

**Soil Testing and Fall Fertility Go Hand in Hand**  
**Rick Abrahamson**  
**SD Cooperative Extension Educator-Horticulture**  
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Soil fertility can be a complex issue that many people take very lightly. Too often people think that if a little nitrogen is good then more must be a whole lot better. This is not the case as plants will only take up what they need for growth. Excess nitrogen can cause excessive foliar growth and may not harden off at the end of the season. Flowering and fruit quality can be impacted when high nitrogen levels are present. Trees and shrubs do not require additional fertilizer above what has been applied for turfgrass.

The amount of fertilizer one should use depends on several factors. How you maintain your lawn, how much you water, your current soil fertility levels, and your views on using non-organic fertilizers. For a high maintenance lawn with a constant supply of water (one inch per week) apply four treatments of one pound of actual Nitrogen per 1000 square feet. For a lawn without irrigation but higher maintenance apply only three treatments. A low maintenance lawn should have one or two applications yearly at this rate depending on whether you water or not. If clippings are left on the lawn you can reduce your total applications by one.

I suggest a soil test to determine soil fertility prior to any fertilization. Testing for nitrogen, potassium, phosphorus, pH, salt, and organic matter will give you a good starting point. Soil test kits are available in our office; the cost of testing is under \$15.00 depending on which tests you choose to have done. Using the information in the soil test results it is possible to calculate the precise amount of fertilizer needed.

Taking a soil sample is easy and can be done in about a half hour with basic garden tools. Grab a couple of five gallon buckets, a spade, and a garden trowel and you will be ready to sample your yard and garden. You may wish to divide the yard into different areas as different soil conditions can exist within a single yard. Start at one point in the yard and take a spade full of soil. Use the trowel to remove just a bit of the soil in the spade and place in one bucket. Take a second spade full and place a trowel full of soil in bucket number two. These two subsamples will represent soil depths of 0-6 inches and 6-12 inches. Repeat this procedure at a minimum of ten spots in the yard. Thoroughly mix the soil in each bucket and place about a cup of the mixed soil in the soil test kit bag. Sampling in this manner should give excellent results which will be representative of the entire area sampled.

The question then remains as to what type of fertilizer to use. A good N-P-K ratio to use for your final lawn fertilization is 4-0-2 or 4-0-3. This means that the commercial analysis on the fertilizer bag should be within these ratios. Notice that the middle number is zero. A newer law in Minnesota requires that all fertilizer used on lawns not contain phosphorus. There are some exceptions; newly established lawns and when you have a soil test indicating a need for phosphorus. This law should have minimal impacts on our area as much of our soils have excess phosphorus. In addition to the excess amounts available, phosphorus does not leach out of the root zone. The first number is the important one; nitrogen leaches out of the root zone very quickly and is the most needed element for plant growth. Base your fertilizer calculations on this number.

Even as the air temperatures start to drop in September and October grass roots are continuing to grow. As long as soil temperatures remain above 32 degrees turfgrass will store nitrogen until growth resumes in the spring resulting in a nice dark green color earlier. This assists your lawn to be healthier and over winter better than those that go into winter with a nitrogen deficiency. Be sure to water the lawn well after fertilizer application if rain is not in the forecast.

Feel free to contact me at 605-394-2188 or email to [ricky.abrahamson@sdstate.edu](mailto:ricky.abrahamson@sdstate.edu) for answers to your horticultural questions.