

Accurate Feed Mixing Improves Profitability



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The balanced ration from your nutritionist is only as good as your feedstuff sampling and feed mixing/delivery technique. Deviation from the balanced ration can affect animal health, productivity and ultimately profitability. Two

main areas that lead to this deviation from the balanced ration are ingredient sampling error and improper TMR mixing protocols.

Sampling

If an accurate sample of a feedstuff is taken, a nutritionist is able to accurately look at what is being fed and make adjustments. Huge nutrient variations can occur in all types of feed storage structures. It is important to know that there is variation, because you can account for it. It is important to get a reflective sample of what the cows are actually eating.

1. Hay/Balage

- Use a bale core sampler to reduce error, take 8-10 cores per type of hay sampled (Crystal Creek® has a very heavy duty hay probe for sale, see page 81 in 2013 catalog).
- Place cores in a clean plastic bag and label properly, submit 1 pint sample to lab.

2. Silages-Tower Silos and Bags

- Take fresh samples, unless specifically testing spoiled material.
- Collect 8-10 handfuls from the silo unloader into a plastic bucket and mix thoroughly.
- Place in clean plastic bag and label. Remove

as much air as possible and seal tightly.

3. Silages- Bunker

- If feeding a TMR, load the material into the TMR mixer and mix well. Take 8-10 sub samples, place in plastic bucket and mix well.
 - If not feeding a TMR, collect 8-10 sub samples from different vertical layers of the silo face, after feed for that day's feeding has been removed.
 - Place in a clean plastic bag and label. Remove as much air as possible and seal tightly.
- *If samples are not mailed right after collection, freeze the samples and send the next day. Try to send samples early in the week to avoid delays in transit caused by weekends and holidays.

Significant nutrient variation can occur in a silo or across the face of a forage pile. By taking a collective, mixed sample you account for this inherent variation. It is more work to take a premixed, composite sample, but it yields a more accurate and representative sample.

TMR Audit

TMR mixers are an excellent tool if they are monitored and used correctly; yet on many farms we see inconsistency in the ration that is delivered to the cow. With a TMR ration it is important that each part of the mix is fed out consistently. Variation in this mix from start to finish of feed-out can lead to huge differences in the actual ration that a cow is eating.

Example: Your ration could be balanced for a 24% starch level. In a poorly mixed TMR some



cows could be eating an 18% starch level while others are getting a starch level of 28-30%. This disparity in starch levels could lead to acidosis in the cows eating the higher starch diet and a lack of calories in cows that are not receiving adequate starch. Even though the average may still be 24%, the cows are not actually eating a 24% starch ration. The same is true with all other nutrients.

The first step in auditing your TMR is to assess the accuracy of the TMR mix relative to the target ration. How do we find out if there is a variation in the feed that is being fed? Sometimes visual appraisal by the producer and/or nutritionist is enough to determine that there may be poor mixing. If there is visible variation from start to finish of feed-out, it is necessary to evaluate the feeding system. In other cases, it may not be that obvious. It may be necessary to divide the bunk into equal parts and take samples to analyze what is being fed in each section of the bunk. Once a problem has been discovered, corrective measures can be implemented.

There are nine major areas to focus on if there is inconsistent feed being delivered to the cow.

1. Overfilling: An overfull mixer will not make a consistent mix. The feed needs to fall in order to be mixed. Filling to 70-75 percent of maximum full capacity is a good rule to follow.
2. Hay that is not fully processed: Hay should be processed before other ingredients are added. If multiple loads are needed, some producers find it beneficial to process all the hay, unload onto a pad and then reload the required amount of processed hay to each load.
3. Mix time after last ingredients: After the last ingredient has been added to the mix, the feed needs to mix a minimum of 5-6 minutes.
4. Worn TMR Mixer: Maintenance is very

important with mixers. Parts that are worn or broken will affect the final mix. Replace or repair parts that are worn regularly. Typical parts to look at for wear are cutting knives, augers and kicker plates.

5. Unlevel Mixer: A mixer that is not level will not deliver a consistent mix. Adjust hitch to level and mix on level ground.
6. Liquid Loading: If liquids are used in a mix, they should be loaded so that they are spread out over the entire mix. If liquids are loaded in a single location, they will not be spread throughout the mix consistently.
7. Loading Position: Feeds should be loaded in the center of the mixer. Loading off of center leads to incomplete mixing and can leave some feed on top of vertical screws.
8. Mixer Scale: Calibrate load cells and make sure that there is no build-up of feed under springs/load cells that will affect their accuracy of weighing.
9. Mix Order: Improper mixing order could deliver an inconsistent mix. The order for adding ingredients typically should be:
 - a. Long stemmed forages to be processed (dry hay, balage)
 - b. Grain, Protein Mix, Small inclusion rate items
 - c. Chopped Forages (haylage, corn silage)
 - d. Liquid Additives

Example TMR Mix Order:

1. Dry Baled Hay (Process until completely broken down)
2. High Moisture Shell Corn
3. Soybean Meal
4. Crystal Creek® 2:1 Mineral, Fuse 207™, Dairy Glow™
5. Mix Until blended (2-3 minutes)
6. Haylage
7. Corn Silage
8. Liquid Molasses
9. Mix 5-6 minutes after last ingredient is added

Once trouble areas have been found and corrected, working with a Crystal Creek® nutritionist will become more productive and profitable for your farm. Inaccurate variations of the balanced ration will prolong achieving your herd goals. Make sure that what you are feeding on a daily basis matches what your Crystal Creek® Nutritionist has balanced. Call today to see how Crystal Creek® can assist you with your feeding system.

Sources: https://www.dairylandlabs.net/pages/f_sampling_shipping.php

