

Straight to the Bottom Line – 12/3/10

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\$230/ton corn doesn't belong in manure!

As dairy producers and nutritionists walk pens and evaluate cows, we all evaluate the status of the manure. We each have in our minds what the perfect pile of manure looks like. To be sure, this evaluation relates often times to the “art” of feeding cows as opposed to the science of formulating diets. One of the main things noted in the evaluation of milk cow manure is how much undigested corn is passing. In the old days, I think this problem led to healthy, well fed chicken at dairies! But, what does it mean when we see this expensive corn wasted in manure? Do we over analyze this? Have we over interpreted this over the years? No matter the answer to these questions, the attention to the issue should be heightened with expensive corn. And, is it a problem that is related to the corn, the cow or the rest of the diet?

The first thing to rule out is poor rumen function. If you have a diet that is out of balance and normal rumen function is compromised, you should not expect to have good digestibility on any of the ingredients in the ration. What we need is adequate roughage in the diet to accomplish the correct amount of time that feed particles stay in the rumen. It takes time in the rumen fluid and multiple cud chewing events to get the particle sized reduced and the nutrients fermented. So, if you see corn in a well formed and healthy pile of manure, you may focus more on the corn itself. If you see corn in a loose, unhealthy pile that may have bubbles, then you need to look at the rest of the diet first.

Assuming we have a diet with good rumen function and still have corn passage, then we need to look closer at the corn itself. There are two major drivers in rate and extent of corn digestion. The first of these relates to the corn kernel itself. There is a significant amount of new information on the genetic expression of different corn varieties and the growing conditions for that particular crop. The second one relates to the way the corn is processed prior to feeding. This processing angle is what we will discuss today.

Kernel processing is an important task in harvesting corn silage and earlage. In the old days, we just accepted a certain amount of whole undigested silage corn in the manure. Today, that is unacceptable. At harvest, we must be sure that we have an aggressive KP engaged, and someone has to babysit the KP and adjust as needed. There are no “do-overs” regarding kernel processing. There is no diet I can build that will overcome poor kernel processing! It is my opinion that corn silage kernels cannot be over processed, assuming the aggressive KP does not result in over processing of the forage portion.

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. But remember, this does not mean that the flaked corn grain was 100% digested. It is just that

the undigested portion is small and indistinguishable in the manure. In any processing, the corn grain is still around 20% indigestible. With ground corn, you see some of this 20% and with flaked corn you don't. The flaked corn probably has a small advantage in total digestibility depending on the diet. I believe that much of the improvements seen when feeding flaked corn occurred when changing from poorly ground corn or even cracked corn. Due to economics, fine ground corn is often the choice for many producers. Next month, we will discuss some of the issues related to time since harvest for fermented corn grain and some of the basics related to corn genetics and growing conditions. This is a worthy effort to improve our knowledge of and skill in the use of feeding corn as it supplies the majority of the energy in almost all dairy diets.