Straight to the Bottom Line – December 1, 2011
By: Steve Martin

Oilseed Co-Products… Big Players Making Milk

The last couple of months we have been discussing issues related to utilizing co-products in dairy rations. We have made it a point to refer to these ingredients as co-products instead of by-products due to the high value they have in dairy rations. The term by-product might infer that some bargain has been made in their purchase. With the current state of high priced feed ingredients, bargains are few and far between. Last month we talked about the variety of co-products from the corn milling industry.

This month, we will discuss three co-products from the oilseed industry. The primary oilseeds that end up with co-products in the dairy industry are cottonseeds, canola and soybeans. In each of these, the oil is removed from the seed and sold at a high value for human food use. The defatted portion is then used in a variety of animal feeds. In dairy diets, these co-products are primarily used to supply protein. There tends to be some confusion regarding the different nutrient values between these oilseed co-products.

Let's look first at Soybean Meal (SBM) as it is the highest value ingredient among the three. When soybeans are processed to remove the oil, the first step is to remove the outer skin or hull of the bean. This is where the main portion of fiber is found. So, once this hull is removed, the resulting material is extremely low in fiber and thus quite high in energy. Soybean meal commands a premium in price due to its high protein and energy content.

The most common competitor to SBM in dairy diets is Canola meal (CNM). Canola seeds are also processed for oil, but the remaining plant residue is much higher in fiber. This fiber is relatively digestible, but results in a significant drop in both the protein and energy value for CNM when compared to SBM. This drop in energy and protein is so significant that the value difference in a high lactation ration may exceed $100 per ton! The protein quality is quite good in the canola. The only issue to be aware of is the dilution of this protein by the fiber.

In parts of the southern US, abundant cotton production makes cottonseed meal (CSM) readily available. In recent decades, CSM has not been as common in dairy diets. There are at least a couple of reasons for this. The first would be a concern regarding a compound found in cotton plants called gossypol. This compound can have a negative impact on reproduction. Though the feeding rates needed to result in concern are usually not met, the potential for problems often takes CSM out of the equation. The second reason relates to it fiber content. Much like CNM, CSM also contains much more fiber than SBM. Thus, the protein and energy levels are reduced. The fiber in CSM however, is quite indigestible.

Whole cottonseeds are delinted and then dehulled much like soybeans, but the resulting material is higher in fiber than a dehulled soybean. In most cases in recent years, it has been surprising to me the extra value commanded by SBM compared to CNM or CSM. The higher concentration of protein and energy in SBM made it a better deal in most cases. Its concentrated nutrients allowed for a lower feeding rate. This made more room in the diet for lower cost ingredients and forages resulting in an overall lower total feed cost. Recently, this has not always been the case. Due to high cost co-product options and expensive forage that is in short supply, CNM has shown more value. In the normal case of backfilling the lower SBM feed rate with a cheap corn co-product or even cheaper home grown forage, CNM and CSM were at a disadvantage. However with no co-product bargain in sight and smaller inventories of more expensive forages, CNM is competing much better.

Due to these oilseed co-products being such a big part of our protein supply in dairy diets, it seems smart to have some basic understanding of where they come from. As well, due to significant differences in the overall concentration of nutrients in the three, understanding the overall impact on total feed cost is crucial. It is impossible to guess which one fits your situation best without the help of a good nutrition model. Simply comparing price per ton or even price per point of protein might fool you.

One more thing to consider; in these times of high priced DDG and Gluten, you might be surprised how well the higher priced ingredients like SBM, CNM and CSM might actually result in lower total feed cost per cow.