



Grazier

► by *Kindra Gordon*

Answering questions about corn coproducts

The boom in producing ethanol from corn is in turn increasing supplies of valuable coproducts for livestock feed. If you're considering filling up the feedbunk with these distillers' grains, here's a quick question-and-answer review on corn coproducts and the feeding opportunities they offer.

A nontraditional feedstuff

Ethanol isn't new, and neither are the coproducts — commonly called distillers' grains — created from the ethanol production process. But given the energy price spikes over the last two years, there's been a renewed interest in identifying alternative fuels, like ethanol, that can be produced within U.S. borders.

As a result, we see ethanol becoming more popular at the pump and reasonably priced distillers' grains piling up for livestock feed. Still, many producers have been hesitant to tap into this nontraditional feedstuff.

For those producers considering feeding coproducts in the future, Iowa State University (ISU) animal science professor Dan Loy offers a review on the types of coproducts available and the feeding situations they best suit. In his role at ISU, Loy oversees many of the state's Extension programs in feedlot management and nutrition.

Q Why are these feedstuffs called coproducts and not byproducts?

A They are typically called coproducts because the value of distillers' grains and gluten feeds can be a significant portion of the revenue from products sold out of an ethanol plant; a byproduct implies a waste product with little value.

Q What are the differences in wet and dry distillers' grains and the various coproduct feedstuffs?

A In the ethanol production process, alcohol is harvested from the starch in corn. (Starch makes up about two-thirds of the corn kernel.) The remaining "distillers' slop" contains protein, minerals and a lot of water. These solids can be separated as distillers' wet grains (about 70% moisture) and thin stillage (95% water).

The thin stillage is condensed to a liquid feed, with about 30% solids, called condensed distillers' solubles or "syrup."

Both distillers' wet grains and condensed distillers' solubles are about 30% protein on a dry-matter (DM) basis and are typically higher in energy than corn. Both feeds can be dried completely to produce distillers' dried grains or distillers' dried grains with solubles.

Q How are corn-based coproducts different from corn?

A Because the starch has been removed from corn during the ethanol process, the resulting coproducts are high in digestible fiber and have an energy value equal to or as much as 12% greater than corn.

Thus, coproducts are a safe fiber source in feedlot rations to help buffer the rumen and reduce acidosis.

Other attributes ethanol coproducts offer over standard grains include increased palatability, increased digestibility, a high fat content and a source of bypass protein — all of which are beneficial for an animal's growth and performance.

Q What feedstuffs can coproducts be used as a substitute for in the diet?

A The high protein content of coproducts makes them a logical substitute for soybean meal. However, since they are slightly lower in protein than soybean meal, about 1.5 times the amount must be fed as a protein feed.

Since distillers' grains are also high in energy, they can be utilized as a substitute for corn, if priced competitively.

Q What factors should producers consider before feeding coproducts?

A Availability and transportation costs will likely be determining factors in whether or not coproducts will work in your feeding operation.

Since distillers' wet grains are about 70% water, hauling them more than 100 miles may not be feasible. And, because the wet products are so high in moisture, they need to be fed quickly once delivered. Otherwise the wet coproducts can mold within five to seven days in warm weather, and they can freeze into large chunks in the winter.

If using coproducts, it is essential that a steady supply is available to meet daily feeding needs.

Additional considerations include:

- To prevent particles from settling out, the condensed distillers' solubles or syrup requires a heated tank or a buried tank and recirculation system for storage.
- Be aware that coproducts are high in phosphorus. This will require adding calcium at a 1:1 ratio to minimize that effect on animal performance. High phosphorus levels could also be a concern for manure management.

Ethanol is earth-friendly

Concerns over pollution are also fueling ethanol's popularity as an environmentally friendly fuel substitute. Because ethanol is pure alcohol it is not a threat to groundwater. And, ethanol contains 35% oxygen; therefore it burns more efficiently while creating fewer pollutants.

Given those attributes, Congress has become bullish on ethanol. They've been considering several bills mandating an increased usage of ethanol and other renewable fuels that could raise domestic use tenfold.

And there is plenty of room for growth. Currently, ethanol is an ingredient in only 12% of the fuel consumed in America. Contrast that with Brazil, the world's leading ethanol producer, where 40% of the cars run on 100% ethanol.

► Coproducts can vary in nutritional composition and moisture content. For example, distillers' wet grains can have a 5%-10% variation in moisture content. And, when coproducts are dried, the high temperatures can decrease degradation of the proteins in the coproduct and may reduce the overall availability of protein to the animal. Thus, it is important to work with a nutritionist to develop a balanced ration.

Q Are coproducts best suited to feedlot settings or, given the drought and shortage of feed supplies, can they work in cow-calf and backgrounding operations as well?

A The wet feeds may be best suited for feedlot settings only because of shelf-life considerations. Nutritionally, these feeds are excellent sources of protein and energy for all classes of cattle and can be utilized in cow-calf or backgrounding operations if sufficient volume of product can be used to keep it from going out of condition.

Q Any rules of thumb as to what percentage of coproducts to include in the ration?

A In our research at Iowa State University, we have only evaluated the wet feeds in feedlot situations. However, it is a safe bet that if these feeds are added to the ration at a level to meet the protein requirement of the animal that is a good economical rate of inclusion.

