

News Column

Stacy Campbell

Cottonwood Extension District, Hays

October 29, 2019

Fall soil testing of hay fields

Soil testing can be done in either spring or fall on hay fields. If taken in the fall it gives the producer some time and flexibility for planning nutrient applications before the busy spring time arrives.

Soil sampling on a regular basis (every 3 – 4 years) can keep you from applying excessive and unnecessary amounts of fertilizer or manure, and can increase yields by revealing exactly which soil nutrients are too low for optimum productivity. By doing this practice properly, producers can save money and reduce the environmental impacts.

Tips for collecting a representative soil sample

To take accurate soil samples, it is best to use a soil probe. You can borrow a probe from many county or district extension offices. A shovel or spade can be used, but make sure to dig a hole first and then take a nice even slice to the correct depth. A shovel or spade that angles to a point at the bottom can easily result in misleading soil test results because the sample is biased by having more soil from the surface and less from lower depths.

When taking soil samples, it is important to have a representative composite soil sample from the field by combining several soil cores and mixing thoroughly in clean plastic bucket. The most ideal sampling technique is to take at least one composite soil sample every 20 acres. On these 20-acre areas, take 10 to 15 cores or subsamples to make up your representative composite sample. If the field has areas where different forages or crops have been grown, or has different soil types, then soil sampling from these areas should be done separately.

Sampling depth for hayfields should be 3 to 4 inches for pH evaluation. For phosphorus and potassium, a 6-inch depth is preferred when submitting samples to the K-State Soil Testing Laboratory since that is the depth we have used to calibrate recommendations.

Soil pH is important

One key soil property for forage production, especially with legumes, is soil pH. The optimal pH level is 6 to 7, depending on the forage species. Grasses such as brome do well at a lower pH. But legumes, especially alfalfa, require a near-neutral pH (~pH 7). If the soil pH is too low or too high, nutrient uptake of macro- and micronutrients can be reduced. Especially important for legumes such as alfalfa and clover is the impact of pH on nodulation and nitrogen fixation. At low soil pH, aluminum toxicity can also be an issue, but is more of a concern in the Eastern half of the state.

Fields that will be planted to alfalfa next spring should also be evaluated for phosphorus levels and make applications before planting.

For more information on soil sampling and submitting samples to the K-State Soil Testing Laboratory and to obtain the necessary forms and bags, drop by and visit with either me or Alicia at the Cottonwood District Extension offices in Great Bend or Hays. The K-State soil testing laboratory's website is <http://www.agronomy.k-state.edu/services/soiltesting/>.

Information provided by Dorivar Ruiz Diaz, K-State Extension Nutrient Management Specialist, and Doo-Hong Min, K-State Forage Agronomist.

Stacy Campbell is an Agriculture and Natural Resources agent in the Cottonwood District. You can contact him by e-mail at scampbel@ksu.edu or calling 785-628-9430. Our web site is www.cottonwood.ksu.edu