

# Identifying and Managing Commodity Feed Shrink

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Shrink comes in many forms; field losses, storage, heating, wind, rain, rodents, birds, wet tires, and mixing errors. Concentrate commodities shrink in many ways from the time they arrive at the farm until they are eaten by your cows.

The cost of shrink on your farm can add up quickly. Typical shrink values on an average farm feeding a silage-based ration cause feed costs to increase about \$0.60/cow/day. Decreasing these losses by 50% could save a farm \$100/cow/year. To reach the goal of a 50% reduction in shrink, it helps to identify shrink of individual ingredients. An 8% shrink loss on a \$400/ton concentrate that is fed at a rate of 6 lb/cow/day, amounts to almost \$0.10/cow/day (Harner et al., 2011).

Commodity delivery methods, storage structure, and wind speed all affect the amount of shrink you may experience. Dry meals housed in 3 sided commodity bays have a typical loss of 3 to 8%, while storage in a feed bin has losses of only 2 to 4%. If your losses are at the upper end of these ranges, or unknown, there are a few areas you can investigate. Wind can be a substantial source of shrink with concentrates in either system. Winds blowing at 10 mph vs. 5 mph increase feed shrink losses by 8%. At 15 mph, the losses increase by 27%. In order to manage these losses, a few strategies can be implemented. Decreasing the distance from the commodity shed to the mixer wagon and providing a wind break at the loading pad can be beneficial. Even with feed bins, some shrink loss due to wind can happen as the feed falls from an auger into the mixer. Using drop tubes to get the feed down into the mixer or having your bins set up to load the mixer through a central building that blocks the wind can minimize these losses.

Two other sources of shrink loss include unloading /moving commodities into bays and rain that enters bays during storms. Wet feed leads to rot. Many commodity bays are tall enough to dump directly into them, minimizing losses that occur when feed is dumped outside the bay and then pushed in with a loader. Unloading losses are also greater with belt trailers and walking floors than with dump trailers. The downside is that tall bays that accommodate dump trailers can lead to increased losses from moisture blowing into the shed. Some of this can be offset by the orientation of the building. Adding a curtain to the barn to reduce the open space when feed is not being delivered can also be very beneficial. When a barn with a 20 ft opening is closed to a 12 ft opening, the moisture entering the barn is reduced by 40%. If you could close it down to 8 ft, the reduction in moisture entering the building would be about 60%. The moisture that enters can lead to spoilage and wetter commodities. The wetter feeds reduce the accuracy of your ration when it is delivered to the cows.

The other major shrink error that occurs for some producers is scale inaccuracies. Most mixer scales are only precise to plus or minus 10 lb, even if they count by fives. The accuracy error is typically about 1%, but varies a lot among mixers on different farms. In a November 2015 article in *Hoard's Dairyman* (Rasmussen and Templeton, 2015), information was provided from a study with mixer scales on 22 farms, revealing that only half of them worked properly. Errors came from multiple sources. For example, one source of error came from lack of calibration when a new scale head was installed on a set of load cells, which caused a consistent error percentage to all ingredients. Another error was binding within the load cells' mounting system. Rust, caked mud, and dirt also can contribute to mount binding.



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To diagnose an error in your scale system, two options can be used to test your TMR mixer scales. One is to run across a calibrated truck scale after each ingredient is added. Another option is to find someone with a set of truck pad scales and run each axle of the tractor and mixer over the pads after each ingredient is added. The scale pads need to be set up on a concrete pad with a less than 1% slope for maximum accuracy. You may be able to find a set of truck pad scales by talking to your local feed mill or someone who sells seed and does test plots. With either method, you should weigh multiple batches to get the most accurate comparison for diagnosing any problems.

### *References*

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