



Reduce Shrink on Farm to Improve Profitability

Shrink is a major cost of most dairy operations. Most dairies have greater than 8% feed shrink. It takes 3 to 4 lbs milk/cow/day to pay for the shrink. Although the accurate number of shrink is difficult to measure on-farm, it is important for dairy producers to focus on reducing shrink to improve profitability.

Commonly observed shrink

Common sources of shrink include wind, rain, birds, feed waste, feed spoilage, silage bunk heating, molds and toxins, scale inaccuracy, loading errors, mixing errors, and feed refusals. From a feed ingredients perspective, a dry meal typically has 5 to 10% shrink, corn silage and haylage have 10 to 15% shrink, and wet byproducts such as distillers have around 15 to 40% shrink. On the other hand, liquid feed such as QLF stored in a tank has very little to virtually no shrink. Across all ingredients, the average ingredient shrink is around 6.5 to 8.5%. Perhaps the biggest shrink expenses are from loading and mixing deviations.

Economics of shrink

What are the costs of shrink? For a 1000-cow herd with ration cost at \$6.50/cow/day, if the farm has 8% shrink, that is \$189,800 annual loss or \$0.52/cow/day. If you consider the shrink, the actual ration cost jumps to \$7.02/cow/day. If the farm can cut shrink to 4%, which is the goal for a well-managed farm, the annual cost would decrease to \$94,900 or \$0.26/cow/day. From another perspective, at 8% shrink, 3 to 4 lbs milk/cow/day pays for shrink; at 4% shrink, 1.5 to 2 lbs milk/cow/day pays for the shrink. By reducing shrink, dairy producers can greatly improve profitability.

Loading and mixing deviations

The most expensive person on the farm is oftentimes the feeder. It is crucial to use tracking software to monitor the loading and mixing deviations of each load. It is also helpful to educate the feeder on the importance of feeding accuracy and how it affects cow performance and feed costs on a regular basis. Generally speaking, the goal of loading error is less than 2%, but this goal is difficult to achieve on many farms. A field study (Rasmussen and Templeton, 2015) on 22 farms found 50% of mixer scales were inaccurate, and some scales have never been calibrated. Another work (del Rio, 2017) studied 26 California dairies and found 46% of ingredients loads exceed 2% deviation; 75% of ingredients loads were below targeted weight. Typically, it is easier to have better weighing accuracy for feed ingredients that have a higher percentage of inclusion rate in the diet. Low inclusion ingredients such as minerals tend to be more difficult to load or mix accurately, and they are also usually much more expensive. The dry mineral mix can sink easily to the bottom of the mixer. The small particle size can be blown by the wind easily when loading. Making pre-mix or micro-mix before TMR-mix can improve accuracy and efficiency.

A case study of on-farm shrink reduction

A 1500-cow herd in MI recently had some transition cow issues with milk fever, udder edema, and manure inconsistency. The prefresh ration contained a commercial dry anionic DCAD product; however, urine pH tested in prefresh cows had big variations from 5.5 to 8, and a few cows were unable to stand up after calving. These observations indicated that there were feed mixing inconsistencies and/or delivering issues that impacted the prefresh feeding program's performance. The nutritionist took 3 samples from the prefresh cow bunk and found large variations among nutrients. Lab analyses showed starch ranged from 15.8 to 18.3% of DM, CP ranged from 15.4 to 16.9% of DM, Ca ranged from 0.83 to 1.33% of DM, and DCAD ranged from -18.5 to -23.1 meq/100g DM. After reviewing their feeding software records, we also found huge loading errors, with some ingredients over 30%



variation. It is especially difficult to mix a small batch of feed accurately for small group of cows like prefresh pen. The farm was finding it difficult to mix a small batch of feed accurately for their prefresh pen, based on the mixer size and small-batch weight needed. The farm was looking for solutions to help improve the accuracy of mixing and nutrient delivery to the prefresh cows.

To help overcome the issues of loading and mixing errors, the nutritionist decided to deliver all the vitamins and minerals through a Custom QLF Dry Cow Optimizer product, and also started using a QLF liquid anionic DCAD product. Using a molasses-based liquid supplement to carry micronutrients provided more consistency to the diet and minimized the potential error of loading each individual ingredient. In addition, the farm has been working to improve the uniformity and accuracy of loading and mixing procedures.

Since the start of the two liquid products, along with continued improvement and monitoring of TMR mixing procedures, the farm has noticed several improvements in their prefresh cow feeding and management program. Prefresh cow urine pH tested at 5.5 based on 15 cows measured. Milk fever and udder edema issues have declined greatly, and dry matter intake increased from 29 to 34 lbs within 10 days. Continued monitoring of prefresh cow metrics will help to fine-tune the feeding program's efficiency and improve cow productivity. This is an example where by identifying and improving feeding loading and mixing issues, dairy producers can dramatically improve cow health and performance while reducing feed shrink expenses.

Benefits of QLF on shrink

QLF products possess values on both nutrition and management sides to reduce shrink. QLF products have virtually no shrink since they are stored within tanks. QLF products are often mixed with other expensive feed ingredients to improve the texture and reduce the shrink of premix feeds. QLF products are highly digestible and have no waste in the manure. QLF helps to reduce ration sorting, which improves the consistency of intake for all particles in the TMR.

Summary

Shrink is a major cost to dairy operations. The average observed shrink for all ingredients is 6.5% to 8.5%. Setting a goal to achieve 4% to 5% shrink will help improve the cost efficiency and profitability of the feeding program. Among the common sources of shrink, loading and mixing deviations are probably the biggest shrink expense on the farm. The goal for the overall loading deviation is less than 2%. It is important to have feeding software to track and control loading and mixing deviations and to monitor TMR mixing with visual assessment and lab analyses. QLF products possess both nutrition and feeding management benefits to reduce shrink.

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