Feeding Strategies to Cope with Economic Times

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Drought conditions across the U.S. have impacted feed cost and availability. Increasing milk prices are tempering high feed costs, but feed prices are not expected to decrease significantly over the next year. Adequate forage supplies are also a concern for many dairy producers. Whether feed is home grown or purchased, minimizing losses and maximizing feeding value will provide the best return on feed expenditures.

There are several ways to evaluate feed cost. Common measures of costs are: $/cow/day, $/hundredweight (cwt) milk, purchased feed cost/day, and purchased feed cost/cwt milk. All should be evaluated as no single measure fully defines the cost of feeding lactating cows nor is there a single 'best' criteria to make feed cost decisions. Income over feed cost (IOFC) is the best measure to evaluate feed costs. Daily feed cost measures that maximize IOFC are the best costs.

Direct Feed Expenses

To achieve the most cost effective milk production, feed dollar expenditures should provide the basic required nutrients to meet health, reproduction, and milk production requirements. The following is a guideline on feed expenditures to meet these basic requirements:

- **Forages** should comprise about 50% of the ration dry matter (DM) and will be the largest single cost item at 40-45% of the total cost due to the quantity necessary to meet fiber and other nutrient requirements.
- **Starch** is the next basic feed need. Cows need some starch for good milk production. Corn is the best source of starch and should be about 20% of the total feed cost. Corn feeding amount and expenditure will be quite variable as byproducts and corn silage can substitute for some corn. High corn silage rations (>50% of forage DM) will be lower in added corn grain which could lower the cost.
- **Byproduct feeds** can substitute for grain, protein, or forage in diets. Most byproducts are a source of fiber and/or protein. Their availability and use is quite variable and difficult to closely assess what a specific cost allocation should be. However, a 10-20% ration cost for byproduct feeds in substitution for other feeds is a good target cost.
- **Protein** is needed for good digestion and utilization of forage and grain (rumen degradable protein like soybean meal is a recommended choice but there are others). Degradable protein sources should be 5-10% of feed cost. For good milk production, some rumen undegradable protein (RUP) should also be included. These are generally higher cost feeds accounting for 15-20% of the total cost.
- **Minerals and vitamins** should be 4-8% of the ration cost.
- **Fat** is a high energy source that can substitute for other energy feeds and supplement low energy feedstuffs. Fat supplement costs should be 4-7% of the total ration cost.
- **Feed additives** are a very broad category of feed supplements that often enhance feed utilization for milk production and/or animal health. Inclusion amount for most additives is low and individual cost effectiveness is usually better than a 2-to-1 return. The key to effective feed additive usage is matching the feed additive with herd needs and not using feed additives as a substitute for high quality feeds and/or a good nutrient balanced diet.

Ration costs are not the same on all dairy farms. Current feed cost per hundredweight of milk for Minnesota dairy producers ranges between $11 and $13. Every dairy farm is different and many variables affect final feed ration cost including:

- type of forages fed and whether home raised or purchased,
- kind of grain and protein feeds being fed,
- type and amount of byproduct feeds being fed,
- milk production level of herd,
- body weight of cows,
- items listed in the feeding management section (next column).

The four rations in Table 1 illustrate the variation in feed costs in diets ranging from high haylage to high corn silage. The fourth ration is a high silage ration with fat substituting as an energy source. All rations were formulated to support 85 lb of milk or more per day and for the same nutrient specifications of 17% CP (max), 28% NDF (min), 28% starch (max), and .79 Mcal/lb of NEL at 52 lb/day of DM. Feed amounts shown are as fed lb/cow.

Feeding Management Related Expenses

Cows less than 150 days in milk are the most efficient in milk production and will yield the best returns on feed dollar spent. Feeding these cows correctly also supports good reproduction.

Mid to late lactation cows are less efficient and if over fed can increase feed costs substantially with low milk return. In all phases of lactation, avoid over or under feeding nutrients for the most cost effective milk production and best IOFC. Formulate rations to meet the production requirements of cows at the seventy-fifth percentile in a herd or about 10-15 pounds of milk per cow above the average. Formulating a diet for the top cow in a herd over feeds the majority of cows which raises feed costs and reduces IOFC.

Table 1. Feed cost variation in diets ranging from high haylage to high corn silage; rations formulated to support 85+ lb milk/day.

	High Haylage	50:50 DM Basis Haylage: Corn Silage	High Corn Silage	High Corn Silage with Fat
Corn Silage, lb	25	44	75	80
Haylage, lb	51	35	17	18
Corn, lb	15.5	12.7	6.5	5.0
Protein Supp, lb	6.2	8.6	11.5	10.2
Min/Vit, lb	1.4	1.6	1.8	1.9
Fat, lb				.5
$/Day Ration Cost	$8.20	$8.10	$7.64	$7.95
Ration Milk Potential - lb/day				
Metabolizable Energy	96	95	92	95
Metabolizable Protein	85	94	93	93

Feeding to a 1-2% feed refusal amount for lactating cows is a good target. Higher refusal amounts increase feed costs but empty bunks can reduce milk production. Feeding the refusals to breeding age and bred heifers is a good way to utilize this feed; however, this should only be a small portion of their diet as there are other lower cost feeds available for heifers.

Other management suggestions for helping to control feed costs include:

- getting cows pregnant to lower days in milk and increase milk production,
- culling sick, low production, and open late lactation cows,
- avoiding long dry periods as even dry cow diets are expensive in today's economic times.