

Understand the yin and yang of your pasture

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I remember taking the cows out to pasture when I was a kid and somehow I was always in the wrong place at the wrong time. I always managed to step in a cow pie (barefoot of course) or fall in a woodchuck hole or get stung by a bee. In spite of that, it was clear to me that the cows liked their daily trek to the pasture. It was also clear that my grandfather thought I was a pest....but I guess he just wasn't used to little girls. *My Grampa Brothers* had 5 boys....*the Brothers brothers*. Guess it just didn't make sense to be a girl and be one of the Brothers. But, he was used to his cows and he did a good job managing his pastures. Ahh, the memories of youth gone by! Now back to the present day.

I was recently invited to speak to a group of experienced graziers about forage testing. I know for a fact that I could learn a whole lot more about grazing management from them than they could learn from me. However, we did discuss the value of forage analysis and the correct way to take a pasture, hay and silage sample.

In any event, forage quality is a moving target in a pasture so it might seem rather absurd to bother with forage analysis at all, but there are several very good reasons to do it. First, periodic testing helps develop a database for your farm and your management. This can help you understand what your livestock consumes. Second, forage analysis can help the grazer know when supplements are required.

And finally, it may help with future management decisions about stocking rate, rest periods for each paddock, plant species for pasture renovations etc. Some things are just plain common sense. For example, most of us know that fiber increases and crude protein decreases as forages grow and mature. But forage analysis, coupled with good record keeping and keen observations on your part, may help you "calibrate" your own management. Perhaps you can increase protein and reduce fiber by putting animals into pasture at an earlier plant growth stage or you may choose to increase stocking rate to force animals to be less selective. This may help you increase bypass protein if the entire plant is consumed including the stems vs. selective grazing of leaves only at a lower stocking rate.

Maybe I am getting a bit carried away here, but we all know someone who seems to have an uncanny ability to manage that plant/animal interface. You know, the grazer who finds that happy medium, that perfect balance, the yin and yang of plant and animal. Neither is successful at the expense of the other.

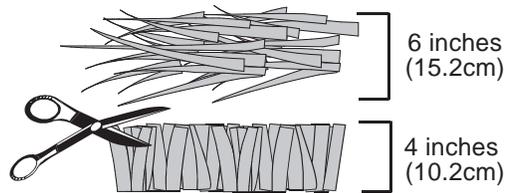
So, how do you sample a pasture correctly? Ed Rayburn, Agronomy Specialist with the West Virginia University Extension Service and formerly with New York Resource Conservation and Development organization suggests the following:

1. Walk the pasture shortly before cattle are turned in.
2. Collect 30 to 50 "grab" samples. (Or clip with scissors or garden clippers)
 - a. Remove samples at grazing height, i.e., if the average plant height is 10" and cattle graze down to 3", then take the top 7 inches as your sample. This is where scissors may come in handy!
 - b. Don't sample weeds that the cows won't eat, e.g., thistles or buttercups.
 - c. Do sample weeds that the cows do eat, e.g., quackgrass, dandelion, etc.
 - d. Don't bias the sample by grabbing more clover or more grass than is in the pasture.
 - e. Take separate samples if there is a big difference from one part of the pasture to another, e.g., more clover in the high spots, more grass in the low spots.
 - f. Do keep good notes for your own records. This will help you "calibrate" your future management with the forage analysis. For example, make note of the following;
 - i. List the 3 predominant species in the pasture, e.g., white clover, bluegrass, and dandelions & approximate % in the stand.
 - ii. Date sampled & maturity of legumes & grass.
 - iii. Average plant height.
 - iv. Days since last grazed.
 - v. Anything else that is noteworthy, e.g., weeds, insects, weather.
3. Mix the sample completely.
 - a. Place about 400 grams in a labeled zip lock plastic bag.
 - b. Squeeze out air & place it in the freezer promptly. Freezing stops dry matter loss from plant respiration and prevents plant proteins from breaking down into more soluble forms.
4. Deliver the sample frozen or on ice to prevent further changes in quality or air dry the frozen sample using a fan to speed up the process. Do not dry it in a microwave or conventional oven, as this may affect protein quality.
5. Ship it to Dairy One and have it tested. The NIR 321 package is probably the best choice. With these results, you and your nutritional advisor will be in a better position to discuss what is needed to optimize production.

Meeting the nutritional needs of your livestock on pasture is a balancing act between plant and animal - it is an art and science. Forage analysis is simply one management tool to help you adjust the balance and optimize plant and animal performance. Oh, by the way, soil testing your pastures every 2 - 3 years is a good idea too. We need to meet the nutritional needs of the plant before we can meet the nutritional needs of the cow.....but that's another story!



Use scissors to clip a handful of pasture at grazing height. Repeat at each sample locations.



Poisonous plants in the pasture

We get questions occasionally about poisonous plants in a pasture. By and large, a well managed pasture probably won't have too many problems with poisonous weeds. And by well managed I mean a pasture that is not over grazed and one where the soil pH and fertility levels have been maintained at adequate levels.

A simple soil test every 2-3 years is highly recommended to help you keep your pasture well balanced.

That's not to say that you won't have any toxic plants to worry about. For example, buttercups are poisonous but most self respecting cows and horses won't eat them unless they are really really hungry and there isn't anything else worth munching on in the pasture.

Toxic weeds can even pose a problem in harvested crops from time to time. I got a call once about a new seeding of alfalfa that had lots of volunteer potatoes in it...that is not a typical problem since potatoes are generally grown at a low pH to manage scab and alfalfa is generally grown at a much higher pH. The grower was concerned because his cows got sick on this stuff. Well that's no big surprise since potatoes are in the same family as the nightshades and the leaves and stems are highly toxic. The farmer had no alternative but to dump that first cutting. Fortunately, the regrowth was potato free!

Below is a list of some of the more common poisonous plants:

- Alsike clover can be toxic to horses under some circumstance. It will often appear in pastures where pH and drainage are not ideal for other pasture species.
- Braken fern can be found in woods & open areas at the edges of pastures. All plant parts contain the toxin thiaminase.
- Buttercup contains the toxin protoanemonin and can cause a sharp drop in milk production if animals eat it in the pasture. The toxin degrades in hay.
- Chokecherry is commonly found in fencerows. The live and dead branches and leaves contain prussic acid.
- Lambsquarters and pigweed are commonly found in pastures. They can accumulate nitrates in toxic levels.
- Nightshade, hemp dogbane, horseweed, and even oak leaves are toxic.

The following websites provide excellent information needed to identify toxic weeds and their symptoms.

- **The Cornell University Poisonous Plants Informational Database** (<http://www.ansci.cornell.edu/plants/index.html>).
- **The Penn State Poisonous Plants site** (<http://cal.nbc.upenn.edu/poison/>).

Note; Dairy One tests for mycotoxins in feedstuffs but we do not provide testing services for other plant toxins. Contact your veterinarian if you suspect a problem and need additional diagnostic guidelines.