

Don't Let Shrink Kill You with High Feed Prices

Dr. Micheal Brouk

Associate Professor, Extension Specialist, Dairy

Department of Animal Sciences and Industry

134 Call Hall, Kansas State University, Manhattan, KS 66506-1600

Tel 785-532-1207; fax 785-532-5681

mbrouk@ksu.edu

Take Home Message

- Many factors result in feed waste or shrink
- Shrink may represent 15-20% of total feed cost
- Wet and expensive ingredients represent the greatest concern
- Low milk price and relative high feed prices increases the importance of reducing shrink
- Lowering feed shrink is an economic opportunity for nearly all dairies

Introduction

Feed shrink is a major negative economic factor on dairy farms. On most dairies, feed cost will represent the largest single cost center. As feed prices have increased, awareness of this issue has increased. Feed shrink could simply be defined as the amount of feed that is delivered or raised on the farm that is not consumed by the cattle. Maybe the most important technical advancement in this area has been the adoption of on-farm scales, both for incoming trucks and on feed mixing equipment. In the last 10 years, there have been significant advances in computer software to help producers track feed mixing operations and changes in inventory. One can not manage what is not measured and the combination of scales and software has given us wonderful tools to take greater control of feed shrink on dairy farms. Feed shrink is caused by many factors including; delivery weight errors, wind, birds, rodents, tires and tracked feed, cattle tossing feed, silage bunker losses, feed refusals, bunk heating and spoilage, moisture losses, mixing errors, scale accuracy and water damage. These losses may represent 5-30% of the feed purchased by the farm. Reducing feed cost will be a primary concern for producers during times of depressed milk prices and reducing feed loss or shrink is an important part of reducing overall feed cost.

Delivery Weight Errors

Are you getting what you paid for? The use of on-farm scales for every bulk product delivered to the farm as well as milked shipped has greatly increased. While the cost of a semi-truck scale is significant, it is very beneficial to the dairy. As dairies increase in size, the cost of the scale is greatly diluted and becomes a minor investment in the total operation, but one that has a great potential for profit. For example, if a 2,000 cow dairy feeds 4 pounds of soybean meal per cow each day, a semi-truck load would be needed each week. If the loads were only short 100 pounds each week, it would amount to 2.5 tons on the year or at today's prices, about \$1,000. When buying forages, this may be more important. Estimating the weights of trucks when chopping silage will guarantee that someone loses, either the grower or the buyer. It would not be unusual for a 2,000 cow dairy to purchase 800-900 loads of corn silage in a single year. Thus, even a 100 pound per load difference in weight could represent 45 tons of material. The

situation is even worse under muddy field conditions. If you are utilizing a tare weight on a clean truck for a truck that has become caked with mud, you may be paying for 500 pounds of mud each time the truck crosses the scale. Thus, checking tare weights for each load or many times during the day is very important. Also consider if the driver was on or off the truck and the amount of fuel present when the tare weight is taken. If you do not have scales on your farm, consider utilizing scales at local business to ensure that you are getting all that you are paying for.

Wind

How much of your feed becomes dust in the wind? In some areas, wind is a daily threat to controlling feed cost. Dry ingredients with a small particle size and low density are the most affected by wind losses. Soybean hulls, soybean meal, and dried corn gluten feed would be some examples. These are easily carried away by the wind. Commodity sheds which are designed to allow trucks to dump on the concrete apron outside the facility and then a loader is utilized to move the feed back into the shed result in significant losses on windy days. Some on-farm records indicate that losses of soybean meal in a commodity shed are 8-9 percent. If you are paying \$380/ton for soybean meal, the real cost is about \$414/ton, or at 4 pound daily feeding rate, daily feed cost just increased by 6.8 cents per cow. In areas where wind is a factor, consider wind direction when planning facilities. If you are utilizing a dry, low density product, consider pelleting or mixing some fat or other ingredients with the product to increase density and reduce the effect of wind. The use of windbreaks around commodity sheds may also be helpful in reducing feed losses.

