

Managing Feed Inventories and Limiting Shrink

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Introduction

Many dairy producers try to reduce costs by cutting feed costs without realizing how much money they are wasting once the feed, protein mix, or commodity shows up at the farm. Furthermore, lack of focus on proper silage management affects feed losses and adds cost to the diets even more.

Putting things into perspective: Current feed costs per cow can run \$7 to \$8/day. For a 1,000 cow herd, this would represent about \$210,000/month expenses for the lactating cows alone. Poor feed storage facilities, poor feed management, and lack of feeding consistency can create a 10 to 15% shrink loss that would represent more than \$31,000/month or over \$380,000/year!! These are dollars spent that will not generate any revenue!

Many dairy farmers don't realize the true cost of their feeding program (Brouk, 2013) because they don't keep track of inventories and so they can't measure their feed losses, thus not allowing them to identify areas of their feeding program that need to be improved.

Although eliminating feed losses completely is not possible, both the producer and feeder must focus on controlling and minimizing them. In order to accomplish this, a well-planned feeding management system must

be put in place, along with well-trained feeders to execute the feeding program.

This is why better managing of inventories and better monitoring and controlling of feed losses can be critical areas to focus on to be able to reduce feed costs.

Key Control Points

From my experience working with many dairy producers throughout the United States, there are 3 main areas where the producer, feeder, and nutritionist should focus in order to better manage feed inventories and minimize feed losses. These key control points that need to be periodically monitored are:

1. Feed handling and storage,
2. Mixing and feeding process, and
3. Feed bunk management.

Feed handling and storage

Reducing feed losses by improving management practices during the handling and storage of forages and other ingredients can have a substantial economic impact.

Proper handling begins by having a consistent routine when receiving forages, and feed ingredients at the dairy. Oftentimes, feed trucks deliver feed without anyone from

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the farm being on site to control the delivery. Receiving includes not only the actual slip or invoice and placement of the feed, but also the weigh verification, feed inspection, and sampling. This will ensure both quality and safety of what's received and also will give more accurate information on inventory control and will help better control shrink losses. A similar process should be established for any silage and other forages grown and harvested at the farm.

Collect samples of every load of grain, commodity, mineral pack, or feed received, and store them for a reasonable period of time, which can be one month or more, depending on the ingredient and usage. Also, investing in a scale to weigh all ingredients or feed received at the dairy farm can be a valuable long-term investment. It will allow you to verify correct receiving weights and immediately address load discrepancies with your supplier. It also will give you more accurate information that will help you adjust inventory records and control shrink losses. This also is critical with the silage and other forages grown at the farm.

Several factors will have an impact in shrink losses that are related to storage facilities and the way feed and commodities are handled at the farm. Typically, these are related to wind losses, presence of rodents and birds, and weather, especially when using open commodity sheds or when leaving by-products, like wet brewers or distillers, exposed to rain and sun. Also, the feeder's attention to details can affect feed losses during handling and storage. Ensuring the feed center is clean and organized is critical.

Impact of different storage designs

Much has been discussed in many articles and papers about the advantages of storing ingredients in upright bins compared to

open-sided commodity sheds (Kertz, 1998). Flat storage systems are usually preferred for high inclusion rate ingredients that may not flow well in upright bins. Examples of these are whole cottonseed, hay, or beet pulp. Also, protein mixes that contain high levels of liquid fat or molasses are usually recommended to be stored in flat commodity bays. However, any other ingredient or feed should be kept in upright-bins, since shrink loss using this storage system will typically be limited to 1 to 2% compared to 5 to 15% with open-sided commodity bays (Kertz, 1998). Small differences in shrink loss between storage systems may save a lot of money, especially with expensive ingredients or concentrates.

With current feed prices [e.g. for soybean meal (**SBM**)], the savings can be over \$16,000/year (Table 1) if using upright bins instead of commodity bays to store the ingredient.

Silage storage and extraction

Also critical when it comes to reducing feed losses, the silage making process and face management are areas that can make a difference when focusing on reducing shrink losses. Weighting what goes in and out of each silage bunk or pile is the most accurate way of keeping good feed inventory. Much has been said about proper silage management, packing, covering, and extraction methods to reduce losses by Dr. Keith Bolsen (ksre.ksu.edu/pr_silage).

Proper training of feeders on silage face management is critical to maintain good quality feed and reduce silage losses. Working with the nutritionist and consultant to define the correct silage extraction protocol and training the people in charge of doing it is critical.

Mixing and feeding process

Farm employees are informed during my training sessions that precision, consistency, and attention to details are the keys to the success and profitability of any feeding program. Improving loading accuracy and reducing variability during the mixing and feeding process will not only improve animal performance and health but will also help control feed costs (Soriano, 2011, 2008).

Here are some suggestions that will improve mixing uniformity and consistency:

- Use pre-blends of concentrates, mineral and vitamin packs, and any other small inclusion rate ingredients used in the rations. Remember that an extra shake of the bucket will increase cost of every load of feed prepared!
- Develop a mixing protocol, including mixing time and loading sequence of ingredients. Periodically monitoring feeders to make sure that they stick to the feeding protocols is critical.
- Test forage dry matter (**DM**) at least once per week (depending on number of cows fed, it may have to be more often) and make the necessary adjustments according to forage moisture variations.
- Invest in feeding management software like TMR Tracker[®] or Feedwatch[®]. This can help better monitor feeding accuracy and consistency, control feed inventory, and reduce shrink losses. Also, this technology gives the manager and nutritionist the opportunity to work closely with the employees and give them better feedback regarding their performance. It also can be a great tool to develop incentive programs if they are already doing a very good job. You

also can use the software as a tool when doing employee performance appraisals.

