

FORAGER



Agronomics with livestock in mind!



In the Field – Soil Sampling

Soil sampling is extremely important to measure the soil's ability to provide nutrients to a given crop. This enables growers to apply fertilizer that can maximize utilization and avoid over or under fertilizing. Obtaining accurate results from a soil test is dependent on how well a soil sample represents the area it came from. To ensure that a representative sample is collected care should be taken in the sampling process.

When growing most crops, fields should be sampled every three to four years. When high-value crops are being grown more frequent sampling may be warranted. Sampling after harvest in the fall or before planting in the spring is the most common approach to avoiding variability from crop uptake and incorrect results. Specialty samples for tests like the Pre-sidedress Nitrogen Test (PSNT) are taken during the growing season, as shown in the picture; however, typical soil samples are not.

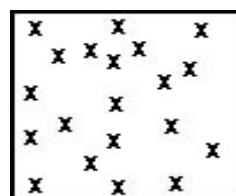
The tools needed to take soil samples include a clean pail and a sampling probe or auger. If a sampling probe or auger is not available a shovel can be used. Do not use galvanized or brass equipment of any kind, since it can contaminate samples with important micronutrients.



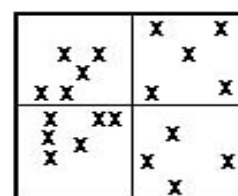
Samples should come from the plow layer, the top 6 to 8 inches. In permanent pastures or meadows that are not tilled, sample only to a depth of 4 inches. Additional samples should also be taken of the top two inches in no-till fields as surface pH can be low, affecting herbicide activity and carry over. Cores of soil or slices should be a uniform section of the soils profile to the desired sampling depth.

Soil samples that are sent into a testing laboratory should be a composite of sub-samples (individual cores or slices) of a given field or area. A given sample should represent a field or area that is relatively uniform and no

larger than 25 acres. Larger areas should be subdivided and areas with differing topography or soil type should be sampled separately. When sampling an area it is best to take 15 to 20 sub-samples from a random or systematic pattern within the area, as shown below. Sampling in a systematic or grid pattern can be used to determine variability of an area for precision fertilizer application by analyzing each sampling point and charting out the fields nutrient levels. Soil close to the row will have elevated fertility due to banded fertilizer, so it is a good practice to vary sampling position relative to the row as well.



Simple Random



Stratified Random



Systematic

For each sample, the cores or slices collected from throughout the sampled area should be broken into small particles and mixed in a bucket, than air dried within 12 hours to limit microbial activity on organic matter. Samples can then be packaged in bags provided by the laboratory, labeled, and sent for analysis.

There are many labs that analyze soil samples. It is important to select a laboratory that has testing procedures calibrated to your soil types. Often, the land grant university in a state has a testing lab with procedures that work well with the state's soils. Each lab has sampling kits available with directions and bags for collecting samples for particular tests. These directions should be followed, as the particulars discussed here are only general guidelines.