Alberta Dairy Management
PREPARED FOR AND DISTRIBUTED BY THE DAIRY EXTENSION ADVISORY GROUP

What You Can Do About High Feed Costs

Feed costs have increased significantly over the past two years, mainly due to a staggering increase in grain prices. In September 1994, the 'street' price of barley in central Alberta was about $87/tonne; right now it's running around $175. In a ration containing 30% barley on a dry matter (DM) basis, this increase alone raises the feed bill by about 57¢/day for a cow being offered 20 kg of ration DM. As illustrated in table 1, price increases for other ration ingredients have resulted in a total increase in feed costs of close to $1.50/cow/day for the typical TMR feeder in Alberta.

When comparing feeding costs, be sure to use realistic values for forages. A current shortage of hay has put upward pressure on its price and the relative value of hay crop silage. And in the past 2 years, the value of barley silage has almost doubled as a direct result of the increase in value of grain. As a rough guideline, multiply the bushel value of barley grain by 11 to estimate the value of a tonne of 35% DM silage in storage.

What can you do to compensate for higher ingredient costs? The simplest method of reducing costs would be to offer less feed or to lower the inclusion level of high cost ingredients. Your own experience should tell you that this is counter-productive, leading to a dollar loss in production which is greater than the feed cost savings. Instead of focussing solely on costs, it's important to look at both sides of the input/output equation. Your objective must be to improve the margin between the cost of feed and the revenue from milk by increasing your feed efficiency (figure 1).

How do you measure feed efficiency? Many of the producers I deal with like to talk in terms of feed cost per hectolitre of milk produced ($/hL). But, as explained in article **7F1**, a better indicator of efficiency is Return Over Feed Cost (ROFC).

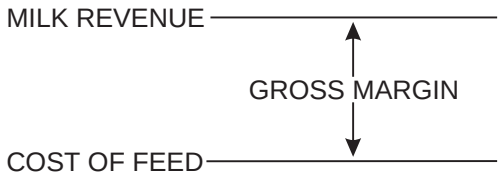

Figure 1 : Gross operating margin is squeezed by higher feed costs and stretched by higher milk output per unit of feed input.

INGREDIENT	IN RATION kg as-fed	$/tonne SEP 94	JUN 96
Barley Silage	20.83	23	45
Alfalfa Hay	4.39	90	120
Barley	4.51	87	176
Distillers Grains	2.54	197	295
Beet Pulp	1.65	126	140
Canola Meal	0.82	178	245
Meat & Bone Meal	0.55	310	370
Fat	0.32	470	550
Feather Meal	0.15	380	460
Corn Gluten Meal	0.14	510	585
Blood Meal	0.11	740	825
Dicalcium Phos	0.10	360	415
Salt	0.09	65	65
Magnesium Oxide	0.03	465	500
Vitamin ADE	0.03	1547	1963
Trace Mineral	0.006	916	1054
Vitamin E (50,000)	0.004	2525	3446
Ration Ingredient Costs		$ 2.76	$4.19
Manuf Margin + Delivery		0.66	0.66
Total Ration Cost		3.42	4.86

Table 1 : Ration composition and comparative ingredient and total ration costs for a typical total mixed ration fed to a single cow.

Evaluate your options

As suggested above, simply offering less feed or reducing ration nutrient levels will seldom improve ROFC because the loss of milk revenue will likely exceed the feed cost savings. Are there ways to increase ROFC by reducing feed costs without sacrificing production?

Alternative ingredients

It may be possible to reduce the cost of your ration by using more cost-effective ingredients. For example, last summer wheat millrun was a very good buy relative to the ingredients it could replace. And recently, it has been necessary to evaluate alternative sources of bypass protein since corn distillers grains and blood meal have been in short supply, increasing their price.

