



Landscaping practices

Fertilizer Management

What's the Problem?

Fertilizer is important to the health of turfgrass, but improper application can pollute water resources. Fertilizer that enters storm drains and roadside ditches pollutes our lakes and streams by causing algae to grow and use up oxygen that fish and other aquatic habitat need to survive.

Fertilizer Type Selection

Fertilizers are labeled with 3 numbers on their packaging (i.e. 10-3-9), listing the percentage of nitrogen (N), phosphorus (P), and potassium (K), in that order. Following are some tips to consider when selecting fertilizer.

- Choose a fertilizer designed solely for turfgrass. Avoid using lawn starter fertilizers and fertilizers that are labeled "Lawn and Garden" or "all purpose" for routine lawn maintenance. These fertilizers usually contain several times more nutrients than needed for a healthy lawn.
- Choose a fertilizer with low phosphorus. (A low phosphorus fertilizer contains a nitrogen to phosphorus ratio of 5:1 or greater). Consider using no phosphorus. Excessive phosphorus can cause algae growth and deplete oxygen if it enters a river or lake through the storm drain system. (Note: New lawns typically need more phosphorus to establish root growth. Once established, new lawns can use a fertilizer for established turf.)
- Use a slow-release nitrogen fertilizer. It causes less harm to water and feeds the lawn nutrients over a longer period of time. Other benefits of slow-release fertilizer include: low burn potential; less loss of nitrogen from the site; need for fewer applications; and more uniform response. Also, consider using an organic fertilizer.

SEMCOG

Our Water. Our Future.



Ours to Protect



Source: Wayne County Department of Environment

The purpose of fertilizer is to provide nutrients (minerals) to the grass roots. Nutrients are essential for plant growth and development, including nitrogen and phosphorus. But misapplication of fertilizers can pollute water resources, ruin plants, and waste taxpayer money.

Fertilizer Type Selection (continued)

- Many experts recommend one pound of nitrogen per 1000 square feet of lawn. If you want to check for having the right nitrogen content in your fertilizer, do the multiplication:
 - Nitrogen number $\times .01 \times$ bag weight = pounds of nitrogen in the bag
 - This should compare closely with the thousands of square feet covered as listed on the bag. For example, 5 pounds of nitrogen for 5,000 square feet, 10 pounds of nitrogen for 10,000 square feet, etc.
 - If the pounds in the bag significantly exceed the 1000s of square feet covered as listed on the bag, you are buying too much nitrogen. Consider another fertilizer.
- Visit www.semcog.org/municipaltraining/index.html for a list of fertilizers that contain slow-release nitrogen and are low phosphorus.
- When using a lawn contractor, review the Selecting a Landscape Contractor Fact Sheet.

Fertilizer Application/Quantity/Storage

- Choose turfgrasses and groundcovers that are well-suited to Michigan. They will require less maintenance, including fertilizer (For a list of these grasses, see the Lawn Care Fact Sheet).
- A fertilizer application in the cooler temperatures of fall is important because it improves the root system and enhances early spring recovery. Top growth stops in the 40-50 degrees Fahrenheit range, but roots remain active as long as temperatures remain above 35-40 degrees Fahrenheit.
- Keep your lawn at three inches in height. Taller grass strengthens roots and shades out weeds, which will require less fertilizer and pesticide application. Also, remember that the nutrients from grass clippings left on your lawn adds nutrients to your lawn as well.
- Sweep or blow excess fertilizer from parking lots, roads and sidewalks back onto lawns to prevent it from entering storm drains, ditches, and waterways.
- Keep fertilizer applications at least 25-50 feet away from the edge of rivers, lakes, and streams.
- Store fertilizer in well-marked closed containers to avoid spills.
- Determine if your lawn weed problem is large or small. For small problems, consider spot treating with a ready to use product. Large scale problems can be addressed with broadcast granules or spray the appropriate pest control. If you mix the product, mix only the amount you need in a well ventilated area, away from storm drains, ditches, and waterways.
- When spreading fertilizer near paved surfaces, adjust your route to ensure fertilizer is not being applied to the pavement. Consider utilizing spreaders that includes technology (e.g., sometimes called edeguard technology), which helps avoid spreading fertilizer on paved surfaces, flowerbeds, and other fertilizer free zones.

Fertilizer Application/Quantity/Storage (con't.)

