

# Frequently Asked Questions about Fertilizers

**CLEAR CHOICES**  
**CLEAN WATER**  
happy lawns, healthy water



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- **How do I know if the fertilizer is phosphorus free?**
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## **What is fertilizer?**

Fertilizer is a product that combines the nutrients that plants need to grow - nitrogen, phosphorus, and potassium. Think of it as plant food.(1)

## **What is phosphorus?**

Phosphorus used in fertilizers comes from the fossilized remains of ancient marine life found in rock deposits in the U.S. and other parts of the world, or from plant and animal materials. Phosphorus helps plant health, density, and root growth. Phosphorus is the plant world's equivalent of carbohydrates - it provides the energy that a plant needs to grow.

## **How do I know if the fertilizer is phosphorus free?**

Three numbers are displayed prominently on the bag of fertilizer. Look for a zero (0) as the middle number of the three numbers. These numbers represent the percentage by weight of nitrogen (N), phosphorus (P), and potassium (K), respectively. Phosphorus-free fertilizer has a zero (0) in the middle.

## **Which number on the bag of fertilizer is phosphorus?**

The three numbers on the label are nitrogen (N), phosphorus (P) and potassium (K). Phosphorus-free fertilizer has a zero (0) in the middle.

## **Is "low phosphorus" the same as "no-phosphorus" in terms of protecting the environment?**

Low phosphorus lawn fertilizer typically has a 2 or 3 as the middle number on the label. Remember, even low phosphorus products can add up to large loads of phosphorus depending on how much is applied. A lawn product will have a high Nitrogen percent (greater than 10) and a low or zero phosphorus percent.

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## Is organic fertilizer the same as no phosphorus?

No. Organic fertilizer is made of natural materials. Examples of organic fertilizer include livestock manure, feather meal, blood meal, cotton seed meal, compost, etc. Organic fertilizers also contain phosphorus. In fact, even if the phosphorus number on the bag is low, often so is the nitrogen number. Turf grass managers will often recommend nitrogen numbers in the twenties (20s); therefore, if organic fertilizers with low nitrogen percentages are used, the recommended application rates (total amount applied) are often high resulting in a larger amount of phosphorus being applied than is ideal. Even low phosphorus products can add up to large loads of phosphorus depending on how much is applied.

## What is soil testing and why should I care?

Soil testing means sending a sample of your lawn to a laboratory to learn what levels of nutrients currently exist in your lawn. The test results also provide recommendations on what your lawn needs (in terms of pH, phosphorus, and potassium) to be healthy.

## Can I take my soil somewhere to get tested?

You can get your soil tested professionally for approximately \$15. There are many laboratories [in the region](#), but only 3 in Indiana.

A&L Great Lakes Labs  
3505 Conestoga Dr.  
Fort Wayne, IN 46808-4413  
(219) 483-4759  
<http://www.algreatlakes.com>

Chemical Service Lab, Inc  
3303 Industrial Parkway  
Jeffersonville, IN 47130  
(812) 280-1090

The Scotts Miracle-Gro Company  
<http://scottsoiltest.com>

For additional assistance, contact your county Purdue Extension Educator.  
<http://www.ag.purdue.edu/extension/Pages/Counties.aspx>

## To have a good looking lawn, do I need to fertilize?

Yes, grass plants need nutrients to grow. A mature lawn, with healthy soil requires less fertilizer than a new lawn. If you leave your grass clippings on the lawn (natural fertilizer) you are recycling the phosphorus and much of the nitrogen back to the soil. Clippings do not lead to thatch. Only apply a fertilizer designed for lawns and use a zero-phosphorus fertilizer unless a soil test shows a need for phosphorus. Newly-established lawns may need some supplemental phosphorus for the first 2-3 years.

## Do I need phosphorus for my lawn to stay healthy/green?

Yes, but many lawns have enough phosphorus in the soil to maintain a healthy lawn. If you have a healthy established lawn, it does not need additional phosphorus. In 2004, Purdue's Department of Agronomy found 89% of studied Indiana lawns had "adequate" or "high" levels of phosphorus (22% adequate; 67% high). If you are establishing a new lawn, the grass will need additional phosphorus to grow new roots.

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## **Do I need special equipment or different application method?**

No. Only use a fertilizer product designed for lawns. Look for "lawns" on the label and look for directions listing "spreader settings". Use only the spreader setting listed on the label and follow the use instructions. More is not better. If the forecast calls for rain, wait until after the stormy weather has passed. Leave a buffer of unfertilized lawn next to any waterways.

## **Is phosphorus free fertilizer more expensive?**

No. If anything, phosphorus free fertilizer products may be less expensive. However, currently household cleaning products that are phosphorus free tend to be slightly more expensive. This is often the result of them being produced by smaller companies that serve a niche market.

## **Are there better times to fertilize? Time of day, time of year, weather conditions?**

The best times to fertilize are the late Spring and early Fall. Fertilize little to none during the summer. A fall fertilization program will produce the healthiest turf throughout the year. Do not apply fertilizer if the forecast calls for a heavy rainfall. Never apply fertilizer to frozen soil.

