

QUESTIONS TO CONSIDER WHEN SELECTING ALTERNATIVE FEEDS FOR BEEF CATTLE

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The drought in parts of Tennessee this year is forcing many to seek alternatives to supplement or replace home-grown hay or silage. In 2006, several feeds are apparently offering interesting possibilities'. Corn gluten feed, for example, is reportedly available at competitive prices and may be useful for "stretching" forages and keeping cattle productive. Soybean hulls (soyhulls) are another feedstuff which has proven useful in improving performance, and "stretching" limited forage supplies.

In some years, damaged, low-yield soybeans become available, which may have value in cattle rations, or some people may consider using aflatoxin infected corn, as long as care is taken to avoid toxicity (see publication "Aflatoxin in Tennessee," E&PP INFO 212).

There are many possibilities, but before selecting a feed, the producer should find the answer to several questions.

Is the feed consistently available in quantities needed? Before committing to a feeding program, determine if the feed will be consistently available when it is needed, particularly if expensive storage facilities or transporting equipment is required.

Is transportation and/or storage a problem? Often, potentially good feeds are impractical to use because they are too bulky, too high in water, require specialized equipment and facilities or the source is too distant.

How much water is in the feed? In general, high-moisture feed is expensive to transport, more likely to spoil and more difficult to store, but if problems can be overcome, it may offer an attractive feed alternative. When considering a high-moisture feed, it is best to do some quick calculations to determine the true value of the feed nutrients by:

1. Adding up all costs associated with using the feed, including purchase price, transportation costs, storage costs, etc.

2. Converting to a dry-matter basis to determine the true cost of the feed.

Example: If all costs associated with a 20 percent dry matter feed equaled \$40/ton, the actual cost of the feed is \$250/ton.

3. Nutritional evaluations should also be made on a dry matter basis. For example, if a feed was 40 percent dry matter and protein was 8 percent on an as-fed basis, one could calculate protein on a dry matter basis as follows:

As-Fed Protein Percent		Dry Matter Percent	=	Percent Protein on Dry- Matter Matter Basis
8	÷	40 X 100	=	20 Percent

What is the nutritional value of the feed? If the feed does not have a label, the only reliable method for determining the nutritional value is to have it tested. Contact your county Extension agent or feed dealer for details about how to get feed tested.

When comparing feeds for nutritional value, it is best to calculate price corrected for differences in nutrient concentrations. Example: Distiller's dried grains plus solubles (DDGS) typically analyze approximately 25 percent crude protein. Compared to

soybean meal at 44 percent crude protein, if all other factors are equal, the value per pound of protein may be calculated as follows:

If 44 percent SBM sells at \$160/ton:

.44 X 2000 = 880 pounds protein

\$160/ton ÷ 880 pounds = 18.2 cents/pound of protein

If 25 percent DDG sells for \$105/ton:

.25 X 2000 = 500 pounds protein

\$105/ton ÷ 500 = 21 cents/pound protein

In this example, correcting for differences in protein concentration shows the more expensive feed may be the more economical source of protein.

Example: In years when corn is inexpensive and home-raised hay supplies are limited, it is possible that up to one-half of the hay that would normally be fed can be replaced by corn. To see if this is an economical alternative energy source, use the same method as above.

Assume corn is 80 percent TDN and grass-clover hay will typically test at 55 percent TDN.

If 80 percent corn sells for \$2 per bushel:

.80 X 56 = 44.8 pounds of TDN

\$2/bushel ÷ 44.8/bushel = 4.5 cents/pound of TDN

If 55 percent hay sells for \$80/ton (\$2/bale):

.55 X 2000 = 1100 pounds of TDN

\$80/ton ÷ 1100 = 7.2 cents/pound of TDN

From this, it is clear that cheap corn is a better buy than expensive hay.

Are there special considerations which should be taken into account?

Some feeds offer special advantages. For example, some protein feeds, such as DDGS, have a high bypass potential. This means they are not easily degraded in the

rumen, and may be more efficiently utilized in certain feeding programs. Another example is protein supplements that are high in nonprotein nitrogen (NPN). NPN is suitable for substituting for up to one-third of the crude protein of ruminants, except it should be avoided with calves below approximately 500 pounds. Other feeds, such as whole soybeans and whole cottonseed, are relatively high in oil - so the amount fed should be limited to avoid such symptoms as nutritional scouring.

Is the feed convenient, and does it work into existing labor and facility restrictions?

Many cattle producers do not have feed bunks to feed corn or other grain mixtures, so they prefer feeds in the form of blocks, range cubes or lick tanks and are willing to pay for the convenience of using feeds in these forms.

It is also possible that feeds which have to be fed every day, such as ground, shelled corn, may not fit into work schedules. An option in this case is to mix salt into the ground feed to limit intake. This is not a perfect system, because cattle vary greatly in the amount of salt they will tolerate. As a general rule, cattle will eat 0.1 pound of salt in a feed mixture for every 100 pounds of body weight. To limit a 500-pound calf to 5 pounds of feed per day, mix 0.5 pound salt with every 5 pounds of feed, or mix about 9 pounds of salt per every 100 pounds of feed. Always provide plenty of water when using salt to limit feed intake. Cattle may develop salt poisoning if water consumption is limited. Salt-limiting a feed should not be a substitute for daily observation.

Is variability in nutrient content of the feed a problem? Most cattle feeds are somewhat variable. Even shelled corn, which many people consider to have relatively predictable nutrient values, can vary by several percent in crude protein and even more

in energy. Hay is notoriously variable in nutrient content and should be tested. The same is true for many byproduct feeds.

Does the feed provide the nutrients needed? Probably one of the most common cattle feeding mistakes is to feed a complex, expensive protein supplement when all that is needed is corn. For help in ration balancing, talk to your county agent.

What is the possibility of a toxic component in the feed? Common contaminants that may cause problems with feeds may include such things as copper in chicken litter, toxic chemicals in cotton gin byproducts, nitrate in sorghum hybrids or corn, or molds and fungus in many levels of feed. Other contaminants, such as sand, gravel, broken glass and metal, are sometimes found in feed and should be avoided.

Are other feeds available which will be better? This may require some shopping around and asking the preceding question about several feeds.

Is dust a factor? Dusty feed is inconvenient to feed and may cause respiratory problems in cattle.

What success have others had with this feed? At one time or another, someone, somewhere, has tried to feed practically everything to cattle. By asking around, starting at the Extension office, it is likely that someone with experience in feeding any practical alternative feed can be found.