Does my lawn need fertilizer?

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A healthy lawn will reduce weeds, use water more efficiently, and reduce runoff, erosion and dust. A healthy lawn also cools the area around homes (reducing air conditioning needs), and in rural areas, may be the last defense to wildfires. There are four main considerations to keep in mind for a healthy lawn.

- Add 1 inch of water/week for peak growth
- Mow regularly, not cutting too much at a time (keep to 2.5 inches)
- Core aerate (remove plugs of soil) at least every three years, but annually is recommended
- Fertilize

The recommendation is to fertilize three times per year, generally timing with Memorial, Labor and Columbus Days. At each fertilization we recommend about 1 pound of actual nitrogen per 1000 square feet of lawn per application. Note that this is not pounds of fertilizer – as every fertilizer has a different amount of nitrogen, phosphorus, and potassium, or N-P-K percentages. Also, keep in mind that many fertilizers, often called "weed and feed," have herbicides in the formulation. Following is information to help you choose the correct product and application rate for your lawn.

Nitrogen

Lawn fertilizers contain higher amounts of nitrogen than phosphorus and potassium. Nitrogen is the most limiting nutrient because it is taken up by turfgrass in larger quantities, and has a tendency to leach or volatilize. I often use a quote from Sports Field Management Magazine in my turfgrass class: "Nitrogen is important for plant growth, but it can be problematic if not applied correctly. Thus, the goal for your nitrogen fertility program should be to supply the turf with exactly the amount of nitrogen it needs – in a timely manner – while avoiding excess that is both costly and potentially harmful to the environment."

Performing a soil test is the best way check nutrient needs. However, it has been determined that 1 pound of actual nitrogen at the recommended dates (around Memorial, Labor and Columbus Days) is generally sufficient and timely. Nitrogen in most fertilizers comes in two forms: quick release and slow release, with each formulation having advantages and disadvantages. Please see graph showing the different formulations of nitrogen in lawn fertilizers, as well as their advantages, disadvantages and application rates.

In Montana, cool-season turfgrasses are recommended as they like cooler temperatures and cooler soils. It is recommended to use quick release fertilizers for early green-up and for fall applications. However, there is no real detriment to using slow release. Most higher quality fertilizers include both fast-and slow-release to optimize efficiency. Also follow recommended rates when applying fertilizer.

Phosphorus

Due to runoff issues and the potential pollution to streams, rivers and even complete watersheds, most conventional lawn fertilizers no longer contain phosphorus in their formulations. However, in Montana there are instances where phosphorus deficiencies occur. Symptoms include blades of grass turning very dark, almost black, and the turf becoming thin. If these symptoms occur, soil testing should be done and appropriate action, possibly adding rock phosphate or bone meal, should be taken.

Potassium

Potassium deficiency is very rare in Montana. As a result, though it won't hurt the turfgrass, try to avoid using fertilizers that contain potassium. Most "winter blend" lawn fertilizers contain larger percentages of potassium, so stick with normal turfgrass fertilizers, even for late fall applications.

Micronutrients

Most micronutrients are adequately supplied to turfgrass through degradation of organic matter and soil particles in the soil. Some fertilizers, including organics, supply an overabundance of micronutrients and may cause toxicities. The exception is iron. This micronutrient is vital for turfgrass health and often must be supplemented, especially in areas with high pH soils.

While many conventional fertilizers contain lesser amounts of iron, it may not be enough for alkaline (high pH) soils. If grass is still light green after fertilization, add the recommended amount on the label of ferrous iron to the lawn. Granular iron can be found at local nurseries and garden centers and can help you have the greenest lawn in the neighborhood.

Applying Fertilizers

Almost all fertilizers are granular and are applied using a spreader. A broadcast spreader is the best way to distribute fertilizer to the lawn – it will give you the best distribution and even coverage. Drop spreaders will leave "lines" in the lawn from over- and under-coverage due to overlapping. When using a drop spreader, cut the application rate in half and go two different directions. Whatever fertilizer you use, calibrate the spreader to deliver the right amount of fertilizer, and use the setting recommended on the label. In most cases, the fertilizer should be watered in after each application for proper effectiveness.

Here is a great resource for spreader calibration: http://plantscience.psu.edu/research/centers/turf/extension/factsheets/calibrating-spreader.

Fertilizers with Herbicide

Widely known as "weed and feed" products, there are several granular fertilizers that contain herbicides. Even though you can fertilize and potentially kill weeds in your lawn at once, it is not always recommended. Most of these products recommend application to a wet lawn so the herbicide granules "stick" to the broadleaf weeds. And, they should not be watered in for several hours for the herbicide to work. However, because fertilizer should be watered in after each application, the potential of the fertilizer to burn the lawn is greater. Also, the application timing of the fertilizer may not sync with the timing to kill weeds, such as dandelions, before they go to seed. Finally, herbicide-fertilizer mixes may damage flower and vegetable beds if there is overage. If you decide to use "weed and feed" products, always read the label and follow instructions carefully.

For more information on proper lawn fertilization for your area, contact your local county or reservation Extension office for recommendations. ■

Fertilizer Examples (example formulation)*	% Nitrogen	Approximate lbs Fertilizer Per Application	Advantages	Disadvantages
Fast (Quick-Release Fertilizers)				
Urea (46-0-0)	46%	2.2 lbs/1000 ft²	• Quick green-up • Nitrogen uptake when soils are cold • Inexpensive • Custom formulations • Ammonium Sulfate is good for high pH soils	• Fast acting • Can burn grass if over-fertilized • Losses to leaching, runoff or volatilization • Flush of growth may require more mowing
Ammonium Sulfate (21-0-2)	21%	4.8 lbs/1000 ft²		
Ammonium Nitrate (34-0-0)	34%	3.0 lbs/1000 ft²		
Slow (Controlled-Release) Fertilizers				
Sulfur Coated Urea (46-0-0)	46%	2.2 lbs/1000 ft²	• Uniform growth for longer periods of time • Less likely to burn grass • Less loss through leaching, runoff or volatilization • Organic is possible	• More expensive • Does not work well in cold soil • Slower green-up in spring • Formulations can vary • Organics may have an unpleasant odor
Urea-formaldehyde (Ureaform) (38-0-0)	38%	2.6 lbs/1000 ft²		
Isobutylidenediurea (IBDU) (31-0-0)	31%	3.2 lbs/1000 ft²		
Biosolids (from wastewater) (5-4-0)	5%	20 lbs/1000 ft²		
Organic Lawn Fertilizers (8-4-2)	8%	12.5 lbs/1000 ft²		

* Each formulation is an example. To find the exact application rate, divide 1.0 lb N/1000sqft (Recommended rate) by the percentage of N (the first number of the N-P-K). For example: 25-0-0 fertilizer has 25% nitrogen. Therefore, the equation is 1.0 lb N/1000sqft ÷ 0.25 = 4.0 lbs fertilizer/1000sq ft

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