## **What are the best practices for lawn care?**

Mow the lawn at a high mower setting. Taller grass is stronger grass and is better able to capture and absorb rainfall and prevent run-off. Keep grass clipping and other plant materials, and fertilizer, off of hard surfaces (sidewalks and streets) where they can be washed into storm drains.

## **How does phosphorus move around and affect our water quality?**

Phosphorus (P) is essential to plant and animal life. Problems with phosphorus as a water pollutant result not from its presence, but from the addition of excessive amounts. Phosphorus enters lakes and streams in one of three primary ways:

1. stormwater run-off (sediment, leaves and pollen, dead plants and animals, animal waste, septic seepage, fertilizer),
2. wastewater treatment facility discharges and
3. agricultural run-off.

When transported into aquatic systems, phosphorus causes weed and algae growth. When phosphorus levels are too high, excess plant and algal growth creates water quality problems. Plants begin to die and decompose, depleting the dissolved oxygen supply in the water - a condition called hypoxia, which can lead to fish kills in some cases. Phosphorus is also released from the sediments and from decomposing plants back into the water column, continuing the cycle of algal or plant growth. The reaction of the aquatic system to an overloading of nutrients is known as eutrophication. Hypoxia and eutrophication, to some extent, occur within many of our lakes and streams every year, and occur on a larger scale at the mouth of the Mississippi River where there's a large "dead zone" in the Gulf of Mexico. Eutrophic lakes and streams are also more likely to have higher levels of blue green algae, which can produce blue green algal toxins.

## **What are the levels of phosphorus in Indiana's waters?**

Total Phosphorus in Indiana waters is routinely measured by state agencies such as the Indiana Department of Environmental Management (IDEM), as well as many researchers, local governments,

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and citizen volunteers. According to consultants contracted by the IDEM, the average Total Phosphorus values for Indiana rivers is 0.158 mg/L, the average for natural lakes is 0.046 mg/L, and the average for reservoirs is 0.081 mg/L (Morris et al., 2009; Tetrattech, 2008). To give this some perspective, the US Environmental Protection Agency (EPA) issues reference conditions (acceptable conditions) for the Midwestern region. The reference conditions for Total Phosphorus are 0.0625 mg/L for streams and rivers and 0.023-0.028 mg/L for lakes and reservoirs (2000). An important biological boundary that represents change to aquatic ecosystems (excessive plant growth), known as Eutrophic/Mesotrophic boundary, is 0.07 mg/L for streams and 0.03 mg/L lakes and reservoirs.

## **What is the government doing about phosphorus levels in our waters?**

Our State and local governments have invested in water treatment facility upgrades that have dramatically reduced phosphorus discharges. Indiana was one of the first states to ban phosphorus in laundry detergent in the 1970s and a ban on phosphorus for residential dishwasher detergent came into effect in July 2010. It is estimated that around 3% of the phosphorus entering into surface waters comes from dishwasher detergent. State governments and interest groups have worked with fertilizer manufacturers to reduce or eliminate phosphorus from lawn maintenance products. Phosphorus-free products are widely available throughout Indiana. To further reduce phosphorus inputs into waterways, interest groups are currently discussing strategies to introduce a bill banning phosphorus from residential lawn fertilizers, except for seeding/establishment, when indicated by a soil test, or when using an organic or sewage sludge product, which several states have already done. Under the US Farm Bill, the Natural Resources Conservation Service provides education and cost-share to the agricultural community to implement best management practices to limit nutrient runoff into streams and lakes.

## **What can I do as a homeowner that will help reduce phosphorus levels in our waters?**

Keep leaves, grass clippings, and dirt/sediment off of driveways, sidewalks and the street. Rains wash these nutrient rich materials into our storm sewers that lead directly to our streams, rivers, and lakes. Maintain healthy greenspaces (trees, landscape and lawn) to capture rainfall and prevent run-off and sedimentation. Use a zero-phosphorus fertilizer unless a soil test shows a need for more.

## **Does bad taste or smell of my drinking water have anything to do with phosphorus in the water?**

If you have "city water" that comes from a lake or river rather than a well or aquifer, algae may cause bad tastes or smells in your water. Two common taste and odor compounds produced by algae as a byproduct of their growth are MIB (methyl-isoborneal) and Geosmin that cause the water to taste and / or smell earthy or musty when there is a large algal bloom. The compounds are harmless - but unpleasant. The treated water coming from your faucet is still safe to drink.

Sources:

- (1) ["An Urgent Call to Action: Report of the State-EPA Nutrient Innovations Task Group"](#)
- (2) ["Fertilizing Established Lawns" Zac Reicher and Clark Throssell, Purdue University Turfgrass Specialists \(AY-22\)](#)
- (3) [Maine DEP](#)
- (4) [Hoosier Riverwatch Volunteer Stream Monitoring Training Manual](#)