



Ag Health News

LABORATORIES

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Variation in Nutrient Analyses within a Bale of Hay

Variation in nutrient analyses due to sampling is always present. There is variation in nutrient analyses within a bale of hay, within a lot of hay, and across lots of hay. *The sampling technique (how the sample was obtained) is widely accepted as the largest variable in hay results received from the laboratory.*

The sampling location within a bale of hay greatly affects the results of feed analysis. One alfalfa hay bale was selected from a local dairy to demonstrate the variation in testing results that can be found within each individual bale.

The following is a description of sampling locations:

- At the end of the bale, samples were collected at six different locations (*Shown in Diagram 1 below*).
- A sample was collected at the midline of the bale (*Shown in Diagram 2*).
- A sample was collected from the lot of hay where the hay bale was located (See Diagram 3).

Samples were brought to Ag Health Labs and analyzed for Dry Matter (DM), Acid Detergent Fiber (ADF), Neutral Detergent Fiber (NDF), Crude Protein (CP), and Ash. The Relative Feed Value (RFV) was calculated from the NDF and ADF concentration at each location. The diagrams below show the RFV for each sampling location:

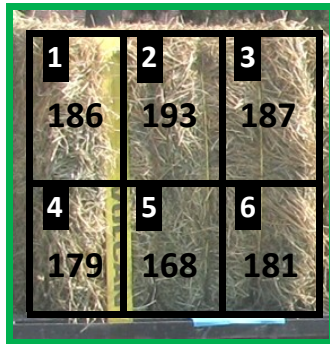


Diagram 1. RFV for each sampling location within a bale of hay.



Diagram 2. RFV for a sampling location Midline in a bale of hay (recommended sampling location).



Diagram 3. Example of a 'lot' of hay.

The RFV found when a sample was taken from the lot of hay was 165.

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MILK SAMPLING TIPS

When preparing to bring milk samples to Ag Health Labs for analysis, keep these helpful tips in mind:

- 1. Do not overfill the milk sample tubes.** Overfilling tubes can cause the caps to open while in the freezer or during transport to the lab because the samples expand when they freeze. If the tube opens, this can cause contamination to the milk sample.

Q: *Where is the recommended fill line on milk sample tubes?*

A: If you are using milk tubes from Ag Health Labs, there is a raised fill line about 3/4" from the top of the tube at the 10mL line on an individual milk sample tube. It is important that tubes are not filled above this line. In general, both individual and bulk tank tubes should be filled no more than 3/4 full.
- 2. Always keep samples stored in a refrigerator or freezer.** This will ensure more accurate analysis and help avoid contamination of the milk sample.

Q: *When is it appropriate to refrigerate a milk sample prior to analysis and when is it necessary to keep it frozen?*

A: If samples are going to be brought in for analyses within 3 days of the collection date, tubes should be kept refrigerated. Any milk sample that will be brought in for analysis 3 or more days after the collection date should be kept in the freezer.
- 3. Wipe the cow's teats with alcohol wipes before collecting milk samples in tubes.** It is important to make sure all dirt has been washed away and teats are sanitized before milk collection begins because this is another source of contamination.

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After all the data was collected, it was conclusive that test results will only be as accurate as the sample brought in: the more accurate the sampling, the more accurate the results. Within one bale, results varied drastically between sample locations. **For more accurate results, always test at the midline.** This will best represent the entire bale of hay.

Proper sampling of hay is important to assure an accurate hay test result. The problem is that many tons of highly variable alfalfa (or other forage) must be represented in a 1 gram sample that will actually be analyzed for a nutrient. The results from the sampling locations above demonstrate some of the variability that can occur. Refer to July 2011 Ag Health newsletter article on how to take a proper hay sample. It is worth your time, and has the potential to save hundreds to thousands of dollars in lost income each year (by maintaining proper animal performance or paying the correct price for the quality of forage).

At the June 2011 National Forage Testing Association (NFTA) annual conference there was a Forage Sample Collection Workshop where the variability in a bale of hay was demonstrated by the method described above. Similar information was collected on a local dairy and used for this newsletter article.

Congratulations to the participants of the
2011 Yakima Valley Fair in Grandview!

