Sampling Procedures for Silage Crops

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Crops harvested for and stored as silage are by their very nature highly variable with regard to nutrient content because so many factors affect the ensiling process. Our goal with silage is to preserve the nutrients that exist in the live standing crop as much as possible for feeding at a later time. Sampling chopped silage at the time of harvest while it is being put in storage does give us insight to initial nutrient content. However, due to fermentation, a more accurate estimate of silage quality is obtained if samples are taken as the feed is being removed from storage to be fed. Under most conditions, ensiling requires 3-5 weeks for completion. Since some nutrient components can be altered by fermentation, delaying silage sampling until after that period or until the time of feeding is recommended.

Prior work at Kansas State University done by Dr. Bolsen and others has helped to illustrate the safety hazards that are inherent with attempting to collect grab samples from the face of a bunker silo or a horizontal plastic storage bag. It is always best to remove the feed with a front-end loader as it is going to be loaded into a feed mixer unit and then collect samples with the loader bucket lowered completely to the ground at a safe distance (at least equal to the 3X the height of the face) from the bunker or bag. This reduces the risk of a feed avalanche off a face or potential exposure to hazardous gas in the bag.

Please keep the following in mind as you work to obtain representative silage samples this fall: Be aware of your proximity to piles, bunkers, bags, and equipment. All people that may be on the ground with you. Areas of the face that are loosened or undercut by the loader.

Take representative samples: Take multiple grab samples and mix or composite samples into one final sample. The amount of sample submitted to the lab should be approximately 2 to 4 lb. as-is. Remove and discard spoiled silage only with equipment operated from ground level.

Handle samples properly: Seal samples immediately to avoid oxygen contamination. Ideally freeze samples prior to shipping. Mail to or deliver to the lab as soon as possible.

Manage your time: Allow sufficient time for turnaround for ration formulation/evaluation. Turnaround time may range from 2-14 days depending on lab, time of year, etc. Avoid mailing samples on a weekend or just prior to holidays.

If you sample when initially filling the bag or bunker: Sample again 3-5 weeks later. Nitrate estimates will be more accurate post-ensiling. Silage that is excessively wet or dry at harvest needs to be re-sampled.

For more information, please contact the local K-State Research and Extension Office.