

Tech Bulletin:



USING ENERGY IN AMPLISOURCE MAX AND AMPLISOURCE EDGE
TO REPLACE WHOLE COTTONSEED IN DAIRY RATIONS

The Situation:

Whole cottonseed is a unique feed ingredient held in high regard by the vast majority of dairy producers and nutritionists. In the beginning of its common use in dairy rations, it was a probable low-cost option with a big nutritional punch. In more recent decades, it has actually commanded a premium price and the search for suitable substitutes is common. The unique situation with cottonseed is that to replace it, you must replace the protein, fat and fiber that it supplies.

The Problem:

It is often said that cows need nutrients not ingredients. This is true but with a couple of significant caveats. First, due to the intricate needs of a ruminant to have a certain level of size, structure and “physicality” in a healthy diet, the size, length, density, etc. of feed ingredients matters. Secondly, since the rumen is a large fermentation vat, the timing of the availability of various nutrients to the microbes in the rumen is critical. Cottonseed is a near perfect ingredient in both of these areas and thus is a little difficult to replace in a diet and expect the same results. As illustrated by other vegetable oils in products like distillers grains, brewers grain and hominy, this unsaturated fat (18:2 linoleic acid) is a key factor in milk fat depression and can reduce dairy farm income. The same linoleic acid in a whole cottonseed, made slowly available to the rumen through normal rumination.

The Solution:

Food manufacturing residuals are rich in energy and offer the opportunity to replace key nutrients often supplied by cottonseed in a well formulated ration. The unique blend of starch, sugar and fatty acids found in AmpliSource Max and AmpliSource Edge can be the building blocks of milk solids. Use of food manufacturing residuals can be successful in the effort to reduce feed cost by removing or even reducing cottonseed. We must take care to think about what we are replacing. The protein part is easy. Any number of protein sources that are likely already in the diet can be adjusted to replace the cottonseed protein contribution. The fat and energy replacement requires a bit more formulation effort but can be aided by the presence of 18:1 fatty acids in the candy byproduct. Many nutritionists might assume the fat in food manufacturing residuals is the problematic 18:2. This type of fat is much more desirable in lactation diets. It is likely that some of the fat lost in the cottonseed removal might need to be replaced with calcium salts of fatty acids from a product like Megalac. It is not necessary, though, that the fat lost by removing cottonseed be replaced by another fat source. In many rations, increases in starch, sugar or fermentable fiber may be an option. The important thing is to replace the NEL. The energy portion of food manufacturing residuals from both carbohydrates and fatty acids can replace the energy lost when reducing cottonseed. Lastly, to replace the fiber lost from feeding cottonseed is an easy fix by an increase in hay or silage that is readily available on farm.