Birds

How many birds did you feed today? Starlings may create a significant negative impact on feed cost. Starling can consume up to 50% of their body weight in grain each day. You can be thankful that your cows don't consume 50% of their body weight each day, but, a flock of several thousand birds represents a significant threat to your income. In addition, fecal contamination may pose a disease threat to pregnant animals and calves. Fecal contamination may also reduce feed intake. Daily feed consumption is estimated at 0.0625 pounds per starling. If there are 20,000 birds present and 80% are utilizing the feed bunks, this represent 1,000 pounds of feed each day or 7,000 pounds per week. It is important to keep in mind that the feeding birds consume only concentrate. If concentrate cost is \$0.15/pound, the cost of feeding the birds is \$150.00 per day or \$1,050 per week. If the dairy is feeding 2,000 lactating cows, this represents 7.5 cents/cow each day, or increases feed cost per cwt of milk by 10 cents if the herd is producing 75 pounds of milk each day.

Another factor to consider is the impact of birds upon the nutrients contained in the ration. The forage is left for the cattle resulting in a diet that is unbalanced. In the example above, 0.5 lb of concentrate per cow is removed from the ration. This could represent 1.5 to 2 pounds of daily milk per cow. If there are further reductions in feed intake due to fecal contamination, the potential milk loss is even greater. The loss in milk production is likely greater than the loss of feed.

Bird control is usually needed 2-4 months each year. Facility design can greatly reduce the losses due to birds. Controlled environment barns, tunnel or cross-ventilated barns reduce bird

losses in the feed bunk to near zero, however, potential losses may still occur in commodity storage areas. In dry lots and naturally ventilated freestall barns, birds are going to be an issue. Exclusions methods in freestall barns may help, but the drive alleys usually have openings on both ends of the barn providing an entrance into the facility. Many different methods of control including habitat management, harassment, and population management can be utilized. Habitat management includes reducing access to feed and water. Birds will generally not roost in the same area as they feed. Feeding generally occurs over the middle of the day. Reducing the amount of feed available in the bunks during the middle of the day can be helpful. Altering feed delivery so that more feed is available during the evening and nighttime hours may help reduce losses. Also lowering the water level in drinking troughs to more than 6" from the top of the water will prevent birds from drinking while perching on the rim and maintaining a water depth of greater than 6" will prevent birds from standing and drinking.

Rodents

Who fed the mice today? Losses due to rodents may be due to several factors. Rodents are generally attracted to feeds with higher fat contents. Waste due to holes in bags or increased spoilage associated with holes in silage covers may be a greater concern than the actual consumption of feed. Rodent control around silage piles includes excellent weed control and in some cases may involve the utilization of fencing to keep rodents away from the feed. In some cases, damage by other wildlife can also be significant. Deer, turkeys and raccoons can cause significant spoilage and consume significant amounts of feed.

Tires and Tracking

Can you follow the feed loader by the soybean meal tracks? Wet tires are very efficient in tracking feedstuffs around the farm. Bumps are great for unloading feed at places other than the TMR wagon. Take a look around your farm. Where do you see feedstuffs in places other than the bunk, mixer wagon or feed loader bucket? What is the price of the ingredients you see scattered on the road or mixed with the dirt? Using a loader to transport high priced commodities, could be an issue if there is significant loss from the bucket during this movement. Consider how you might reduce the travel distance or make a premix of several commodities to reduce travel time and feed losses.

Tossed Feed

Feed is an expensive cattle toy. Cattle tend to like to toss feed. Increase fly pressure will generally increase this activity. Post-and-rail feed barriers allow for more of this activity. Some studies estimate the feed loss is 2.5% less when headlocks are utilized as the feed barrier. This could amount to 3 pounds of feed per day or 1.5 pounds of dry matter per cow each day. Maybe your estimated feed intake is really only 53 pounds per day rather than the 54.5 pounds estimated by feed delivered minus feed refused. This could represent over 20 cents per cow per day.

