

Phosphorus in Our Lakes

Ah Spring; comfortable temperatures, fresh fragrances, vibrant colors, neighborly conversation...the beginning of a new growing season or the ball and chain of lawn maintenance? As the grass starts to grow, lawn mowers and fertilizer spreaders throughout the Twin Lakes watershed emerge from their quiet resting places in storage. But as each bag of fertilizer is opened we should consider whether our lawn needs the onslaught of chemicals general purpose fertilizers contain.

All fertilizer labels display the amount of N-P-K (Nitrogen, Phosphorus, and Potassium) found in a particular mixture of fertilizer. The soil across most of Wisconsin contains enough phosphorus to support a healthy, well manicured lawn (WIDNR). This naturally occurring phosphorus comes from weathered rocks and the decay of organic material. Yet, year after year we religiously apply more phosphorus than our lawn can actually utilize. Any excess phosphorus leaches into our groundwater (drinking water for anyone on a well system) or washes away with stormwater to neighboring lakes and streams. Since phosphorus is insoluble in water, once it gets into the water column there is no feasible way to remove it. Although biological systems require phosphorus for molecules such as ATP, our body's main source of energy, and DNA/RNA, the genetic code of life, excess phosphorus in our environment can create a negative, snowball effect in societal systems.

Let's imagine just 1 pound of excess phosphorus makes it to Lake Mary and Lake Elizabeth throughout the entire growing season this year. That 1 pound of phosphorus could result in 300 to 700lbs of algae in the lakes. Since phosphate is the limiting agent in the growth of algae, the organism has evolved to effectively utilize any excess phosphorus in the environment, significantly boosting growth. Now, project that each of the approximately 5,000 homes in the watershed produce 1 pound of excess phosphorus in the lakes, we could see 1.5 to 3.5 million lbs. of algae produced in the lakes. Quantities on that magnitude could use up a disproportionate amount of dissolved oxygen while producing a toxic substance to fish, ammonia. These two conditions would cause fish kills, snuffing out any aesthetic or recreational value the lakes once held. In turn, property values decrease and the economic outlook for the community becomes quite bleak.

While phosphorus cannot feasibly be removed from the water column, a conscious watershed-wide decision to limit the amount of phosphorus that makes it to the lake can prevent the above scenario from becoming reality. One way to reduce phosphorus involves preventing organic matter from getting into the lake; clean up pet waste, do not burn leaves in drainage ditches, and take yard waste to the community dump rather than throwing it in the lake. Riparian homeowners can discourage urban/resident geese from visiting their property by planting native buffers along the shoreline. The number one way to reduce phosphorus in the lake involves not applying it to your lawn in the first place. Research conducted by Bannerman in Madison, WI shows that 40-50% of the stormwater phosphorus comes from lawns treated with typical fertilizers. Wisconsin, Michigan, and Minnesota have been using and promoting the use of non-phosphorus fertilizers since 1993, thus the product is readily available in Wisconsin. Any concerns as to whether or not your property needs phosphorus can be answered by conducting a simple soil test through the UW-Extension office (Barb Larson, Horticultural Educator; 262/857-1945).

So admire your lush, green carpet of turf at every cook-out, birthday party, or get together this summer and be proud that you've accomplished two things by choosing to fertilize wisely, you've saved time and money while helping the lakes.

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