

Smart soils: What you can do to reduce phosphorus

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Phosphorus is a mineral that is found in many fertilizers and is a necessary element for healthy plant growth. Used in proper amounts, phosphorus helps vegetable plants and flowers produce blooms and fruit abundantly. It is also beneficial for root growth.

So when can a good nutrient go bad? Phosphorus becomes “bad” when it is over-used or if applied when not needed. For instance, lawn grasses have insignificant flowers and do not produce large fruit. So for the most part, Michigan soils naturally contain enough phosphorus to take care of a mature lawn’s needs.

When phosphorus ends up in ponds and lakes, it causes excessive aquatic plant growth. Brilliant green algae and aquatic weed growth covering the water surface is encouraged by the runoff of soil particles and organic matter laden with phosphorus.



Caused by too much phosphorus, algae and aquatic weeds can quickly clog a lake or stream.

In Michigan, this nutrient has caused the premature aging of many lakes. This is a process called eutrophication, which means the lake is filling in with sediment and organic matter and getting shallower. In a state with so many lakes and ponds, this has



All photos Rebecca Finneran, MSUE

Phosphorus can also travel to waterways in the form of mowed grass clippings that are not cleaned up.

become a huge problem. Even with careful reduction of phosphorus inputs near lakes and streams, runoff of soil particles allows ample phosphorus to reach the water. Just one pound of phosphorus can cause growth of hundreds of pounds of aquatic vegetation. A little phosphorus equals a lot of damage.

The bad news is that many people are applying agricultural fertilizers containing phosphorus to their lawns. Gardeners put phosphorus-containing fertilizers on everything. People added bone meal to every hole when planting bulbs. In most cases, the existing soil had more than enough without the addition of more. There was a great deal of unused phosphorus that began reaching our lakes and streams.

In response to that, several years ago Michigan passed a law limiting the amount of phosphorus in laundry and dishwashing detergents. In 2010, a law was passed banning phosphorus in lawn fertilizers. The new law also regulates applying phosphorus-containing fertilizers on frozen ground, water-soaked soil or near any surface water. The law also indicates phosphorus can be used if there is a recent soil test to indicate it is needed. That means if a new seeding for a lawn or an existing lawn needs phosphorus, it can be used, but it must be proved by soil test results.



To find out if you are being smart about phosphorus, get a soil test. You can order a Home Lawn and Garden Soil Test Mailer at the MSU Extension Bookstore (shop.msu.edu). There are tests for lawns, trees, shrubs, vegetable and flower gardens, and fruit trees. The goal is to keep your plants green and the water blue.

Additional resources

- homesoiltest.msu.edu

For more information on a wide variety of **smart gardening** articles, or to find out about smart gardening classes and events, visit migarden.msu.edu.

