Representatively Sampling forages

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Representative sampling is crucial given the volume of material the sample represents.
Remember

- If a 1 lb sample is taken for analysis from a block of feed (silage, hay, or whatever)
- The block of feed weighs 10,000 tons which = ......................... lbs.
- Chance of accurately characterizing the feed =
  - $\frac{1}{20,000,000} \times 100 = 0.0005\%$

- Sampling errors are usually greater than lab. errors.
- Hence, sampling requires utmost care
The Sampling Challenge

- Ensuring that the composition of the sample taken is exactly the same as that of the entire forage mass from which it was taken!

- Must ensure adequate representation of what the animal will eat including:
  - Species diversity
  - Botanical fractions
  - Forage height/sward structure

- Should weeds be sampled?
How can you take representative samples from each picture?

- More care is needed for sampling from mixed species pastures or forages with grain, leaf and stem fractions.
HOW SHOULD YOU SAMPLE FROM PASTURES?

- Snip / hand pluck samples at random points of **W transect** on pasture
Pasture sampling guidelines

♦ Collect 30 to 50 small grab samples.
♦ Remove the forage at the same height that the animal will graze.
♦ Samples need to represent what the cattle will be eating; avoid weeds
♦ Sample randomly & representatively; don’t take a greater % of clover in mixed swards
♦ Avoid any problem areas (water pond, sink hole) that may affect the representativeness of your sample

♦ (West Virginia Extension Service)
http://www.caf.wvu.edu/~forage/5020.htm)
HOW SHOULD YOU SAMPLE SILAGE?
Use a corer for sampling conserved/stored forages

¾ to ⅜" diameter corer is best for hay, wider corers should be used for silage
Sampling at ensilage

- Sample from alternate trailer / truck loads
- Only useful for approx. info for initial **ration formulation**. Quality may change with ensiling.
Sampling from bunker silos

- Take 10-12 cored samples of silage at the silo face

- Remember that layers may represent different fields, hence, mix samples thoroughly and send to lab. or grind, then sub-sample for analysis.
Sampling from bag silos

Take cores from different points along the side of a bag silo
HOW SHOULD YOU SAMPLE HAY BALES?
Is this an ideal sampling method???
Sample from the same lot of hay

Definition of ‘lot’

A relatively uniform group of bales from the same field, variety, and cutting (harvested within a 48-hour time period), with a maximum weight of < 200 tons.
How many bales should be sampled?

NFTA hay sampling protocol & exam
Ideal sampling from bales

- Core from at least 20 randomly chosen bales per haystack to give approx. 200g of material
- Insert core probe 12 – 18” into curved side of round bales or end of rectangular bale
- Mix cores together and send to commercial lab. or subsample for analysis in your lab
- Ensure:
  - Teeth of corer are sharp to minimize disruption
  - Outer weathered/ moldy layer is removed
  - Drill to the full length of the corer where possible

- If corers are unavailable, take samples manually using the same principles (will not be as representative)
Sample storage and dispatch

- Store forage samples in a sealed plastic bag to avoid deterioration, and label appropriately.
- Silage and fresh grass samples should be refrigerated or frozen until dispatched for analysis. Silage should be packed in dry ice for dispatch.
- Adequately dry hay samples can be stored in a cool, dry place.
- Dispatch samples to a reputable lab. ASAP.