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What do we learn from a Manure Screen

It is customary with our nutrition group to walk pens at each visit. The purpose of walking the pens is to evaluate body condition score of the cows, evaluate manure consistency and to collect a fecal sample in select pens to examine what is in the manure. This is a dirty job that likely does not require a PhD! The manure will yield some information that is helpful to determine how well the ingredients in the ration are being utilized by the cow. Manure consistency is scored on a numerical scale. There are a variety of online pictures available which can be accessed to determine the correct score. The manure sample is washed through a screen to determine what components of the diet are ending up in the manure. I have seen several different methods from various nutritionists on how to evaluate remaining fiber. I collect a manure sample from a pen with a plastic spoon into a mixing cup with the goal being to collect small samples from many cows in the pen. We most often use the high cows as an evaluator because if they are processing the diet well, then the other diets normally follow. I collect a known volume of manure into the cup.

If I find corn in the manure, what does that tell me about what is going on with the diet? First I have to evaluate the corn that is in the diet. There are two major drivers in rate and extent of corn digestion. The first of these relates to the corn kernel itself. The corn varieties being used for silage has undergone significant genetic engineering to produce a more digestible product. The second one relates to the way the corn is processed prior to feeding. Corn in milk cow diets will enter the ration from silage and from supplemental corn.

Kernel processing (KP) is an important task in harvesting corn silage and earlage. At harvest, we must be sure that we have an adequate KP engaged, and often some one has to babysit the choppers to make sure that the KP is acceptable. There are no "do-overs" regarding kernel processing. Poor KP in the silage will have a significant impact on silage quality and usefulness in the ration.

In many diets, the majority of the corn is fed as processed dry shelled corn. The most popular processing would be fine ground and steam flaking. Steam flaking gelatinizes the starch and may be the process resulting in the most complete starch digestion. You will see almost no undigested corn in the manure. If the corn is processed well and still shows up in the ration, we need to make some adjustments if fiber to slow the rate of passage and give the microbes in the rumen more time to digest the corn.

How much fiber is too much in the manure? For many dairy managers any fiber is too much because everything costs money. But, no feed is 100% digestible so there will always be waste but we can do all we can to minimize the amount of wasted fiber in the manure. I rinse the manure in the screen then pour it back into the container. If I have over 30% left from the original volume then I will go back and evaluate the ration and coordinate with the manure consistency. The more fiber that reaches the lower gut the more water the animal will push into the tract and cows will be loose. I like to see around 20% left and good manure consistency. Of course less is still better and means the animal is using more.

If cottonseed are in the diet they will show up in the manure wash if they are not broken down. Whole cottonseed are used in many milk cow diets as a reasonably priced

way to increase some fiber, some fat and some protein. If the animal is not breaking these seed into digestible components then they are not being used as intended by the ration formulation model and therefore the nutrients are lacking. Not all cottonseed will be digested but we should not find very many in the manure. If there are significant whole cottonseed in the manure, then we probably have a rate of passage issue. We will need to evaluate the diet and increase the retention time in the rumen to allow more time for digestion.

All digestion in a ruminant animal is determined by particle size. As particles are broken down into smaller sizes, then it passes through the rumen and on to the small intestine where the nutrients are actually absorbed into the bloodstream. The higher the proportion of the ration that is digested by a well functioning rumen and will lead to better feed/milk ratios which will always improve the bottom line.