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## COMPARING VALUE OF BYPRODUCT FEEDS IN BEEF RATIONS

*Warren Gill*

*Professor*

*Department of Animal Science*

Byproduct feeds for animals are made from the "leftovers" from the manufacture of other products, such as grain processing and manufacturing of human foods. The use of byproduct feeds is not new, although it is new to many producers. There are often questions about the relative value of byproduct feeds.

The main factor to consider is cost of nutrients. Check with several suppliers to find the best price before purchasing a commodity feed. A few phone calls could save several hundred dollars over the course of the feeding period.

Byproduct feeds may be purchased in large quantities (typically truckload), bagged in small quantities or as part of total mixed feeds. Bagged feeds are more expensive. Feeds bought in truckload quantities are generally less expensive on "per unit" basis.

When comparing the costs of byproduct feeds of differing nutrient analyses, evaluate the feeds on an "equalized cost of desired nutrient" basis. For example, if a feed is considered as a protein source, which would be more economical, 48% soybean meal (SBM) at \$200/ton or corn gluten feed (CGF) at \$150/ton?

To find the answer, follow these steps:

- 1. DETERMINE THE NUTRIENT CONCENTRATION OF THE DESIRED NUTRIENT.**

An analysis is best, but table values may be used.

2. **CONVERT TO "AS FED" BASIS.** - Many tables list feeds on a "dry matter" basis but price comparisons should be done on an "as fed" basis, because this is how the feeds will actually be priced. Obviously, 48 percent soybean meal (SBM) is 48 percent crude protein (CP). However, the corn gluten feed crude protein (20 percent) is given only on a dry matter basis, so it must be converted. To convert from "dry matter" to "as fed" simply multiply the crude protein by the percent of dry matter ( $20\% \times .90 = 18\%$ ) this means that the pound of corn gluten feed fed to the cattle would contain 0.18 lb of crude protein.

3. **CALCULATE THE AMOUNT OF NUTRIENT IN A TON OF FEED.** - This calculation is:

$$\text{SBM: } 2000 \text{ lb/ton} \times .48 \text{ lb CP/lb of feed} = 960 \text{ lb CP/ton}$$

$$\text{CGF: } 2000 \text{ lb/ton} \times .18 \text{ lb CP/lb of feed} = 360 \text{ lb CP/ton}$$

4. **CALCULATE THE COST PER POUND OF FEED** - Divide the pounds crude protein per ton by the cost per ton (if special equipment, storage facilities or extra transportation costs will be incurred, include these costs to the price of the feed):

$$\text{SBM: } \$250/\text{ton} \div 960 \text{ lb/ton} = 26 \text{ cents/lb CP}$$

$$\text{CGF: } \$100/\text{ton} \div 360 \text{ lb/ton} = 28 \text{ cents/lb CP}$$

**Conclusion:** The corn gluten feed (CGF) in this example is slightly more expensive on a cost per pound of CP basis than soybean meal. (In defense of CGF, it has more energy per lb due to higher level of fat, so may still "fit" some rations even at a slightly higher price. Also, in some areas it can often be purchased at considerably less than

the example indicates).

Another factor to consider in determining the feasibility of byproduct feeds is the producer's existing feeding system. Many byproducts are not adaptable to equipment that dispense feeds, especially wet feeds (corn gluten feed or brewers grains) or bulky feeds (cottonseed or cottonseed hulls). Many producers have found innovative ways to use these commodities in lieu of a total mixed ration feeding system, but these take additional time and planning.

Nutrient concentrations vary in commodity feeds and should be evaluated carefully. For example, the "book" average crude protein (CP) percent for corn gluten feed is 23.3 percent (DM basis); however, the range in crude protein is between 16 and 25 percent (with lower values common in Tennessee). Other nutrients vary in a similar manner. For additional information on the use of byproduct feeds, refer to the Tennessee Beef Cow-calf Handbook, fact sheet (TN 2054) "Using Byproduct Commodity Feeds in Beef Rations," by J. Bernard, W. Gill and M. Montgomery.