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Coproduct Feedstuffs for Beef Cattle– Frequently Asked Questions

In the Southeast US, most of the feed ingredients used in beef cattle diets are byproducts of row-crop production systems. As with any "byproduct" of an industry, there are special considerations to keep in mind when feeding these products. The following information sheet addresses some frequently asked questions on commonly used co-product (AKA byproduct) feeds in Alabama.

I purchased some dried distillers grains (DDGS), and the load is brown in color and smells burned. How does this impact feed value?

Excessive heating during the drying process can reduce feed value and utilization of DDGS by cattle. Damage is usually easiest to detect visually because of the brown appearance and distinctive burned smell. Heat damage can lead to binding of protein in the feed, making it unavailable to cattle during the digestion process. Conduct a feed analysis for bound nitrogen if excessive heating is suspected to help adjust rations accordingly.

Dried distillers grains – why are there limits on the amount to be fed?

Phosphorus (P), fat, and s ulfur (S) are some of the limitations. Conducting a feed analysis before feeding is strongly recommended to determine if high concentrations of minerals are present. Sulfur concentration in DDGS can range from 0.4 to 1.2%, and prolonged intake of high levels of S in the diet can lead to health problems in cattle, notably polioencephalomalacia (PEM). Additionally, high P levels can cause calcium (Ca)/P imbalances, which may lead to urinary calculi or a condition known as 'water belly' in cattle. Feeding a mineral containing Ca that is low in P may help keep the Ca:P ratio in an acceptable range of 1:1 to 4:1. In general, DDGS should be limited to 30 to 40% of the total diet intake to avoid negative impacts of mineral imbalances.

I purchased some whole cottonseed, and the seed is brown and appears to have gone through a heat. How does this impact feed value?

When cotton is ginned, varying degrees of heat are applied during the fiber-separation process based on the moisture of the material coming into the gin. Similar to the process with burned DDGS, overheating or 'browning' of cottonseed is a result of a Maillard reaction – or where protein becomes bound/unusable by the animal because of the heating process. Whereas energy and protein value of overheated whole cottonseed may still be sufficient for many classes of livestock, conducting an analysis for bound nitrogen can tell us how much protein is available from the feed post-heating.

Peanut hulls – pelleted or whole?

Peanut hulls are a roughage source that contain between 7 to 8% crude protein, and 22 to 25% total digestible nutrients, making them very low in quality. When roughage sources such as hay become limited, producers may consider using peanut hulls as a partial replacement for roughage in the diet. It is important to use whole peanut hulls and not finely

ground or pelleted peanut hulls. When hulls are finely ground, they lose their effectiveness as a fiber source (i.e. 'scratch') in the diet, which can cause negative implications to rumen health. Research in Alabama and Georgia has shown that feeding ground or pelleted peanut hulls causes damage to the interior rumen wall of cattle, and liver abscesses in 55 to 60 percent of the cattle that were fed ground or pelleted peanut hulls for 135 days.

Soybean hulls – pelleted or loose?

Loose soyhulls and pelleted soyhulls are equal in nutritional value. Most soyhulls are pelleted for ease of handling and to improve bulk density of the product. Historically, when buying in bulk, loose soyhulls have generally been a more economical option than pelleted soyhulls. However, when buying in smaller batches, most distributors will offer these in a pelleted form alone, or mixed with another byproduct such as corn gluten feed. Pelleted soybean hulls have become a "feed staple" for many beef producers, although quality and consistency of soybean byproducts continue to change. Decreased availability and quality/consistency of soyhulls may force cattle producers to seek alternative feed sources in the future.

Whole Cottonseed – Will feeding this make my bulls infertile?

Cotton naturally contains a compound called gossypol. This compound is greatest in concentration in the seeds, and can negatively impact fertility in bulls when consumed in high concentrations. Upland and Pima cotton varieties have difference levels of gossypol. Upland varieties have less gossypol than Pima varieties. In the Southeast, most of the cotton grown in the region is an Upland type, which makes this a safer feeding option than cottonseed produced from other regions of the US. The Alabama Cattlemen's Association Beef Checkoff Program has funded a research project to evaluate commonly used cotton varieties and selected experimental lines in the Southeast to verify and update these feeding recommendations for Alabama cattle producers. Results of this project will be forthcoming in 2019.

Questions on Feed Quality?

The Auburn University Soil, Forage, and Water Testing Laboratory offers a service to analyze feed samples for nutritional value. Reports provide basic information on digestibility, crude protein, and major mineral components in the feedstuff. Additional information is available upon request. For more information on feed testing, contact 334-844-3958 or download an analysis form at **www.aces.edu/anr/soillab** today.

After conducting a quality analysis, contact your local Extension office for more information and next steps on developing rations for beef cattle.

Additional Resources:

Alabama Commodity Feed List

ANR-1237 Byproduct Feeds for Alabama Beef Cattle

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