



Dairy Briefs

The Latest Information
on Dairy Cattle Nutrition



Milk from Forages

By Pedro Nogueira



Balancing diets on farms with good forages allows us to appreciate how much milk can be produced only from the nutrients of those forages, and how much concentrate can be saved. With current prices of corn and soybean meal, producing the maximum quantity of milk possible from forages seems like a good idea.

Let's use an example using two samples of corn silage and alfalfa haylage, of good and lower quality (Table 1). This is a simple example using a linear approach of adding the values of two forages and supposing the cows are eating the same amount of dry matter from the forages, for a diet with 50:50 corn silage and haylage and 60% forage : 40% concentrate.

Table 1. Comparison of approximate milk production allowed by feeding a combination of 50:50 corn silage and alfalfa haylage.

	Good Quality		Lower Quality	
	Corn Silage	Alfalfa Haylage	Corn Silage	Alfalfa Haylage
Net Energy (Mcal/kg DM)	1.62	1.50	1.50	1.25
CP (% of DM)	7.5	23	7.5	16
Dry matter intake of forages (kg DM)	13.5			
Probable milk production (L) allowed by this combination of forages, after deducting requirements needed for maintenance.	16		12	

From this simple example we can see that the cows would be able to produce around 4 liters of milk per head per day more only by eating better quality forages. If we consider that 1 kg of concentrate allow us to produce around 2.3 liters of milk this means that cows eating the higher quality

Cont. >>

Inside this Issue...

Milk from Forages

By: Pedro Nogueira

2011 Outdoor Farm Show Guess the Weight of the Bale Winner!

**Brian Vink of St. Pauls
Winning guess was right on!
759 pounds (345 kg)**



**Kenpal Sales Rep Darren Young
gives Brian Vink his prize,
a jug of Silo Guard® II**



Volume 4, Issue 6
October 2011

69819 London Road, RR #1, Centralia, Ontario, Canada, N0M 1K0

Tel: (519) 228-6444 or 1-800-265-2904 • Fax (519) 228-6560 • Email kpalen@kenpal.on.ca • www.kenpal.on.ca

forages would eat less 1.73 kg of concentrate/head/day for this level of production. For a farm with 100 cows this represents less 173 kg of concentrate/day. If the concentrate costs \$400/tonne this represents \$70/day of savings per day.

Quebec researchers have been studying this concept of “forage-milk” for a while. Basically they developed a calculation to estimate the quantity of milk directly produced from forages by deducting the milk produced by the concentrates from the total milk a farm produces. The calculations integrate several aspects, like dry matter intake, forage quality and concentrate feeding is one sole indicator. Their findings normally indicate that farms that aim for more milk produced from forages have better revenue than farms where this aspect is not so important. An example of this is indicated in Table 2.

The table presents only the best 20% farms in the study (464 out of 2323 farms). The idea was to compare within these 20% best farms the ones actively aiming for more forage milk against the other farms.

Table 2. Comparison of the best 20% farms (in terms of margin) regarding forage milk produced (Valacta 2007).

	Unit	Group of 20% farms with higher margins	Farms working to have more forage milk	Farms where forage milk is not a priority
# of farms		464	232	232
Average # of cows/farm	head	59	57	61
Average forage milk/cow	L	2933	3554	2323
Milk production/cow	L	9580	9615	9540
Concentrate/cow	kg	3369	3174	3558
Return over feed costs/cow	\$	5410	5479	5342

The numbers, at 2007 costs, indicate an economic advantage for farms producing more milk from forages instead of concentrates of \$137/cow.

Although producing high quality forages should always be a priority on a dairy farm, no matter what the prices of concentrates are at any given time, in the end what counts is to maximize the profits of the farm. So the question is: is it always economical to feed high levels of forages? The most profitable feeding strategy is one that considers both costs of feed ingredients and animal performance. As Drs. Mike Allen and Masahito Oba, from Michigan State University indicate, forages are not always the most economical sources of energy and/or protein. Changes of feed ingredient prices and weather conditions during forage growth and harvesting can dramatically affect the value of nutrients in forages relative to other feed ingredients. This means that feeding programs should reflect the relative values of nutrients among feeds; when forages are relatively expensive, diets can be formulated with minimum forage (provided cow health is not affected) and when forages are cheaper, diets should be formulated to maximize forage use.

