Extension
UNIVERSITY OF WISCONSIN-MADISON
IRON COUNTY

NORTHWOODS YARD & GARDEN

Weekly Column
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The N-P-K of Soil Fertility - Part 2

As discussed last week, soil fertility is essential for success when growing plants in yards and gardens. Last week focused on nitrogen (N); today I will discuss details on phosphorus (P), and potassium (K).

Phosphorus plays key roles in root development, flowering, and fruiting of plants. In contrast to nitrogen, phosphorus is very stable in soils. Symptoms of lack of phosphorus, as expected, could show poor rooting and lack of flowers and fruit. This may be difficult to diagnose as phosphorus deficiency, however, from other potential causes. Soil tests can determine soil phosphorus levels and, if needed, the proper amount to add via fertilizers.

Excessive phosphorus can be a major contributing factor to algae problems in lakes and ponds. Soil moved via erosion can carry phosphorus with it. Misapplied phosphorus fertilizer can also wash directly into waterways. Always be careful with phosphorus fertilizer use, especially near lakes.

Apply proper rates, based on soil test results, and always take steps to avoid off-target fertilizer application landing on pavement or impervious surfaces that then readily moves with rainfall. Wisconsin law restricts use of phosphorus on lawns to only certain situations based on soil tests, thus lawn fertilizers sold here do not contain phosphorus.

Rock phosphate is a primary source of phosphorus for fertilizing plants. By itself, it is terribly slow in releasing available phosphorus for plants. For this reason, rock phosphate combined with sulfuric acid creates faster-acting superphosphate or triple superphosphate found in commercial fertilizer products. In addition, ammonia and phosphoric acid are combined to create ammonium phosphate also used in fertilizers.

Potassium acts as a nutrient regulator in plants, working with other nutrients in essential growth processes. Potassium helps improve stress tolerances of plants, including cold weather, drought, and disease resistance. It falls between nitrogen (fast) and phosphorus (slow) in terms of mobility and speed of availability in the soil. Potassium deficiency is difficult to assess by looking for any plant symptoms. Soil testing will determine available potassium in soils.

Potassium sulfate, which is mined and ground rock, is a popular potassium source used in fertilizers. Potassium chloride, or muriate of potash, is also widely used. Many garden fertilizer products contain potassium. It is also the key nutrient in winterizer fertilizer sold for use on lawns in fall.

Spend time now to assess fertilizer needs of your plants and be ready to act accordingly this coming season! Also watch future columns for more specifics on fertilizing various yard and garden plantings as the season progresses.

Interested in learning more about Horticulture in Iron County?
Feel free to contact:

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