

AGRICULTURAL GUIDE

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Forages

Sampling Forages for Best Use

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You can improve your livestock feeding program by using reliable forage analyses to plan and balance rations. However, laboratory analyses are only useful if the sample represents what your animals will eat.

Proper forage sampling means sampling by lot. A lot of hay or silage is defined as forage taken from the same location, farm, or field; using the same cutting (within a 48-hour period); at the same stage of maturity; and is similar in the amount of grass, weeds, or rain damage. To efficiently sample each lot, keep a complete inventory of hay and silage. Segregate each lot as you harvest and store it, and record the appropriate number of bales, or depth in the silo. Ideally, each lot of hay should be stored so it can be sampled or retrieved as needed. This is especially important in a hay marketing operation. In situations where each lot or cutting of hay must be covered by the next lot, be sure to sample the lot before it is made unreachable. If this is not done, test results may not be retrieved fast enough to help balance a ration for sale purposes.

Conventional Square Bales

Randomly select 15-20 bales from each lot of hay. A bale probe, available at many of your county Extension centers in Missouri, will help reduce sampling error and make the job easier. These samplers work best with a 1/2-inch electric drill (3/8-inch will work) and most of them will adapt to hand drills if power is not available. Some problems with heat damage of the sample may occur if the drill is run at a high rate of speed. This can be even more pronounced when using probes with thick walls. Make every effort to prevent heating of forage material when sampling because this can alter test results.

Insert probe into center end of each bale, drilling toward center of the bale. Drill 18 inches deep in loose bales, 12-15 inches in tight bales.

Place the entire sample into a plastic bag and seal. Do not split the sample. Label each container with

your name, address, sample number, forage type and mixture, cutting method, stage of maturity and date harvested. Do not submit a flake of hay or use the "grab" sample method as these type of samples will not accurately represent the lot of hay.

Large Round Bales

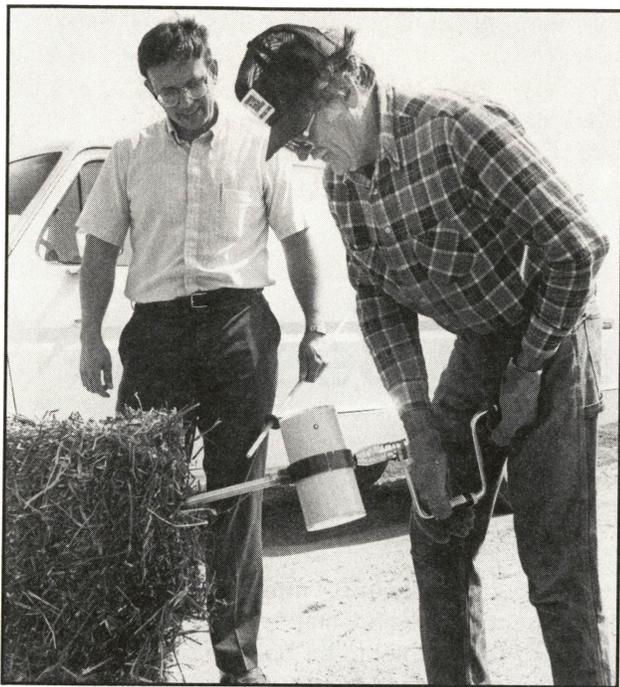
Select a minimum of 10 bales from each lot to be sampled. Use the bale probe to make drillings at two different locations in each bale. Bales should be probed from the sides, not the ends (see photo). Place entire sample into container, seal, and label as described for square bales. Extensions can be used which allow sampling deeper into the center of the larger round bales.

Silage and Haylage

Samples may be obtained at harvest. One big advantage of sampling at harvest is that something is known about feeding values before you start feeding a specific lot of silage. Due to fermentation changes in the feed material, another sample should be tested when feeding begins.

To sample at harvest, collect five or more handfuls of the first load from a field to be tested. Then place the material in a plastic bag and store it in a freezer or refrigerator immediately. Follow the same procedure for samples throughout the day, until the field (lot) is completed. When the amount of collected material becomes bulky to handle, then carefully mix and extract a minimum of 2 pounds of material for testing. Place contents for that lot of forage in a clean plastic bag, seal tightly and keep frozen until mailing.

To sample ensiled material from storage, collect a minimum 2-pound sample from unloader as it's operating or from feed wagon as silage is being fed. Collect samples from that day's morning and evening feedings. Combine the samples and seal in a plastic airtight container. Store immediately in a freezer.



Insert the hay sampler from the edge and go deep inside the bale. Sampling tools are often available from local University Extension offices.

Loose hay (stacks)

Accurate samples from loose or stacked hay are difficult to obtain. For best results, use a core sampler as suggested for baled hay. Take a minimum of 15 random samples from the most compressed areas of the stack. Place the sampler between your feet in order to compress the hay and sample the full length of the sampler. Extension shafts, for the sampler, can be used to allow deeper penetration into the hay, therefore obtaining more representative samples.

Pasture

Good samples from pastures may also be difficult to obtain. There can be considerable variations in forages within a field because of differences in soil type, fertility and moisture. For best results, randomly select 8-10 locations and remove forage from a square foot area. Green material should be air dried or frozen as soon as possible to help avoid chemical changes. Good results can be obtained by packing the sample tightly in a plastic bag, excluding as much air as possible. Freeze the sample and mail to the laboratory as soon as possible.

Green Chopped Forages

A plastic bag can be filled by randomly grabbing

a handful of the chopped material from the cutter, blower or from several locations in the wagon. The air-tight plastic bag should be firmly packed and sent to the laboratory immediately. There will be some fermentation in this sample which will reduce nitrate content and slightly modify other components. This change can be considered minor and in the direction of its ultimate feeding value. To help eliminate these slight modifications, the sample can be frozen and transported in insulated envelopes.

Using Testing Labs

For Mobile Forage Testing Lab — The best method of handling samples for NIR is to deliver samples to the unit when it is in your area. When this is not convenient, consider the following.

Commercial Labs — Hay samples do not require refrigeration and may be mailed at any convenient time. Samples of haylage, silage and fresh green material should be kept frozen in air-tight containers. Place these frozen containers in insulated packages and mail on Monday or Tuesday. Mailing early in the week will help prevent bacterial decay of the samples.

Where to Send Samples

Samples should be sent to labs which have been certified by the National Hay Testing Association. Certified labs within Missouri are:

Bruce Williams Labs
Joplin Street
P.O. Box 169
Joplin, MO 64802
(417) 623-1556

Custom Nutrition Laboratory, Inc.
Highway 160
P.O. Box 391
Golden City, MO 64748
(417) 537-8337

Livestock Nutrition Lab
P.O. Box 1655
Columbia, MO 65205
(314) 445-4476

Contact these laboratories for a complete and current description of services provided, components tested, testing fees and mailing instructions. If you know of other reputable labs which provide reliable forage testing, do not hesitate to use their services.

For more information on sampling forages and feedstuffs, see Extension Guide 9650.



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