With present concentrate costs it's a good time to aim for good quality forage and high forage diets. Most farms still have another cut of alfalfa to do, and corn silage is not far away, so there is a good opportunity to try to make the best of these harvests. Research has demonstrated that when alfalfa is cut at the end of the day its sugar levels are higher by at least 1%, relatively to an alfalfa cut in the morning. This 1% increase can potentially lead to a 5% increase in milk production. Experts advise, when expecting two consecutive sunny days, cut alfalfa in a large swath at the end of the first day, and to ensile in the afternoon of the following day. If the forecast calls for only one day of sun, the forage can be cut in a large swath in the morning (not very early to give time for the plant to move the sugars from the roots to the plant and leaves) and ensiled in the afternoon. Research from Cornell University has also demonstrated that the wide swath promotes less ammonia nitrogen in alfalfa silage of up to 44% and greater concentrations of lactic acid, signs of a better fermentation and less dry matter losses.

Cont. >>

To decrease the amount of grain in the diets three strategies can be used: 1) increase forage inclusion, 2) increase forage quality and 3) more extensive use of by-product feeds. These three approaches may be best used in combination. There is however some important aspects to take in consideration when pursuing higher forage diets. Professor Larry Chase, from Cornell University, refers some of the most common ones for herds desiring to feed higher forage rations:

- A large supply of consistent quality forage is required. As higher forage rations are fed, less energy and protein is provided from the grain mix. Thus, variations in forage quality may be more evident since there isn't the ability to adjust for forage quality variations via the grain mix.
- Feeding and feed bunk management must be excellent to assure that fresh, high quality forages are always available. This also includes enough feed bunk space, no overcrowding, and comfortable bedding (the higher the forage in the diet the longer the cow needs to ruminate). Also, higher forage diets require

more time to eat. This in turn puts more pressure on the feet, so good comfort is a must.

- The quality of forages, especially its energy value and digestibility must be high. Dairy cows can only eat so much forage before they are physically limited by the size of their rumen.

- More forage inventory and storage capacity is needed for the same number of cows. Total yearly forage needs can increase by 15-30% when higher levels of forage are fed.

As an example, if a 100 cow herd move from a 55% forage diet to a 70% forage diet, it will need around 125 tonnes more of forage dry matter per year. Converting this to acres, and a 50:50 haylage:corn silage combination, the farm would have to plant around 30 to 35 acres more land to be able to fulfill this objective.

References:
 "Feeding Programs in High Forage Herds". Larry E. Chase. Milkproduction.com. Published: February 20, 2006.

"Tirer parti de ses fourrages pour rester dans le coût". René Roy. Symposium sur les bovins laitiers. Drummonville 2008.

"Wide Swath Research. Open the Mowing Window While Maintaining Forage Quality". Tom Kilcer. Cornell Cooperative Extension.



Get your calves off to the right start with firstSTART™C Calf Milk Replacer!

- firstSTART™C milk replacer has excellent palatability and mixing characteristics.
- All of its protein is from milk origin.
- 100% milk protein ensures consistent and steady growth and development of the calves.
- Producers are finding healthy calves with shiny coats.



CALVES LOVE IT!

KENPAL CARES, BRINGING YOU...

- **QUALITY PRODUCTS**
- **KNOWLEDGE**
- **COMMITMENT**
- **SERVICE**

It pays to use top nutrition!



CONTACT KENPAL OR YOUR LOCAL KENPAL SALES REPRESENTATIVE TODAY
 69819 London Road, RR#1 Centralia, Ontario, Canada, N0M 1K0
 Tel: 519-228-6444 or 1-800-265-2904 • Fax: 519-228-6560
 Email: kpalen@kenpal.on.ca • www.kenpal.on.ca



FOR FOOTBATH APPLICATIONS



A general recommendation for the dimension of a footbath box is: 8 feet (2.44 m) long, 32 inches (81 cm) wide, and 8 inches (20.5 cm) deep.



To reduce the amount of product usage and to increase the volume of the product in the foot bath, drySTART™ was mixed with wood shavings at 1:2 or 1:1 ratios. For a dry footbath with the dimensions mentioned above it would be necessary to use two 25 kg bags of drySTART™ along with one 19 kg bag of wood shavings (0.092 m³ or 3.25 ft³), and this bath should be enough for 150 cows for two treatments (morning and afternoon). Wood shavings also help reduce compaction.



Cows have no problems walking through the nice dry fluffy powder.



As you can see from these photos, drySTART™ provides excellent coverage of the entire hoof area. It is considered a good coverage of the feet if the coronary band is covered with the product.



the STARTline

Toll Free: 1-866-810-1286 • Email: info@drystart.com • www.drystart.com



WE APPRECIATE YOUR BUSINESS!

Kenpal Farm Products Inc.

69819 London Road, RR #1, Centralia, Ontario, Canada, N0M 1K0

Tel: (519) 228-6444 or 1-800-265-2904 • Fax (519) 228-6560 • Email kpalen@kenpal.on.ca • www.kenpal.on.ca