
Feeding Management Incentives



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If feed quantity or quality for cows is poor, milk production will suffer. Feeding management in many cases represents the difference between 20,000 and 22,000 pounds of milk per cow per year. There are no secrets or magic formulas for achieving efficient and profitable milk production from a feeding program.

It is essential that feeding personnel realize the importance of keeping cows properly fed and managed throughout the lactation cycle. This means that

dairy farmers need to *communicate* to their feeders the consequences of poor feeding practices.

MAXIMIZE DRY MATTER INTAKE

Peak or maximum daily milk production for most cows occurs 6-8 weeks after calving with peak feed intake not occurring until 12-15 weeks into the lactation. This results in a

nutritional deficit which needs to be made up by mobilizing nutrients from the cow's body. If there is a shortage of these nutrients, then peak production will suffer.

It is important during the early lactation period to bring fresh cows to full feed as rapidly as possible. This can be achieved in several ways. First, offer dry cows 6-8 pounds of concentrate per day two to three weeks before calving. This enables the rumen microorganisms to adjust to the milking cow rations more rapidly. Second, gradually bring fresh cows to full concentrate levels. Concentrate should be limited to 6-8 pounds per meal. Third, feed at least 16-18 pounds of high quality alfalfa hay. This will minimize the chances of a cow going off feed. Fourth, avoid overcrowding of the fresh pen. Fresh cows are usually timid upon entering the fresh pen. As a result, they usually do not compete well at the feed manger if pens are overcrowded.

One objective of feeding management in order to achieve and maintain high production is to maintain a proper balance of nutrients which minimizes fluctuations in the rumen, maximizes digestion, and ensures a steady flow of nutrients to the mammary gland (Muller, 1992). Within the framework of existing housing, feeding equipment, frequency and time of milking, and available labor, dairy producers should strive to provide a nutritionally balanced diet 24 hours each day to enhance the opportunity for maximum dry matter intake and to achieve ruminal fermentation that maximizes digestion and rumen microbial production.

MONITORING OF FEED INTAKE

As mentioned previously, maximizing of dry matter intake is the goal in feeding dairy cattle. Dairy feeders need to understand the important role they play in getting fresh cows off to a good start.

Part of feed management begins by feeding cows according to their predicted feed intake level. Since cows require pounds of nutrients and not

percentages, predicting feed intake becomes important in balancing rations for the desired production level. Most dairies will employ a nutritionist who will formulate a feed ration based on the cow's average body weight, days in lactation and milk production along with the level of milk components such as milk fat and protein. Based on these parameters a requirement will be given for a minimum level of feed intake that the cows should be achieving. Various factors can affect feed intake such as heat stress, infrequent feeding, feed not available 20+ hours per day or moldy feed being fed. If cows eat more than two pounds below their predicted intake, something is depressing their feed intake. Feeders need to be keenly aware of this and be directed by management accordingly.

Cows whose dry matter intake are calculated at more than two pounds above predicted values are generally wasting feed. Cows prefer fresh moist feed and feed that is fed in excess usually dries out and is not very palatable. Excess feeding also results in mold buildup which when consumed by cows can result in abortions or low milk production. Ideally, feed bunks should be cleaned daily in order to prevent the occurrence of molds. This is especially true if considerable amounts of wet feeds are fed.

Underfeeding or overfeeding of cows is usually the result of not making adjustments when pen sizes are changed. Although it is not practical to take a daily accounting of pen numbers, a once weekly count is recommended to ensure proper utilization of feed and equipment.

FEED MANAGEMENT MONITORING

Various areas of feeding management can be monitored in order for bonuses to be considered to feeders. Areas to concentrate on are as follows:

1. Bunk management - As mentioned earlier, moldy feed can cause both reproductive and palatability problems.



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Feeding areas should be cleaned frequently to prevent the build-up of moldy feed. It is generally a dairy manager's responsibility to monitor the feed bunk area, but all too often dairy feeders are given this task. An explanation to feeders on why feeding areas need to be cleaned frequently should be conducted. This gives them a better understanding of feed management principles.