- Wash out your spreader on the lawn, not on paved surfaces.
- Material Safety Data Sheet (MSDS) should be available for the fertilizers if the quantity per chemical makes up at least 1% of the product's content.
- Never fertilize when soils are frozen or saturated. This can lead to runoff of the fertilizer into stormdrains and ditches.

Soil Testing

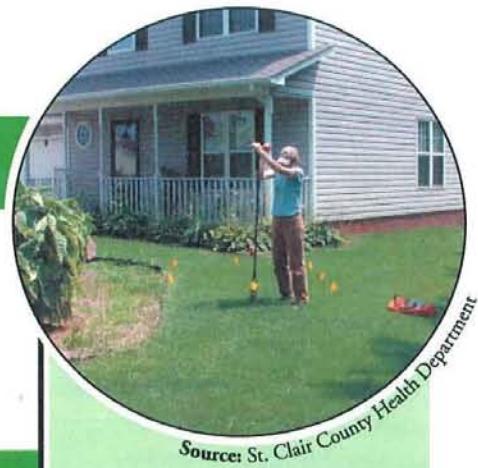
A well-designed fertilizer for healthy turf management is based on the needs of the average lawn. Usually this contains smaller amounts of nutrients applied in multiple applications. If you are interested in knowing the amount of nutrients needed at your site, soil testing provides this nutrient analysis.

- Contact your County Michigan State University Extension (MSUE) office to get a soil test or information on performing soil testing. MSUE recommends testing the soil every 2-3 years to monitor changes in soil chemistry. Soil tests determine levels of pH, phosphorus, potassium, magnesium, and calcium. Soils are not tested for toxins or pathogens. The three major essential plant nutrients are:
 - Nitrogen (N)-Promotes plant growth, increases top growth, and is a building block for protein.
 - Phosphorus (P)-Promotes cell division and stimulates healthy root growth and seed germination.
 - Potassium (K)-Essential for photosynthesis, which protects against disease and cold.
- MSUE provides detailed directions on taking the soil sample. This includes: take soil samples in a zig-zag pattern in 10-15 locations on your soil, 3-8 inches deep and collect in a bucket; let the sample soil dry; combine the soil in a 2-3 cup sample. The mix provides a composite of the area. Deliver the soil sample to your County MSU Extension Office.

Fertilizer Ordinances

Local governments have the authority to implement a fertilizer ordinance within their own jurisdictions. Most communities considering development of a fertilizer ordinance do so in concert with an educational program that provides information on fertilizer application. The types of issues sometimes addressed in these ordinances and informational programs include:

- Time of year that applications could be applied,
- Number of applications per year,
- Requirements for soil tests to utilize phosphorus fertilizer,
- Education of residents,
- Sweeping overcast fertilizer from impervious surfaces, and
- Prohibiting fertilizer application within a certain distance from a waterbody.



Source: St. Clair County Health Department

Cover photo: Courtesy of Wayne County Department of Environment

Top right photo: A soil test will indicate nutrient levels already in soil.

Back page photo: Maintain Material Safety Data Sheets (MSDS) for fertilizers used on municipal properties.

Michigan Right to Know Law

Michigan's Right to Know Law provides access to chemical information to workers whose jobs involve the routine use of hazardous chemicals. This requires employers to maintain current Material Safety Data Sheets (MSDS), implement employee hazardous chemical awareness training, and develop a written hazard communication plan.

The written hazard communication plan includes an inventory of hazardous chemicals and products; provisions for labeling; employee access to MSDS; and an employee training program.

Contact: Michigan Occupational Safety and Health Administration
www.michigan.gov/miosha



Source: Bloomfield Township

Fertilizer Management

Resources

Michigan State University Extension-Macomb County. "Answers to Frequently Asked Questions about Soil Testing." <http://macombcountymi.gov/msuextension/soil.htm>.

Michigan State University Extension-Oakland County. "November/December Landscape Guide." www.msue.msu.edu.

Michigan State University Extension-Oakland County. "Earth Friendly Fertilizer Selection & Application." Brochure. www.msue.msu.edu.

Michigan State University Extension-Oakland & Wayne Counties, SOCWA. "Healthy Lawn Care Program for Oakland and Wayne County Residents." Report.

SEMCOG. "Our Water. Our Future. Ours to Protect.—Seven Simple Steps to Clean Water." www.semcog.org.

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