Silage Bunkers

Do you really want to know what this number is on your farm? A few years ago, I had the pleasure of helping a producer make significant changes in his silage management. Loss in the bunkers was running between 25-30%. In July of the following year, he called and asked why he still had several months of silage remaining. He had reduced his losses to about 10% and one benefit was he needed to purchase less the following fall. Reducing silo losses is a matter of

correctly managing harvest, filling, covering and feedout. The single most critical factor may be harvest moisture. Wet or dry plant material increases losses. Use of inoculants or preservatives may help reduce losses, but losses increase when the material is either too dry or wet. Chopping quickly, achieving a correct density and covering immediately after filling are key ways to reduce losses. Overfilling bunkers increases losses due to inadequate packing. Keeping feeding face vertical and sizing the face to fit the herd are critical factors in reducing losses during feeding. Many producers are getting total silo losses to near 5%. However, many still have issues to correct and are losing up to 30% of the forage that is harvested. A goal would be to get under 10% and then try to reduce it to near 5%.

Feed Refusals

Do the leftovers become fertilizer? If so, you are using expensive fertilizer. Most of the refusals are still acceptable for some groups of cattle. Yes, there can be some biosecurity concerns however, these are generally minimal. Use of these feeds for the heifers, or limited use in dry cows is a way to reduce feed cost in these groups. Another potential use is for beef cattle. In areas where beef operations exist near dairies, the beef producer may be willing to purchase refusals.

Some producers are trying to feed for a slick bunk to reduce the amount of refusals. A normal practice would be to feed for 3-5% refusal. However, with high feed prices, many farms are trying to reduce this to a low level. Dairies that feed only once per day, have some significant challenges to feeding to a slick bunk. Adjustments to feed delivery are only made once daily and changes in intake make this very difficult to manage. Dairies that only feed during the daylight hours also have a challenge in ensuring that adequate feed is available over the night hours. This is especially true for summertime feeding when 60% of the feed may be consumed during the cooler nighttime hours. Farms feeding 18 or more hours each day may be better able to manage bunks to reduce refusals. Emphasis should be placed on ensuring that cattle have access to adequate feed 22 hours each day.

Bunk Heating and Spoilage

Is your feed hot? Hot is not good when it comes to feed. When feeding high moisture feeds, someone should be checking each day to see if the diet is heating in the bunk. This is especially true during the summer. Heated feed is the result of secondary fermentation. It robs the ration of the most digestible nutrients. Energy is neither created nor destroyed it is transformed. As dairymen we want our cattle to transform the diet energy into milk, not heat in the bunk. Heated feeds also reduce feed intake. It is important to determine the cause of the heating. Poor silo face may be the root of the problem. Silage facers and correct silo face size are important factors in keeping the silage fresh. Sometimes, when low quality water (water high in bacteria) is added to the TMR, heating may result. Feeding more often during the day will also help reduce heating and losses due to heating. In some cases, feed additives may also be helpful in reducing the rate of bacterial and yeast growth to reduce secondary heating.

Feed Moisture Loss

When wet feeds are delivered, ambient temperature, wind, sunlight and relative humidity become our enemies. These all combine to cause evaporation and loss of feed moisture. The longer we store the product, the greater the losses. Protection from wind and sunlight can help

reduce the loss, however, to keep these losses low, daily deliveries are the best. In most cases, this may not be possible. The goal should be to receive these feedstuffs several times per week or utilize silage bags for longer term storage. Some on-farm measurements of wet products stored on cement indicate that the moisture loss is about 1% each day. If products are going to be fed over a week, some ration changes may be necessary to account for the changes in dry matter over the feeding period.