Incentives to feeders for maintaining a clean feed bunk area would be a worthwhile investment. It should be noted though that it is easy to underfeed

and thereby get a clean bunk.

2. Feed storage facilities - Management of feed storage facilities is the first line of defense against feed waste. Feeders should keep all feed covered when possible in order to prevent loss due to both wind and rain.

If silage bags are used, they can be prone to high losses when the opened end of the bag is not managed properly. Bags should only be exposed enough to allow gathering of feed. Any holes made in silage bags need to be patched promptly in order to prevent occurrences of mold. With silage trenches, the silage

Dairies using total mixed rations (TMR) are aware that good mixing practices are desirable.



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Feed intake is the main factor which governs milk production.

face should be kept smooth to prevent the occurrence of mold. Excess silage should be kept at a minimum at the foot of the face. This feed can deteriorate quite rapidly in feed value.

Wet feeds such as citrus pulp, brewers grains and vegetable by-products can mold easily, therefore feeders need to be observant for deterioration of feed quality. A load of wet feed usually needs to be utilized, depending on the weather, within 10-14 days of delivery. Incentives for minimizing feed losses and mold build-up would be advantageous on many dairy operations.

3. Calculated expected feed usage versus inventories - If inventories are below expected uses, then some waste may be occurring or expected feed use needs to be reevaluated. The key to improving feed inventory control and reducing feed waste is setting up a well-understood and effective monitoring system for measuring feed disappearance charged against inventory. Many examples can be cited of a dairy that experienced a significant health challenge with fresh cows, or a dairy that lost a large amount of milk production and income over time because of errors that were made in the mixing or feeding program, yet essentially no records were available to determine specific causes to allow implementation of a better management plan (Barmore, 2001). Experiences have shown that by establishing as part of a feeder's job description the expectations for monitoring feeding and

mixing, and at the same time giving the feeder the monitoring tools, that significant reductions can be made in the variation that occurs from load-to-load or day-to-day.

Barmore, 2001, discusses ways by which feed intake can be monitored. A simple method of monitoring feeding involves recording daily amounts of ration offered and refused, and then comparing this to inventories taken on a regular basis. This requires that a feed intake log be kept for each pen or group of cows, while all feed purchases are recorded for actual scaled amounts, and when they are delivered.

Another method of monitoring feeding and inventory is to use a spreadsheet, where actual weights of the ration offered daily can be recorded by pen or group along with the feed refusals. These amounts can be automatically subtracted from the running inventories if available in the spreadsheet. Computerized software scale interfaced programs are rapidly becoming of interest due to their ability to automatically capture feeding and mixing information without requiring the feeder to hand-enter data. These programs record automatically the actual amounts loaded and fed relative to projected, capturing any deviations and errors for each ingredient and pen. An example printout from this type of software is shown in Figure 1. In this example, the feeder for this dairy had close to a 6.0% error by loading too much molasses into the feed truck. These errors can be costly most notably

for a large dairy where multiple loads are fed through out the day. Incentive programs could be developed to reward the feeder for keeping the error rate between 1.0 and 2.0%. Dairy farmers should have scales on their feeding equipment calibrated annually to make sure that it is weighing correctly.

Time of delivery and mixing times can also be monitored by day of week or feeder. Computerized feeding systems can perform inventory tracking based on what is actually loaded and unloaded. This in turn can be used for feed forecasting and purchasing.

To monitor proper mixing of a total mixed ration, samples can be taken for lab analyses of the finished product. One should be cautious in interpreting the lab results as this method can give an inaccurate picture of the feeding program.

INCENTIVE PROGRAMS FOR FEEDERS

It is not enough for a feeder to know that sufficient feed needs to be available for cows 23+ hours of the day. Feeders should know what the consequences are for not delivering sufficient feed to a group of cows.

