



Dairy One

Forage Laboratory

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Evaluating Corn for Harvest and Inventory Planning

Concerns in a Dry Crop Year

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Much of New York and Pennsylvania have had a very dry summer and are in drought watches or warnings. Crops in areas experiencing drought stress can have lower yields, and are likely to have more digestible fiber, but lower starch or sugar concentrations. Combining these gives us less forage with lower energy concentrations. Additionally, depending on the timing of your N applications, or if you even did an N sidedress application, nitrate concentrations in dry or fresh fed feeds might also be a concern. Nitrate is a major precursor of plant protein. At certain times, environmental conditions can cause excessive accumulation in the plant. This includes heavy nitrogen fertilization, drought, low light intensity, and low temperatures. Crops susceptible to nitrate accumulation include sorghum, sorghum sudan, corn silage, small grain forages and weeds. Ensiling suspect forages can often reduce nitrate concentration by up to 50%. For more information on nitrate levels in feed an animal health check out: <http://dairyone.com/wp-content/uploads/2014/01/Nitrates-and-Dairy-Cattle.pdf>

If you have drought stressed crops and know you are going to have decreased yields, now is the time to evaluate your inventory. When doing this, it is important to not just evaluate the volume of feed, but also the quality of the feed and the amount of nutrients available to meet your animal's needs. In ration formulation, we often focus on how much of an ingredient to add and how much of that ingredient we need to have in a bunk or pile (Figure 1). For example, in this diet for 100 cows for 1 year we would need 637 tons of corn silage.

Ration Fed

Ingredient	\$/hd	% DM	DM lbs/day	AF lbs/day
Corn Silage Processed 40 DM 45 NDF Coarse	0.79	37.9	13.24	34.89
Alfalfa Silage 20 CP 37 NDF 17 LNDE	1.62	35.0	17.42	49.78
Corn Grain Ground Fine	0.80	88.0	10.00	11.36
Soybean Meal 47.5 Solvent	1.16	90.0	6.00	6.67
MinVit	0.32	95.0	1.00	1.05

Totals	4.67	45.9	47.66	103.76
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Figure 1. Example Ration feed quantity.

However, in a season where we may have corn silage harvested with abnormal ratios of starch and aNDF and with higher than usual digestibility (aNDFd), we need to look at what we have in inventory and how we are going to replace both the volume of feed and the volume of nutrients. Working with your nutritionist and doing some sampling now or at harvest, you can look at your nutrient inventory (Figure 2). The primary focus should be on starch, aNDFom, and CP. Additionally, it is important to look at the forage fiber contribution to the diet to make sure you are replacing aNDFom with the right type of fiber. For example, in this diet we are feeding 47.66 lbs of DM, so we need 11.9 lbs of starch DM, 8.2 lbs of CP DM and 13.8 lbs of aNDFom with 12.3 lbs from forage . These values can then be used to determine total inventory needs based on the number of cows and days fed.

Diet Concentrations

NFC (%DM)	42.8
CHO Ferm. (%DM)	36.3
CHO Ferm. (%CHO)	52.8
NDF Ferm. (%DM)	7.5
NDF Ferm. (%NDF)	25.9
Starch Ferm. (%DM)	18.7
Starch Ferm. (%Starch)	73.7
Sol. Fiber Ferm. (%DM)	7.6
Sol. Fiber Ferm. (%Sol.Fiber)	92.4
Sugar Ferm. (%DM)	2.5
Sugar Ferm. (%Sugar)	68.9
Sugar (A4) (%DM)	3.7
Starch (B1) (%DM)	25.4
Sol Fiber (B2) (%DM)	8.2
Ferm. Fiber (B3) (%DM)	12.0
Lig *2.4 (C) (%DM)	16.9
aNDFom (%DM)	28.91
Forage NDF (%NDF)	89.12
Forage NDF (%FBW)	0.85
EE (%DM)	3.4

LCFA (%DM)	2.4
CP (%DM)	17.29

Figure 2. Nutrient Concentrations of example diet.

Using test results for the current inventory of feeds on the farm, you can calculate what you have available for feeding. A forage test now or at harvest of drought stressed crops will give you an idea of what will be available in new inventory.

The sooner you can evaluate your inventories for volume and nutrients, the sooner you can start to determine how you are going to attack the deficits you are facing. Working with your nutritionist and feed dealers, you can evaluate alternative feeds for replacing the deficits and where you are going to source them. Earlier planning also helps to figure out how you are going to cover the extra cost.

The other area to evaluate this fall with your crop consultant is what was really used by the crops of the nutrients available in the field. With the lower yields and low rainfall there may be more nutrients left in the field than planned. This can be determined for P and K from a soil test. Any N that was applied and not taken up by the crop will likely be lost during the winter months, unless you are able to plant and establish a cover crop to recover the N from the soil.

As always, good records will make evaluating your current situation and planning for coming years much easier.

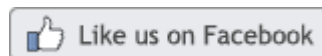
Announcements

The Forage Lab will have an updated sample submission form available soon. This form will have all the new services we have been working on in one place!

Upcoming Events

August 17th & 18th, 2016
Mid-South Ruminant Nutrition Conference - Grapevine, TX
http://txanc.org/?page_id=468

August 25, 2016
New York State Agribusiness Association (NYSABA)
Annual Golf Tournament - Geneva, NY
<http://www.nysaba.com/#!golf-tournament/b51fc>



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