

UKVDL Forage Nitrate Testing Guidelines 2012

The University of Kentucky Veterinary Diagnostic Laboratory (UKVDL) performs forage nitrate/nitrite testing and accepts samples from extension agents, producers, and veterinarians. The cost is \$15 per sample for a panel including both nitrate and nitrite analyses. There is no extra accession fee as of July 1, 2012, so the total cost is \$15 per sample.

Sample collection guidelines for nitrate testing

Proper sample collection is crucial for proper interpretation of results. The sample should represent what the animals will be eating, so collect the entire part of the plant that will be fed. Collect a number of smaller samples to form a large representative composite sample. If different regions of a field were treated differently, then separate composite samples should be submitted for each different region. Different cuttings, batches, or fields should be sampled separately, and submitted as separate samples.

Preferably at least a pound of total composite sample should be submitted. More sample is better than too little, so when in doubt, collect more! Be sure to mark each bag legibly with forage/sample type and identification information.

Note: Nitrate concentrations tend to be higher at the base of the plants, and higher in the stalks than the leaves. Grains, seeds and leaves do not accumulate significant nitrate levels. Plants with high stem-to-leaf ratios are the most likely to cause nitrate intoxication.

Dry forage (hay, bedding) – Use a hay probe to take core samples. Randomly select 10 or more bales that are representative of a cutting/batch. Take one or more core samples per bale, and mix all the cores to make one large composite sample.

Silage, balage, haylage – Use a hay probe to take core samples if possible. Randomly select 10 or more bales that are representative of a cutting/batch. Take one or more core samples per bale, and mix all the cores to make one large composite sample. Reseal the hole created in the wrap with tape after sampling. For bagged silage, select at least 10 areas to sample that are representative. If core sampling is not possible, unload some silage material and collect large handfuls from 10 or more different locations. Mix to form a large composite sample.

Corn stalks – Cut the stalks at the anticipated harvest level and submit the entire part of the stalk that will be fed. Collect stalks from several areas of the field. 5-10 stalks are recommended. Stalks can be cut or folded prior to shipping. Alternatively, if the corn stalks are going to be chopped, you can collect representative samples from the fresh chop. Or, if shipping volume is an issue, only the bottom halves of the stalks could be submitted, but remember that the result will be higher than the actual overall average nitrate concentration for the entire plant.

Pasture grasses – Collect handfuls of forage from 10-20 different areas in the field. Cut the grass at the anticipated harvest or grazing height and submit the whole part of the plant that will be ingested. Mix thoroughly to make one large composite sample.

Note: Grains do not accumulate nitrate, so nitrate testing is not typically performed on grains.

Sample storage and shipment guidelines

Moist samples (eg, fresh green grasses, silage) should be placed in plastic bags and immediately put in a cooler on ice or ice packs. These samples should be kept chilled or frozen until shipment, and should be shipped with ice packs. Dry samples such as relatively dry corn stalks and hay should be placed in paper bags and kept at room temperature until shipped; ice packs are not needed for shipment of dryer samples. Regardless, samples should be shipped as soon as possible after collection to decrease the risk of reduction of nitrate levels. Samples should be shipped overnight, or delivered directly to the laboratory. **Note:** Storage of moist plant samples in plastic bags at room temperature will result in bacterial growth and reduction of nitrate, resulting in inaccurate nitrate results.

Laboratory submission guidelines

Please see the UKVDL website <http://www.vdl.uky.edu/> to download the current accession form (see link for “Forms” on the homepage and click the links for “New Standard Accession Form”, and also the “New Standard Accession Continuation Form” when sending multiple samples from one farm). Please provide the extension agent name and extension office information, or the veterinarian’s name and clinic information if sample is sent by a veterinarian, in the section labeled “Veterinarian”. Provide the producer/farm information in the “Owner/Mgr” section. In the “Specimen Information” section, write the type of forage/feed in the box labeled “Other”. On the second page of the accession form, in the Toxicology section, mark the box for “Nitrate/Nitrite”.

If you are submitting multiple samples from one farm, please use one accession form plus the Accession Continuation form. If submitting samples from different farms or farmers, please use separate accession forms for each farm.

If you have not sent samples to the UKVDL during the last year, please contact the UKVDL Business office at 859-257-7503 to make sure your contact information is correct and up-to-date. If you would prefer to receive results by e-mail rather than by fax, please tell the Business office staff to indicate this in our computer system.

UKVDL contact for nitrate questions:

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Please see the UK webpage http://www.uky.edu/Ag/GrainCrops/Briefs/nitrate_testing2012.html for more information on nitrate issues.

Please contact Krista Cotten at 859-257-0597 for information on test strips for rapid field testing for nitrates.