- Periodically check mixer scales for accuracy, since sometimes scale errors can be an important factor on feed losses.
- Monitor TMR uniformity.
- Periodically evaluate manure consistency. Better yet, develop a manure scoring protocol and train employees to do it.

Feed bunk management

By feeding cows more accurately (dropping the right amount of feed in each pen), you can better control feed costs. Also, periodically updating cow numbers in each pen on the computer will improve feeding accuracy. Making the necessary adjustments for cow numbers will reduce feed waste by reducing feed refusals. Depending on the dairy farm's size and cow movements, this may need to be done once or twice daily.

Running 4 to 5% refusals when feeding lactating cows is not an option anymore. With current high feed prices, managing feed bunks for 1 to 2% refusals could have a significant impact in feed costs. Dairy farms with good feeding and feed bunk management could certainly achieve this. Needless to say, this would take closer and periodic attention and excellent communication among all people involved in the feeding process. The fresh cow pens may be the exception to the rule, since some nutritionists prefer to have a higher refusal rate (up to 3%) in these pens.

A feeding management software system will help manage feed bunk accuracy and consistency. To put this into perspective, if your current feed refusals are 3% and your feed cost is

of \$8.50/cow/day, then your feed losses, or at best feed that will be of lower value, if fed to heifers or low producing cows, will be over \$93,000/year for a 1,000 cow herd. In contrast, when running a more slick bunk management, by keeping feed refusals at 1%, feed losses, or what is then fed to other group of animals, would represent about \$31,000 instead.

However, this will be achievable in very well managed dairy farms, where feeding and feed bunk management are consistent; feeders are well trained and understand the importance of monitoring the feed bunk, and where forages and by-products are relatively consistent. It is always recommended to discuss with the nutritionist and consultant before adopting aggressive feedbunk management goals.

Furthermore, what should be done with the feed refusals? Depending on the time of the year and what the feed refusals look like, you can at least feed the refusals to heifers or low producing cows. In some dairy cows, these refusals are sometimes fed to far-off cows. Practicing this can have some significant savings.

Steps for Managing Feed Inventory and Reducing Feed Losses

Step 1 – Establish a receiving and handling system / protocol.

Once the grain, commodities, or minerals arrive at the farm, a significant amount of feed can be lost if not handled properly. With the help of the nutritionist and/or consultant, establish a protocol for receiving and handling of all forages and ingredients.

Step 2 – Establish a monitoring system

Start measuring shrink to reduce monthly feed cost. Weigh every forage and ingredient coming into the dairy farm and going out in the mixer. Furthermore, weigh refusals daily in order to calculate feed losses during the mixing and feeding process. Establish a monitoring system that will help keep track of those losses. Using feeding management software like FeedWatch® or TMRTracker® can help keep accurate feed inventories and reduce feed costs. At the same time, it will allow you to better monitor feeders' performance and accuracy and establish goals.

Step 3 – Develop standard operating procedures (SOP) and job descriptions

It is important to establish and communicate the role that the feeder has in the dairy farm. Also, developing SOP is critical to reduce variation among and within feeders and to reduce feed losses. This can be a very simple task when using the feeding software program to develop the SOP.

Step 4 – Develop key performance indicators (KPI) and goals

With the help of the nutritionist and consultant, the dairy producer should establish those parameters of the feeding process that impact feed losses the most and that are directly affected by the feeder's performance. These KPI should be monitored daily or at least weekly. Examples of these KPI could be loading accuracy, feed delivery accuracy, and shrink losses of key ingredients. By keeping good feed inventories, a shrink goal can be established. Sharing with feeders these KPI and giving them feedback is a critical aspect when focusing on reducing feed cost and shrink losses.

Step 5 – Develop a training program

With the help of the nutritionist and outside consultants, develop a training program for feeders that will cover all the main aspects of feed and forage quality assessment, feed handling and storage, proper feed inventory, the mixing and feeding process, feed bunk management, and mixer maintenance. A good training program will reduce errors and feed losses and will keep established feeders refreshed and motivated.

Conclusions

Milk is a commodity and margins are small. This is why dairy producers need to focus more on the largest expense, which is feed. Reducing feed costs by better managing and monitoring key control points of the feeding program can have a significant impact. Feeding practices that will have an impact in shrink losses and feeding accuracy will go a long way when focusing on feed costs.

In summary, these are some of the areas that need to be evaluated when focusing on feed inventories and reducing shrink:

1. Do an assessment on how ingredients are being handled from the time they arrive at the farm. Is there room for improvement in this area? Do you have SOP in place for feed and commodity reception at the farm? Could this be improved?
2. Store expensive protein sources and concentrates in upright bins. If you are currently storing these in a commodity shed, calculate current losses and decide whether it could be profitable to invest in a few upright bins. My guess is that if your current losses are 4% or more, investing in a few bins will be worth it.

3. Develop a mixing and feeding protocol to minimize the within batch and between batch variations.
4. Spend time and money coaching, training, and giving feedback to your feeders. Using outside consultants or nutritionists that can speak the native language of your employees will be ideal.
5. Use feeding management software to monitor and adjust your feeding process. This technology will help reduce batch variations, reduce feed losses, and have a more accurate feed inventory.
6. Closely monitor the feed bunk by reading bunks accurately and weighing refusals to better control feed losses.

References

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Table 1. Cost of losses comparison between bins vs bays for SBM (1% loss vs 5% loss) for a 1,000 cow dairy.

	Commodity shed	Upright bins
Losses/month	\$1,725	\$345
Losses/year	\$20,700	\$4,140
Total savings/year	Base	\$16,560

