Straight to the bottom line

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The conversation about starch continues

It seems that starch continues to dominate the conversation in the dairy nutrition field. I attended the forage and dairy seminars recently at the Colorado Farm Show and guess what seemed to dominate the sessions and conversation? Starch. As the cost of feeding dairy cows continue to be a major focus in this industry, it is hard to ignore the cost and efficiency of starch in diets. When considering the amount of energy contributed by starch in the majority of dairy diets, the focus is well deserved. As well, the genetic influence on starch digestibility in corn continues to trend toward a harder and more flinty endosperm.

In this month's column I wanted to extend the conversation and offer a few points on the subject. First, even with the corn price in record high ranges in recent months, the 2012 kernel processing results are satisfactory at best. The whole industry has been preaching the importance of getting our KP results on the upswing, but I am not sure we have made much progress. In one session at the farm show, the presenter suggested a quick rule of thumb to take a 32 ounce Coke cup and be sure that when filled with corn silage, you don't find more than 3 or 4 whole kernels. I would enjoy the Coke in the cup, but not sure how many dairies would enjoy the results of that quick test on their silage.

New corn silage processing technologies like Shedlage do offer hope in this area. The point is though, that we have to do a better job in this area using new technology or not. There also seems to be a move toward a little later harvest for corn silage attempting a more complete starch build out in the plant. This is probably good up to a point, but if you are a C+ kernel processor, the dryer grain might make that delay a costly mistake. As well, if you chase those last few points of starch, you might give enough back in reduction of stalk digestibility that you end up with a kernel that is too dry and poor NDFd as well.

As it relates to the starch discussion in whole shelled corn, there is no shortage of activity there either. I hear from grain processors that there has been a significant shift from ground corn to steam flaked corn in some areas. I think this is driven partially by the amount of discussion on the subject of starch digestibility and maybe just a cyclical trend. A number of years ago, that same trend caused a dramatic slowdown in flakers across the west with a mass exodus towards fine ground corn. Most of those flaked corn users had moved to flakes from a quite coarse grind some years previous. As grain processors started to get better at grinding corn, and started selling micron sizes in the 500-700 range, the cost savings lured many flaked feeders back to ground. Now that trend is reversing.

I think another driver in this trend back towards flaked corn is the popularity and increased use of the newer dairy nutrition formulation models. These more complicated formulation processes almost

always push the formulator to flaked corn over ground corn. Some of this is the result of higher energy values for the flakes but the primary driver is the faster starch having the ability to increase microbial protein production in the rumen. Alongside the pressure in the industry to reduce crude protein levels in the diet, increasing the God-given microbial protein produced in the rumen has been a good fit. It is not intuitive for sure, but increasing the starch level and the rate of that starch allows the ration to be lower in crude protein and still support the same milk flow. This feels almost like magic, but it really works. A note should be made though, that at times the starch is too fast and efforts need to be made to slow it down for cow health and fat test considerations.

This whole subject, though is not a static system throughout the year. The reason for this is the realization in recent years that the starch in corn silage and high moisture corn changes as it sits in the silo. There is a certain blend of slow and fast starch that is ideal for a particular situation and production goal. Since the starch in the silage is changing over time, adjustments are needed to maintain that ideal starch rate and content in the diet. The result of that is an ever changing blend of silage starch, flaked corn and perhaps ground corn. Depending an a variety of variables, the starch rate of ensiled corn goes up over time. Moisture, KP and genetics all have an impact on the starch rate increase of a particular pile, but for sure, it goes up.

I have talked only about corn up tho this point but don't want to forget starch opportunities from other grains and a few byproducts. Most of the starch in byproducts like hominy, gluten and midds is pretty fast. It has also been interesting to study milo as a starch source in the 2011 and 2012 crop year. We were surprised to find the starch content of milo in both years around 70%. This is higher than book values for milo and is about the same as the 70% we see for corn. What was interesting though was the rate dynamics of the milo after it is flaked. Milo is a difficult grain to flake. What recent results have indicated is that the starch rate of flaked milo is essentially the same as ground corn with a micron size of 700. We had hoped that the flaked milo could rival a nice bushel weight flaked corn, but that was not the case.

I suspect the conversation on starch and how to best convert it into sellable milk will continue. For sure, significant advances have been made in recent years, but more work still needs to be done. On-farm testing of various potential improvements could prove risky and costly. However, the things we know already for sure, are still not fully implemented. To make this point more clearly, with milk price in the upper teens and flaked corn in the $300 range, I would bet the investment into a new chopper, or at least a new processor would make money every time. Likewise, the few extra dollars for flaked corn in most cases is probably worth it. And don't forget the nice exchange of feeding the correct starch blend to increase microbial protein and allow you to purchase less $450 soybean meal. As an industry, the way I see it, we will be addicted to starch for the foreseeable future. Just imagine the impact if ethanol policy was to change!