Mixing Errors

Are mixing error really feed shrink. The feed is fed to the cow, however, it is not fed correctly and can increase our feed cost and reduce the length of time a quantity of feed should last. A quick check is to determine how long it should be between deliveries of feedstuffs. Simply dividing the amount of product delivered by the amount fed each day should give an estimate of when the next shipment should be needed. If you are feeding 1,000 cows 4 pounds of soybean meal each day, a 25 ton load should last 12.5 days. However, near the end of 9 days, you realize that you will need a delivery the next day. This is about a 16% apparent loss or shrink. In looking at the feed records you discover that the feeder was to have added 500 pounds to each of 8 daily loads of feed. However, he had been adding 540 pounds to each load or 320 more pounds each day. Thus, about half of the loss was due to the mixing error. Careful attention to correct addition of ingredients is very important in reducing feed waste.

In reducing mixing errors, it is important to consider how much of a feedstuff is added to the TMR mixer. In general, feedsuffs that will be fed at less than 5 pounds per head per day should be mixed with other ingredients prior to the addition to the TMR mixer. Making on-farm premixes or purchasing premixes with several ingredients are preferred to making small additions. A bucket designed to hold 2000 pounds of silage does not effectively deliver 100 pounds of premix to a TMR wagon.

It is also important to watch the order of ingredient addition to the TMR mixer. Some employees may try balance the total load weight by the amount of the last ingredient added. If this ingredient is a high cost or of great importance to the diet, it may be either shorted or over-fed depending upon the errors made with adding prior ingredients. Sometimes it is good to have a low cost feedstuff as the last ingredient added or inform employees that it is more important to add the correct amount of all ingredients and to avoid shorting or adding additional amounts of another ingredient to balance the total load weight.

Scale Accuracy

Scales are either electronic, mechanical or a combination. All require calibration and maintenance. Sudden stops or starts while on the scale platform can cause significant damage. Employee training is necessary to avoid scale damage. Scales should be certified at recommended intervals and keep in mind that certification means that the scale operates within a certain rage of accuracy. Several years ago, a friend was shipping grain to a processing plant. He had a scale on his farm and obtained load weights to compare with those of the processing plant. He noticed that each load was about 8-10 bushels lighter according to the processing plant tickets. He had his scale checked and checked with the processing plant, who assured him that their scales were also certified. He checked the trucks for leaks and made sure the drivers where keeping tarps on for the entire trip. Still the weights were off. On one trip he road along and

discovered the issue. Each truck weighed on one scale when entering the facility and weighed on a second scale when exiting the facility. Yes, both scales were certified, but this is not an exact science. If the incoming scale weighed close to the lower limit for certification and the outbound scale weighed close to the upper limit, then there is an issue. Use the same scale for both the tare and gross weights.

Scales on TMR wagons are subject to wear and tear. Bouncing around the dairy can cause damage and electrical cords can be damaged. A good management practice is to run the TMR mixer over the farm scales a couple of times each month to ensure that it is still accurate.

Water Damage

Moisture can easily damage minerals and vitamins. It also may result in mold growth in other dry feeds. It adds weight that reduces the amount of dry matter fed unless adjustments are made. Keep in mind that rain also cleans the mold and bacteria from the air and deposits it onto your feedstuffs. Piles of dry feed in bunkers are prime examples of potential feed loss on your farm. Protecting feeds from moisture is important. Bunkers with dirt floors and round bale sidewalls are a guaranteed way to increase feed cost.

Conclusion

In most cases, the factors discussed above represent a potential 10-15% decrease in feed cost for most dairies. This does not mean that you will get feed shrink to zero or in most cases even near zero. It should be our goal to get forage losses below 10% and work toward 5%. Purchased concentrates should be below 5%. Commercial feed mills generally run less than 1%. Therefore, we have a lot of opportunity in this area. Milk prices and feed prices during 2009 will force dairies to be more efficient. Cutting feed shrink may be one of your best ways to improve your bottom line during the current year. In addition, your dairy will benefit every year from lessons learned.