



Feeding Considerations for Byproduct Feeding

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Corn Products

Corn

Corn is typically considered the gold standard energy feed for beef cattle and is heavily used in beef cattle diets including finishing diets.

- Extremely high energy feed
- Quite palatable to cattle
- Contains low calcium, high phosphorus levels like most feed grains

Corn Gluten Feed

Corn gluten feed is a by-product of the corn milling process which produces high-fructose corn syrup used as a sweetener. It consists primarily of the bran and meal remains from the grain after starch removal.

- Good protein content but protein quality too low for poultry and swine diets
- Works as a protein and energy supplement
- TDN value about equal to corn as a supplement at 0.5% of body weight or less on high-forage diets
- Often prices in as a cost-effective feed ingredient
- Should not make up more than 50% of daily dry matter intake
- Can be fed in self-feeders along with hay or pasture, but caking possible in humid conditions
- Excessive heating during processing lowers feed value and palatability and darkens color
- Wet form use only practical in areas relatively close to mills
- Low in calcium
- Can contain high sulfur levels that necessitates mixing with other feeds in the diet

Hominy Feed

Hominy feed is made up of the corn bran, germ, and part of the starchy portion of the corn kernel from degermed corn meal production.

- Roughly equal to ground corn in feeding value
- Very palatable to cattle
- Higher protein levels than corn grains
- Fat content normally 6% or more
- Low fat form has less energy
- Finely ground product suitable for mixing with other feeds
- Can be stored, handled, and fed similarly to ground corn
- Best to use up supplies in one month or less to avoid stale smell

Dried Distillers Grains

Distillers grain is a by-product from the fermentation of grain to produce alcohol (e.g., ethanol).

- Availability generally limited to areas near distilleries and ethanol plants
- Excellent source of protein and energy
- Can be fed as a majority of the total diet
- Drying facilitates storage, transportation, and handling

Soybean Products

Soybean Hulls

Soybean hulls are a by-product of the soybean oil milling process.

- Very palatable and digestible feed
- TDN value varies depends on amount fed and type of diet
- Roughly equal to corn as a supplement at 0.5% of body weight or less on highforage diets
- Decent protein source but can vary widely from load to load
- High fiber content not effective fiber, adequate roughage source also needed
- Can be fed in self-feeders along with hay or pasture
- Conducive to bloat when fed at high levels (over 7 lbs. per day)
- Bulky, dusty, best when pelleted or mixed with silage or molasses to reduce dust
- Good source of calcium but low in phosphorus
- Widely used ingredient in Mississippi beef cattle diets

Soybean Meal

Soybean meal is another by-product of the soybean oil milling process.

- Excellent protein source

Cotton Products

Whole Cottonseed

Whole cottonseed is a major by-product of the cotton ginning process.

- Excellent beef cattle feed, good energy and protein levels
- 2 lbs. cottonseed roughly equal to 1 lb. each of corn and cottonseed meal
- Readily available in cotton-producing areas
- High fat content limits use levels to 25% or less of total dry matter intake
- Feed no more than 5 to 6 lbs. per head per day to mature cattle
- Feed no more than 2 to 3 lbs. per head per day to weaned calves
- Do not feed at more than 20% of the diet for cattle in stocker or finishing programs
- Must be hand fed
- Flow limitations in feeding bins and equipment, difficult to auger or gravity flow

Cottonseed Hulls

Cottonseed hulls are a by-product of the cotton industry.

- Extremely palatable
- High in crude fiber, lowly digestible
- Can be used as the sole roughage source in cattle diets
- Good hay-replacer diet ingredient or alternative to chopped hay in mixed feeds
- Bulky with excellent mixing qualities at low levels in concentrate diets
- Should not exceed 10 to 25% of diet for growing or finishing cattle
- Often expensive

Cottonseed Meal

Cottonseed meal is a by-product of the cottonseed oil milling process.

- Excellent locally available protein source
- Works well in a hot-mix (mixed with salt and offered free-choice)

Cotton Gin Trash

Cotton gin trash is a by-product of the cotton ginning process. Gin trash contains boll residues, leaves, stems, and lint.

- Bulky
- Unpalatable, high fiber, low energy feed
- Inexpensive feed with limited uses
- Practical use is in hay-replacer diets when mixed with other feeds

Cotton Mote

Cotton mote is the cotton extracted by a gin's lint cleaner during the cotton ginning process.

