
INFOSheet

Ministry of Agriculture and Food
www.omaf.gov.on.ca

Take An Accurate Hay Sample

by Joel Bagg, Forage Specialist, OMAF, Lindsay

Hay sampling should be a very simple, basic task, but this is often a weak link in forage quality evaluation. Think about what we are trying to accomplish when we take a hay sample. We are trying to obtain a small sample (200 grams) that accurately represents many tonnes of hay in a mow. It is very important to fairly represent the leaf/stem ratio, as well as the legume/grass/weed mixture of the hay.

We are taking samples for analysis so that we can balance rations, achieve livestock performance and determine market value. Small sampling errors can lead to costly mistakes. Research and practical experience indicate that the following practices can minimize hay sampling error.

Sample Probes

It is impossible to get an accurate sample using bale slices, so a sample probe is essential. There are many different types of acceptable commercially available sample probes. "Push" types must be kept extremely sharp, while "drill" types that use either a hand brace or electric drill are more common. Many newer probes utilize a canister collection chamber that holds the core samples.

Make sure the sample probe tip is sharp. Tips may be serrated or straight, as long as they cut cleanly and do not push aside stems particles. Dull probes will push material out of the core. Many probes can be manually resharpened. The cutting edge should be a right angles to the probe.

The inside diameter should be between $\frac{3}{8}$ and $\frac{3}{4}$ inch. A smaller diameter may not cut the leaf/stem properly. A too large diameter probe may result in a sample that is too large for the lab. Avoid open augers that loose leaf particles when withdrawn from the bale.

Sample probes should allow penetration 12 to 22 inches into the bales. Research has shown that an extra long probe is probably not required for large round and large square bales.

Bringing the Resources of the World to Rural Ontario

Minimum Of 20 Cores

There is considerable variation in a hay lot. Take a separate sample from each field and cutting. Sample bales at random at various heights. Research has shown that it is very important that a minimum of 20 bales (1 core per bale) should be sampled. Because small square bales have a pattern of leaf and stem packing within a bale, sample at right angles near the centre of the butt of the bale. Large square bales don't have the same pattern of leaf and stem packing, so sample probes do not necessarily need to be from the centre of these bales. Large round bales should be sampled at right angles to the outside circumference of the bales.

Handle Samples Carefully

It is important to collect all of the sample for submission to the lab. Samples tend to separate into leaf and stem particles, so do not subsample or divide this composite sample. Combine the whole core samples into a single sample and store in a polyethylene freezer bag. Protect from heat or direct sunlight. The sample should be about 200 grams. Avoid samples that are too large and difficult for the lab to grind without subsampling. Subsampling defeats the purpose of careful sampling. Avoid samples that are too small to be representative of the hay. Label samples clearly.

There is no accreditation program for forage analysis in Ontario, so be sure to use a reputable laboratory. You may also want to consider requesting fibre digestibility (dNDF) analysis. For more information on dNDF refer to the November 2001 issue of Crop Talk.

<http://www.gov.on.ca/OMAFRA/english/crops/field/news/croptalk/2001/ct1101.htm#Fibre>. Extra care while taking a hay sample can ensure a more representative sample and more accurate results.