Unless the mixed feeds you purchase are based on a 'fixed formula', feed manufacturers normally use current prices to formulate 'least-cost' mixes from the ingredients available to them. However,

because most mills have limited storage capacity for additional ingredients, they may not want to consider the inclusion of 'opportunity feeds' which may be available in smaller quantities for a limited time or may be difficult or impossible to handle: wet brewers' grains and bakery waste are examples.

If you have a close working relationship with a feed manufacturer, they may help you to evaluate the use of an alternative or opportunity feed by running it through their least-cost formulator. Or, if you have your own ration evaluation software (e.g. Alberta Agriculture's Dairy Bytes program or the Spartan® Dairy Ration Evaluator), you can estimate the replacement value of ingredients by trial and error.

If neither of these options are immediately available, call us and we'll send you a copy of a simple computer spreadsheet which will allow you to calculate the relative value of alternative ingredients. Example output is shown in table 2.

Higher feed intake

If lowering the unit cost ($/tonne) of the ration is not possible, can you increase ROFC by getting more milk out of a unit of feed? One way of doing this is to increase feed intake. I'll always remember one of the speakers at a US dairy nutrition meeting saying, "*The objective must be not to feed a hungry cow, but to challenge an already full cow to eat a bit more.*" Methods of increasing feed intake are discussed in article **1I1**.

In early lactation, it's usually energy intake that limits production. If the ration is well balanced and formulated to deliver 1.72-1.76 Mcal of NE_l/kg, an extra kg of dry matter intake (DMI) will provide enough energy to support an additional 2-2.5 litres of milk at peak. And, by elevating the entire lactation curve, an extra 2 litres at peak should result in an average increase of about 1.5 litres/day over the complete lactation.

	1994 BASE RATION	1996 BASE RATION	1996 HIGHER INTAKE
Feed Cost, $/tonne	94.42	133.87	133.87
Wet Feed Intake, kg/day	36.3	36.3	38.9
DM Intake, kg/day	19.8	19.8	21.3
Feed Cost, $/cow/day	3.42	4.86	5.21
Milk Yield, litres/cow/day	30.0	30.0	32.2
Milk Price, $/litre	0.51	0.53	0.53
Milk Return, $/cow/day	15.30	15.90	17.07
Feed Cost, $/hL	11.42	16.18	16.17
Return Over Feed Cost	11.88	11.04	11.86

Table 3 : Comparison of costs and returns for identical rations fed in September 1994 vs. June 1996. The final column assumes a 1.5 kg increase in DM intake would lead to a 2.2 litre increase in milk output.

The example outlined in table 3 assumes that a 1.5 kg increase in DMI might result in a 2.2 litre increase in production. In my experience this would be a very realistic expectation. Comparing the last 2 columns in the table, notice that Feed Cost /cow/day has increased with the increase in feed intake but ROFC has also increased because the additional 35¢ invested in feed returns $1.17 in additional milk - a 234% return on investment! The increase in production will also allow you to maintain current shipments with fewer cows, reducing labour and other costs.

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BASE FEEDS PRIMARY SOURCE OF:	FEED NAME	NEl Mcal/kg	CP	UIP	EfNDF	COST $/tonne
		---------- WET (as-fed) BASIS ----------		%		
CARBOHYD ENERGY	Barley	1.75	11.6	2.9	0.0	175.00
CRUDE PROTEIN	Canola Meal	1.57	36.0	12.6	0.0	245.00
BYPASS PROTEIN	Corn Distillers	1.83	26.4	13.2	19.1	295.00
EFFECTIVE FIBRE	Alfalfa Hay	1.30	17.2	4.8	34.4	120.00
unit values of nutrients		93.31	-3.21	17.02	-0.81	
ALTERNATIVE FEED	Brewers Grains	0.36	6.2	3.0	4.6	49.00
Press ALT-V to calculate value of alternative feed						61.01

Table 2 : Example output of a feed value calculator which can be used to compute the relative value of an alternative feed. The calculator is a compiled spreadsheet program, available from the author at no cost.