- High fiber, low energy feed
- Palatability usually not a problem
- Most baled into 4' x 4' x 5' bales
- Can be handled and fed with same equipment used for large round hay bales
- Practical use is in hay-replacer diets with other supplemental feeds

Wheat Products

Wheat

- Should be mixed with other ingredients to reduce acidosis risk
- Feed at no more than 0.5% of animal body weight
- Coarsely cracked or rolled wheat is more digestible than whole grain wheat
- Not commonly used as a feed grain in Mississippi

Wheat Middlings (Midds)

Wheat midds result from the wheat milling process.

- Good energy and protein content
- Available as loose meal or pellets
- Pelleted form cannot be stored for any length of time during hot, humid weather
- Practical use in Mississippi only during winter
- Should be combined with other ingredients to reduce risk of founder and bloat
- Moderately palatable
- Limit to 50% or less of total dry matter intake
- High phosphorus levels relative to calcium levels

Peanut Products

Peanut Hay

Peanut hay is composed of the vines and leaves of peanut plants after the peanuts are harvested.

- Protein content is fair to good
- Energy content is low
- Extremely palatable to cattle
- Highly susceptible to spoilage and losses unless stored under wrap or cover
- Can be used as the primary forage in cattle diets when supplemented properly

Peanut Hulls

Peanut hulls are the by-product of the peanut shelling process.

- Extremely bulky and difficult to handle
- High in fiber, extremely low in energy and protein
- Availability depends upon proximity to shelling plant
- Uses in hay-replacer diets and as an extender in stocker concentrate diets
- Do not use finely ground or pelleted peanut hulls (health risk to cattle)

Peanut Skins

Peanut skins are the result of skin removal from the peanut kernel.

- Very limited potential in beef cattle diets
- Difficult to handle, light, bulky, flow problems, can be blown by wind
- Moderate protein and energy levels
- High tannin levels that reduce protein digestibility and decrease palatability
- Do not use at levels of more than 10% of dietary dry matter

Raw Peanuts

Raw, whole peanuts are typically valued higher for uses other than as cattle feed.

- Very good energy and protein levels
- High fat content limits feeding levels
- Maximum of 4 lbs. per day should be fed to mature cattle
- Must be introduced to cattle gradually
- Check aflatoxin levels before feeding (do not exceed 200 ppb in cattle diets)

Rice Products

Rice Bran

Rice bran is a by-product of the rice milling process.

- Finely ground material, handling and storage in bins difficult, blending with other feeds improves flow
- Moderate protein levels
- High fat content unless defatted, limit to no more than one-third of diet
- Substantially less energy than soybean hulls even with high fat levels
- High fat rice bran less palatable and susceptible to rancidity in warm weather
- High phosphorus content

Rice Millfeed

Rice millfeed is a by-product of the rice milling process.

- Finely ground material
- Combination of rice hull and rice bran
- Often highly variable in composition
- Founder is possible when fed at high levels
- Handling characteristics similar to rice bran
- Typically less expensive and longer storage life than rice bran

Rice Hulls

Rice hulls are a by-product of the rice milling process.

- Extremely low nutritional value in beef cattle diets

Additional By-Product Feeds

Brewers Grains

Brewers grains are a by-product of beer production.

- With wet brewers grains, 75% of product transported is water
- Shelf life is a concern with wet feed
- Should be stored in anaerobic conditions or stacked and fed rapidly
- Good protein content
- Usefulness limited due to high water content

Cane Molasses

Cane molasses is a by-product from sugar manufacture.

- Extremely palatable
- Excellent energy source
- Commonly blended with vitamins and minerals

Citrus Pulp

Citrus pulp is made by shredding, liming, pressing, and drying the peel, pulp, and seed residues from citrus fruit.

- Availability and cost-effectiveness for use in Mississippi is limited
- Good energy supplement
- Very digestible, low protein, high fiber feed
- Excellent feed if acquired, best deals usually in mid-winter
- Should be limited to one-third or less of the diet for growing beef cattle
- Initial palatability problems with calves quickly overcome
- Often pelleted to facilitate transportation
- Darkening toward a black color indicative of overheating