

ON-FARM TOOLS TO EVALUATE DAIRY COW RATIONS

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Why is there such a difference in herd performance, even when forages and concentrates are similar? Several years ago, Alex Bach from Spain did a unique study comparing the performance of 47 herds that were fed the same TMR farmers purchased from a local feed cooperative. What Alex discovered was that more than 50% of the difference in production between these herds was not related to the diet. Over the past 20 years there has been dramatic improvement in our understanding of forage digestibility to improve ration balancing and predict animal performance. Even with this improvement it's important to listen to the cows. Cows are always talking to us – if we are just observant enough to listen. Here are some simple observations and on farm tools that can help us stay on top of our feeding program.

1. Routine Forage Moisture Testing

It is important to routinely measure forage moisture level and adjust diets accordingly. This can be done with a microwave, koster tester or food dehydrator.

2. TMR Particle Size and Eating Behavior

Get in the habit of visually observing the bunk after the feed is delivered. Look for large variations in particle size or ingredient distribution of specific feeds along the bunk. If hay is in the diet – is it well-processed or are there clumps of hay that are not well-mixed? Watch cow eating behavior. Do cows muzzle through the feed sorting out forage and eating the grain? Sorting can also be evaluated with a Penn State shaker box. Evaluate the particle size of diets at feeding and again a couple of times throughout the day. To prevent sorting, process hay so particles are between 1" and 2" long. The TMR should have enough moisture to bind the ingredients together. This is especially important for small batch diets such as close-up or fresh cow diets containing expensive feed additives. A simple method to evaluate if those expensive additives are well-mixed is to throw colorful candy like jellybeans in with additives and look how well they are distributed in the mix.

3. Manure Scoring

Manure evaluation is not a precise science, but it can provide useful hints and clues about the rumen fermentation, feed digestibility, and nutrient absorption. Color, consistency, and screening manure can provide a window into how well the rumen is functioning.

Typically, manure is dark brown for cows on a TMR ration. For cows on pasture in the summer or fed fresh forages it is likely to be more of an olive to green color. If the color is different than this it may be due to the presence of blood, mucus, or bile in the feces, which may indicate health problems such as coccidiosis or dysentery.

The consistency of manure is related to digestibility, fiber content, and the rate of passage of the feed. Manure consistency can be scored on a scale from 1 to 5, where 1 is very watery and 5 is very firm. A normal manure score for milking cows is 3, which means that the manure has a porridge-like consistency that stacks an inch or two. If more than 25% of cows deviate from a manure score of three the cause should be investigated. A low manure score may indicate diets that are sorted, potential water quality issues, low intake of fiber, or something such as molds or toxins which might be causing a fast rate of passage. A high manure score may be caused by sorting or low water intake.

Look for foamy manure containing gas bubbles. This is a sign of excessive intestinal fermentation caused by lack of fiber, rapid rate of passage, poor grain digestion, or acidosis.

4. Manure Washing

Washing manure through a screen (6 to 8 screen or colander) allows the dairy manager and nutritionist to quickly assess if feed processing and digestion is optimal. Take a cup of fresh manure and wash it through the screen removing the digested material until the water runs clear. Look for undigested grain particles. Unprocessed, mature, dry corn silage or under-processed grain can cause this observation. Look for whole cottonseeds or other whole seeds in the washed manure. These also reflect a loss of feed nutrients. The cottonseeds or grains are not held in the rumen long enough to allow for rechewing and digestion. Large forage particles over ½" may indicate a low intake of effective fiber, forages such as straw that are inadequately processed with low digestibility, inadequate forage mat formation, and a rapid rate of feed passage from the rumen. A high rate of passage reduces the time needed in the rumen to digest the fiber properly.

Look for mucin/fibrin casts in the manure. Mucin casts are tissue from the large intestine. They can indicate damage or chronic inflammation in the large intestine and are a sign of acidosis.

5. Cud Chewing

Observe the percent of cows lying down that are chewing cud. Fifty to seventy percent of cows lying down should be chewing their cud.

6. Milk Components

Are milk components changing? Most of our Holstein herds now average above or near 4% milk fat. Low fat test is another indicator of acidosis or lack of fiber digestion.

7. Other Observations

Look at body condition score and locomotion scores across different stages of lactation.

Most of these tools or observations are minimal in cost and yet can provide managers insight into how their rations are performing. Cows speak loudly, if we only take the time to listen to what they are telling us.