

# DAIRY-UPDATE

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## FINANCIAL IMPACT OF FORAGE MANAGEMENT

By Scott Cieslar

If you are a regular reader of the dairy updates from BSC, you are aware of the keen focus on making quality forages and maximizing forage intake to improve health, performance and profit. I started consulting with the BSC dairy team a few weeks ago and will continue to work with them on developing programs that will lead to increased profitability for their dairy clientele. For the past eight years I have worked in the animal feed and health industry, working with dairy producers across Canada, looking for ways to maximize profitability for their respective dairy enterprises. At this time I am also pursuing a PhD at the University of Guelph, examining cell dynamics of the mammary gland with a specific focus on the antioxidant selenium.

BSC has been working together with producers implementing strategies to maximize milk yield from forage to ensure optimum utilization of capital investments. To achieve this they have drawn upon expertise from around the world to provide an excellent framework and guidelines for ensuring top quality forages are produced for year round feeding. I would like to take this opportunity to examine the financial impact that forage management can have on your dairy enterprise.

It is impossible to provide a cost for forage that is applicable to every farm, as costs vary widely between farms based on a myriad of factors, therefore, for this scenario I will set forage costs at a standard \$35/MT for corn silage and \$45/MT for alfalfa. It would be a useful

exercise to calculate exactly what the cost of forage production is on your individual farm.

There are numerous ways to evaluate the financial impact of forage quality on a dairy, but for this analysis the comparison is made between a good quality forage (20% CP, 36% ADF, 40% NDF for alfalfa, and 9% CP, 28% ADF and 45% NDF with 32% starch for corn silage); good quality forage that has been damaged by poor fermentation (same as previous, but NDFd decreased by 10% and mildly heat damaged protein); semi-mature forage (17% CP, 41% ADF, 46% NDF for alfalfa and same as previous for corn silage); and semi-mature forage damaged by poor fermentation, as above. Table 1 represents each diet formulated based on the above forages as 1, 2, 3, and 4, respectively. The forage content of all diets was held constant at 57% on a dry basis and the amount of corn and/or soybean meal adjusted to maintain 35 kg of milk production at 3.85% fat and 3.3% protein. The results are summarized in Table 1.

**Table 1. Diet Comparison Based on Forage Quality**

Diet	Cost/hd/day	Corn	Soybean	NFC	Starch
	\$	kg DM	kg DM	%	%
1	\$4.18	3.2	1.90	38.7	23.6
2	\$4.36	4.6	2.35	42.3	27.9
3	\$4.40	4.8	2.45	42.2	28.4
4	\$4.51	4.9	2.90	43.1	29.0

- 1 = good quality
- 2 = good quality, poor fermentation
- 3 = medium quality
- 4 = medium quality, poor fermentation

The key point from this exercise is that poor fermentation and/or storage of forages is as detrimental to forage as allowing it to become overly mature before harvest. There is significant cost associated with increasing maturity and/or poor fermentation. Furthermore, this exercise demonstrates that as forage quality decreases, the amount of non-fiber carbohydrate and starch must increase to maintain the same level of milk production. Trying to maintain this level of production with less than optimal forage leads to overfeeding of grain and starch and the associated problems that come along with this strategy – acidosis, lameness etc.

This exercise simply accounts for the effects on diet composition from reduced forage quality. There are further costs associated with forage preservation. Table 2 represents a 100 cow dairy and the forage requirements for the lactating cows - for a diet with 8 kg of corn silage and 4 kg of alfalfa haylage on a dry matter basis.

**Table 2. 100 Cow Dairy Feed Inventory for lactating cow only**

	MT/Year		MT/Year	
	DM	35% DM	40% DM	
Corn Silage	292	834	730	
Alfalfa	146	417	365	

**Table 3. Amount of forage required based on different dry matter losses**

	MT/Year Required				
	DM Loss (storage loss only)				
	0%	5%	10%	15%	20%
Corn Silage	292	306.6	321.2	335.8	350.4
Alfalfa	146	153.3	160.6	167.9	175.2

**Table 4. Acres required to grow associated forage**

	Acres Required				
	DM Loss (storage loss only)				
	0%	5%	10%	15%	20%
Corn Silage	55.6	58.4	61.2	64.0	66.7
Alfalfa	36.5	38.3	40.2	42.0	43.8

Table 3 demonstrates how much extra starting forage is required based on different dry matter losses. Typical dry matter losses in an upright silo range between 5 and 10 percent. The variation in bunker silos is much larger, ranging from 10% to well in excess of 20%. Dry matter losses during fermentation are directly related to packing density, among other factors. A recent study demonstrated this with dry matter losses of 18.5% when bunk density was 12 lbs per cubic foot versus 12% dry matter loss when packed at 19 lbs per cubic foot. It is clear that bunks must be packed adequately to ensure proper fermentation to maintain forage quality and decrease dry matter losses. Table 4 represents the increased acreage to grow forage as dry matter losses mount during storage. It is important to note that 20% dry matter loss in a bunker silo is the norm, not the exception.

In short, it is clear that forage management has a significant impact on costs and profit for the dairy enterprise. No one ever sets out to make poor quality forage, but developing a team approach and working with trusted advisors will increase the probability that good quality forage is achieved.

**Field Walk with Joel Bagg**

(Forage Specialist with OMAFRA)

Tuesday May 11, 2010

**11 am - Talsma's (Talsdale Holsteins)**

1933 Mullifarry Dr., Kerwood, ON

**1:30 pm – Sisson's (Alada Farms)**

6305 Churchill Line, Watford, ON

Lunch will be provided

Call Colin Pool or Laura Morris for more info.

# ANNOUNCING...



BSC Animal Nutrition Inc. is pleased to welcome Richard Vander Deen to their Ruminant Sales Team. Richard was raised on the family dairy farm which he managed until 1995. Having recently exited pork production, Richard's focus now turns to assisting dairy producers in increasing their profitability and herd health. Richard and his wife Barb reside near Strathroy.

**DAIRY UPDATE** is published in the interest of helping dairy producers become more profitable. We welcome your comments. Also available on-line at [www.bsccanimalnutrition.com](http://www.bsccanimalnutrition.com)

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