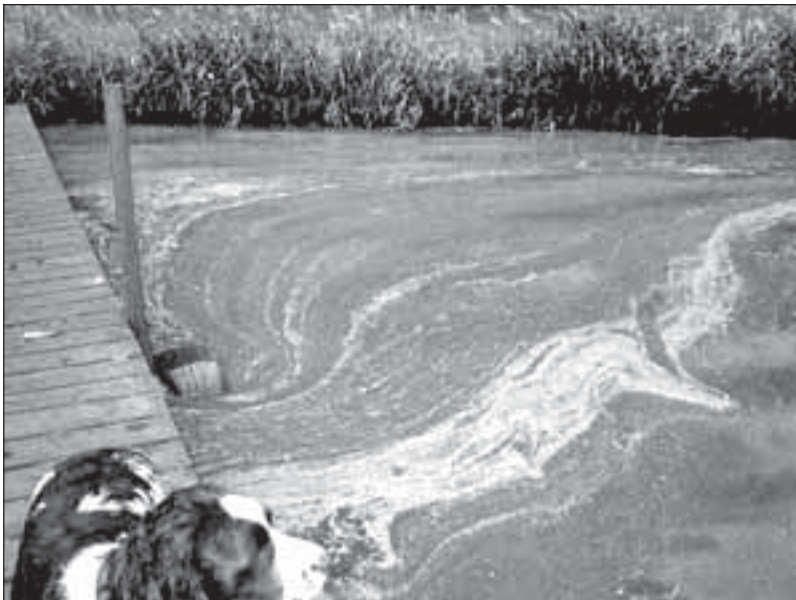
While it appears the initial intent of the regulations was targeted at home lawns surrounded by impervious surface, the MN ordinance does include P application to golf courses. What seems funny is that with large P contributions likely coming from septic and sewer systems, banning P on turf feels like worrying about a mouse when an elephant is going to run you over. Nevertheless, New York is considering similar regulation, as is the state of Maine; the regulation frenzy is underway.

Phosphorus is required in relatively large amounts by turf, surpassed only by nitrogen and potassium. Phosphorus is critical for photosynthesis, energy management and membrane function, all vital components of plant growth and P is relatively immobile in the soil, it is tightly bound in the top few inches.

An Important Assumption

An important assumption was made prior to passing the P regulations that is worthy of exploration. First, it is thought that soils that have tested high in P are more prone to P runoff than low P soils. Therefore, the P bans require a manager to have a soil test that indi-

An algal bloom caused by excessive nutrient loading resulting from runoff from applications to a home lawn.





Estuary in eastern Long Island, NY. Prior to the mid-1980's, Peconic Bay provided about 500,000 lbs. of bay scallops per year. By 1996 the harvest was reduced to 50 lbs per year. The massive dropoff was related to Brown Tide, a recurring algal bloom brought on by nutrient loading due to increased development around the bay.

A Comprehensive Conservation and Management Plan to address the Brown Tide is being implemented. This plan expects to receive about \$300 million to meet pollution reduction goals. In this case, the nutrient of concern is nitrogen (N) not exclusively P.

Nitrogen is thought to be the limiting nutrient in the Peconic Estuary and, when supplied, results in the Brown Tide. Singling out N is significant in that you simply cannot have good golf course turf without N. Additionally, as research has indicated, N has a significant effect on runoff and likely leaching as well. Slightly over 30 golf courses will be affected when the plan, which is in its early phase in 2004, is fully implemented.

The plan calls for annual N use rates over the entire golf course be less than 2.85 lbs. of actual N per 1000 square feet. There are many questions being raised by this type of plan. It is not a law per se, but clearly golf courses will be expected to comply.

Regulating nutrient management may not be perceived to be as volatile or alarming as pesticide regulations, but for sure, the influence could be greater. You won't need pesticides if you cannot fertilize your turf.

It's time to consider how to justify your fertilizer practices. There is a significant amount of research available to assist with the discussion, but as with most areas, more is still needed.

Now is the time to embrace coming changes by educating yourself and adapting. If we do not react proactively with education, change will be forced upon us with regulation.

Frank S. Rossi

Top: Peconic Bay Estuary suffered a massive decline in scallop harvest due to Brown Tide.

Bottom: Brown Tide, a recurring algal bloom brought on by excessive nutrient loading due to increased development around the bay.

cates they need P before it can be applied. Beyond any simple questions of enforcement, I'd like to challenge the premise that there is a link between soil test P and P runoff.

Let's start with the fact that there are no completed turf studies that correlate soil test P with runoff P concentration. However, several published turfgrass studies have indicated the relationship between turf density (not soil nutrient status) and runoff: the less dense turf results in significantly greater runoff of all nutrients, not just P.

Turf density is governed primarily by nitrogen; therefore, it is likely that soil test P has little to do with amount of P runoff. In fact, a preliminary study underway at Cornell University indicates, as expected, that nitrogen fertilization is correlated to P runoff, independent of soil test P levels.

The MN regulations created a provision for golf courses to be exempt from the P statute if they attend a certified training program. The P Fertilizer Training Program includes training in the P law, soil and tissue testing, basic soil science, P chemistry, and plant nutrition.

Nitrogen Regulation Next?

The P regulation is a harbinger of what lies ahead. Consider the 100,000 acre Peconic Bay



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