

Getting the



HOW TO TEST

Soil tests can help assess the quality of a specific field for growing a crop or a garden plot, whether it is grass, alfalfa, vegetables, or flowers.

There are many types of tests available. If production has been acceptable to the owner and there are no obvious problem areas in fields or gardens, a standard fertility test (nitrate, phosphate, organic matter, pH, salt estimate, qualitative lime, and texture) or a standard fertility test plus potassium, iron, and zinc may be all that is needed. Your local University of Wyoming Cooperative Extension Service (UW CES) county educator or the UW Soil Testing Laboratory in Laramie can help determine needed tests. The standard fertility test will provide valuable information to help growers make decisions about fertilizer application.

TIMING

Soil sampling a few weeks before fertilizer application is usually best. Equipment and time constraints can sometimes prevent this, and samples are taken at other times. Nutrient content will change over time. Some nutrients leach, and others can be released and made available from the organic matter or the mineral material in the soil. It is important to be consistent with the timing so results can be compared year to year. Establish a sampling time that suits your management practices. Keep records showing production results. Remember, fertilizer recommendations are based on average performances, and other factors (sample timing, water, slope, etc.) may require slightly increasing or decreasing the suggested rates.

WHERE

Next, identify the areas to sample. There are three basic approaches to choosing these areas – whole field, grid sampling, and management-unit sampling.

If using the whole-field method, take 15 to 20 cores from random areas in the field. The cores are mixed together in a clean bucket, and a representative sample is sent to the laboratory for analysis. Unusual areas in the field such as salt deposits, animal watering or feeding areas, and old building sites should be avoided. The whole-field method treats the entire field in the same manner and can result in over fertilizing some areas and under fertilizing others.

With grid sampling, the field is divided into uniform cells, usually one to two acres in size. Ten to 15 cores from random areas within each cell are taken. Avoid unusual areas. Grid sampling usually results in more accurate estimates of nutrient availability. If variable-rate fertilizer application equipment is not available, growers will not be able to take advantage of that accuracy. It requires many samples for one field and can be expensive.

A compromise between whole-field and grid sampling is the management-unit approach. Divide a large field into several smaller sampling areas based on known characteristics. These may be soil type (from soil survey data), historical management differences, yield data, or aerial photographs that show distinct differences in plant growth. Fifteen to 20 random cores are taken from each management-unit area.

Straight Dirt

THE HEALTH OF YOUR SOIL

TAKING THE SAMPLE

A good soil test requires collecting good soil samples. First, decide if surface (0-6 inches or 0-8 inches) samples will be taken or if surface and deep samples (to 2 or 3 feet) will be taken. Deep samples are only tested for nitrate. A fertility recommendation can be made from the surface sample only, but nitrogen recommendations are more accurate if deep samples are also taken.

Start with clean tools. A plastic bucket and a shovel are all that are needed; however, a soil probe, which removes a soil core, makes taking consistent samples easier. To sample, remove the debris from the top of the soil and use a soil probe to remove a 6- or 8-inch-long core. If using a shovel, dig a hole and then shave a 1- to 2-inch slice off the side of the hole to a depth of 6 or 8 inches. Make sure the slice is as thick at the bottom as at the top.

Go to other random sampling areas and repeat the process. Mix the cores or slices well, and discard any large stones. The soil should be spread on a clean surface and allowed to dry in the shade. Mix the soil again, and put about a quart of soil in a clean plastic bag. Do not dry it in the oven or microwave to speed the process. This will ruin the sample.

SUBMIT YOUR SAMPLE

You are now ready to send your sample for testing. The more information provided to the laboratory, the better the quality of the fertilizer

recommendation. Watering schedule, method of irrigation and water source, condition of current plant life, expectations for future plant life, depth of soil, drainage, and the type of fertilizer used are all considered when making a fertilizer recommendation.

Soil testing information sheets can be obtained at any UWCES office or online at <http://www.uwyo.edu/CES/PUBS/MP6.2.pdf>

The laboratory charges \$20 for the standard test, which includes pH, salts, organic matter, phosphate-phosphorus, nitrate-nitrogen, lime, and texture.



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