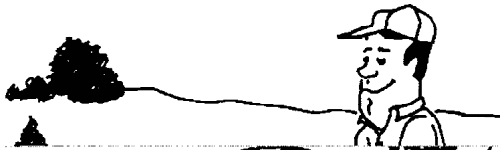

Southern Idaho Lawns

Robert L. Mahler, Christi Falen, and Susan M. Bell

Lawns require adequate levels of plant nutrients throughout the growing season to maintain healthy, vigorous growth. Use of fertilizer is one of several important management practices for establishing and maintaining a beautiful lawn.

To fertilize your lawn correctly, you need to understand its nutrient needs. Lawns in southern Idaho often need four macronutrients: nitrogen (N), phosphorus (P), potassium (K), and sulfur (S). In many areas of southern Idaho lawns may also require the addition of iron (Fe) for optimum growth.

Macronutrients

Nitrogen (N)

Nitrogen helps grasses produce healthy, lush blades. Southern Idaho lawns need 3 to 5 pounds of actual N per 1,000 square feet each year. The exact amount you apply depends on your soil type, your choice of fertilizer, and the number of months your lawn is actively growing. Avoid over-application of N because it increases the potential for nitrate (NO_3^-) leaching. Nitrates that leach through soils and reach groundwater (aquifer) pose a threat to human health.

Two kinds of N fertilizers are available commercially: slow release and quick release. Slow release fertilizers become available slowly. Use them in sandy soils, in soils that drain rapidly, in soils that receive excessive watering, or when grass plants are growing slowly (very early spring and late fall). Slow release N fertilizers are often referred to as WIN (water insoluble nitrogen) materials. You can tell if a material is slow release by reading the information on a fertilizer bag.

Quick release fertilizers provide readily available N to plants. Quick release fertilizers (e.g., ammonium sulfate, ammonium nitrate, urea, potassium nitrate) are best to use when the grass is rapidly growing in the late spring and early summer.

Phosphorus (P)

Phosphorus promotes strong root growth and encourages lawns to thicken quickly. Phosphorus will not move appreciably with irrigation water and will not cause leaf burning or plant injury. Phosphorus fertilizer applications may, therefore, be made at one time. Phosphorus may also encourage weed growth (dandelions) if applied to the surface of the grass or soil.

Potassium (K)

Adequate K is necessary for disease resistance. This element also helps the lawn to stand up to heavy traffic and promotes winter hardiness. Potassium is usually present in adequate quantities in lawns in southern Idaho. Avoid over-applications because too much K can result in the accumulation of salts in soils.

Sulfur (S)

Sulfur is essential for developing and maintaining an attractive, deep green color in lawns. Rapidly growing, intensively managed lawns

have a high demand for S. Fortunately, most water sources in southern Idaho contain adequate levels of S.

Iron (Fe)

where compost may have been piled, areas

Establishing a New Lawn

When establishing a new lawn, we recommend a soil test for plant available nitrogen. Soil tests provide values for both ammonium-N and nitrate-N. When added together they equal the total plant available nitrogen. If your soil test indicates that there is less than 5.0 ppm plant available N in the top 8 inches of the soil, apply 0.5 pound N per 1,000 square feet. If the soil test from your soil sample indicates 5.0 ppm plant available N or more, additional N is unnecessary to establish the new lawn.

New lawns generally require greater additions of P and K than existing lawns. Phosphorus application rates based on a soil test are shown in Table 2. For best results when establishing new lawns, incorporate the fertilizer P into the top 4 to 6 inches of the soil before seeding the lawn.

Potassium application rates based on a soil test are shown in Table 3. As with P, for best results incorporate the K fertilizer into the top 4 to 6 inches of the soil before seeding the lawn.

Apply S fertilizer to the soil if your soil test value indicates less than 10 ppm SO_4-S. An application rate of 1.5 pounds S per 1,000 square feet is recommended. If you are laying sod instead of seeding, gypsum (calcium sulfate) applied at the rate of 1.5 pounds per 1,000 square feet to the soil surface will enhance rooting.

Fertilizer Rates Based on Nutrient Ratio Strategy

The fertilization strategy based on nutrient ratios involves applying 0.5 pound of N per 1,000 square feet of lawn for each month of active grass growth rather than relying on a soil test. (When daily temperatures average above 85 degrees F, most grasses become inactive and stop growing unless you water them.) Most lawns in southwestern Idaho start active growth in late February or early March and often continue to grow until mid-November. As you move east of southwestern Idaho the active growing season is reduced. If, for example, your lawn grows actively for 9 months each year, you would apply 4.5 pounds of N per 1,000 square feet over the year (9 x 0.5 = 4.5).

Phosphorus, K, and S applications are based on a ratio of those nutrients to the amount of N applied: three parts N, to one part P, to two parts K, to 1 part S. Thus, if the N recommendation is 4 pounds per 1,000 square feet, the P recommendation would be 1.3 pounds, the K recommendation would be 2.6 pounds, and the S recommendation would be 1.3 pounds.

Let's say that you have a lawn that is actively growing 9 months each year. You would calculate N, P, K, and S fertilizer needs as follows:

0.5 lb N per 1,000 ft^2 per month x
9 months = 4.5 lb N per 1,000 ft^2

3 parts N = 4.5 lb N
1 part P = 1.5 lb P
2 parts K = 3.0 lb K
1 part S = 1.5 lb S

You would buy a lawn fertilizer with a N:P_2O

K_2O per 1,000 square feet. Because of the amounts of N and K to be applied, you should (1) divide the fertilizer in half and make two

Table 4. Fertilizer material required to supply 1 pound of plant nutrient per 1,000 square feet.

	Fertilizer analysis*				Pounds of material needed to supply 1 lb of nutrient			
	N	P_2O_5	K_2O	S	N	P_2O_5	K_2O	S
	(%)				(lb)			
Fertilizer materials								
Ammonium nitrate	34	-	-	-	3.0	-	-	-
Ammonium sulfate	21	-	-	24	4.8	-	-	4.1
Urea	45	-	-	-	2.2	-	-	-
Urea formaldehyde	38	-	-	-	2.6	-	-	-
Urea ammonium nitrate	32	-	-	-	3.1	-	-	-
Sulfur coated urea	34	-	-	21	3.0	-	-	4.8

The Authors

Robert L. Mahler is a University of Idaho professor of soil science in the Department of Plant, Soil and Entomological Sciences at Moscow. Christi Falen is a UI extension educator in Minidoka County, and Susan M. Bell is a University of Idaho extension educator in Ada County.

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