Feeders need to know what they can do to maintain or improve feed intake. A growing number of feeders are coming to dairies with no experience. Even those with previous experiences

often need training to acclimate them to the dairy's equipment and practices.

Many factors can effect milk production so incentives tied to the feeder may need to be also associated with other employees on the dairy. Suggestions for possible incentive programs for feeders (beyond regular salary) are included below.

1. So many cents per hundredweight of milk for keeping feeding areas cleaned. This should be rewarded on a monthly basis after discussion with the feeder on what is to expected for this incentive to be realized.
2. A specified amount per 100 pounds of milk over so many pounds shipped per month (example: so many dollars per hundred weight over a million pounds monthly in a 500 cow herd).
3. A specified amount per 1,000 pounds milk produced in 365 days or less over 22,000 pounds for each complete lactation (example: so many dollars per 1,000 pounds over 22,000 pounds).
4. So much per 100 pounds of milk produced over 22,000 pounds of milk per cow annually (example: so many cents per 100 pounds over 22,000 pounds times number of cows).
5. A specified amount for keeping feed loading and unloading error rates between 1.0 to 2.0 %.

Figure 6-1. Feed loading detail with feeder deviations. (Courtesy, DHI Computing Service, Inc., Provo, Utah.)

	ingr	actual loaded	expected to load	loading dev	% error		
04:16:50	HighHay	1946	(1943)	3	0.2%		
04:18:53	PreMix#1	3176	(3159)	17	0.5%		
04:20:19	RldCorn	2811	(2806)	5	0.2%		
04:21:51	CrnSilage	5782	(5757)	25	0.4%		
04:27:11	HighWheat	1607	(1583)	24	1.5%		
04:27:49	Molasses	609	(576)	33	5.8%		
ttl loading deviation & percent error -->				107 lbs	0.7%		
	pen	pen count	actual unloaded	adjusted expected to unload	original expected to unload	unload dev	% error
04:31:32	Pen 5	285	7821	(7752)	(7665)	69	0.9%
04:34:08	Pen 4	280	8267	(8175)	(8158)	92	1.1%
ttl unloading deviation & percent error -->						161 lbs	1.0%

On many dairies, heat detection can be a problem. Feeders can aid in this since they are in contact with the milking strings at various times throughout the day. Bonuses to feeders for catching hot cows can add to a dairy's reproductive efficiency (see Chapter 3 for details). It is important though not to delegate too much added work load to feeders as this will cause less time in the feed management area.

With regards to incentive programs we usually equate a financial reward for doing a better than normal job. But, just being recognized for doing a good job may be satisfaction enough for certain employees. Individuals who do consulting work on dairies specifically in the feed management area will often meet with just the feeders on a dairy to discuss the importance of their job. In one instance, a consultant has had a pizza party for the feeders and others associated with the feeding program. The owner of the dairy will supply the employee's with time off from their work schedule or an extra hour of pay in order for the workers to attend this meeting. The consultant will talk about how important their job is, and what skills are needed to do a good job as a feeder (Bakke, personal communication).

One of the most important duties of a feeder is feed bunk management.

SUMMARY

Visual appraisal of a feeder's performance is generally the only way that dairy managers can gauge a feeders competency. Quantitative measurements such as milk yield can be used, but many other factors effect milk production. Bunk management along with feed storage supervision are important areas for which to consider incentives.

Feeders are an integral part of the dairy's work force. A carefully designed incentive pay program will help recognize their valuable contribution to the dairy.

CHAPTER 6 REFERENCES

- Barmore, J. A. 2001. Monitoring and managing feeding, inventory, and shrink. Four-State Applied Nutrition and Management Conference. LaCrosse, WI.
- Muller, L. D. 1992. Feeder management strategies. In *Large Dairy Herd Management*. H. H. Van Horn and C. J. Wilcox, eds. American Dairy Science Assoc., Champaign, IL.
- Porterfield, R. A. 1984. Labor management in dairy farms. *Arizona Dairy Newsletter*, September.

