
Baled Corn Stover - A Potential Winter Feed For Tennessee Cow-Calf Operations

Corn stover or corn crop residue is often overlooked by cow-calf producers as a source of feed for mature beef cows. Due to the drought of 2007, the amount of hay harvested has been reduced by more than 50 percent in most areas of the state. In addition summer pasture was limited and many producers are already feeding the hay harvested. The winter feed supply has been severely reduced and cattle producers are attempting to either purchase hay from out of state as well as evaluating feed and cattle management alternatives to stretch their feed supply. Corn stover can be an excellent alternative forage for mature beef cows.

Fifty to 55 percent of the weight of the total corn plant is in stalks, leaves, husks and cobs, all of which is left in the field following harvesting. Therefore, lots of potential feed is left in the field and wasted. Some producers have "grazed" corn fields following harvesting of the grain. It has been reported that grazing harvests approximately 25 percent of the material.

Tennessee farmers annually harvest 650,000 or more acres of corn. If the residue from this corn crop could be harvested, it would meet the energy needs of 650,000 mature beef cows for 30 days. Baling corn stover, will contribute to increasing the number of "cow-days" fed by 3 to 4 fold. This would certainly contribute to stretching the feed supply of the state's cow herd and with proper supplementation, can be the basic winter feed.

Suggestions for Baling Stover

The potential for baling corn stover has come about by the use of large round balers.

There is limited information on the topic but, a large round baler seems to be the harvesting "method of choice." Well made large, round bales can weigh up to 1500 lb.

Baling should be done as soon as possible following corn harvest in order not to lose nutrients from the residue. Wait after combining for the moisture to drop to minimize spoilage. The moisture content of the residue should be around 20-25 percent to avoid mold problems. This may be 2-3 days following harvesting or it may be a week due to the weather and the moisture of the corn plants. Rain and weathering will reduce the nutritional value of the residue.

It is suggested that the chopper on the combine should be disengaged when harvesting the corn. This will allow the shucks, cobs and leaves to fall directly behind the combine. To have better quality feed, harvest the middle 2 or 3 rows directly behind the combine. Both the TDN and crude protein will be higher. Windrowing the residue is suggested to increase the yield. Windrowing will also contribute to a firmer bale. Harvest to keep stalks at a minimum in the bale because, as the percentage of stalks increase, the quality of the feed will be reduced.

Make the bales as firm and large as possible. Raking the material into windrows will aid in making a firmer, dense bale. Some producers report that a windrow lacking a few inches being as wide as the bale chamber results in a better bale.

Problems With Baling Stover

LSU researchers at the Rosepine Station, reported a great deal of difficulty in baling corn stover. The leaves from the stalks had a tendency to build up behind the belts of the baler. This resulted in either wear on the bearings or sheared pins. Other problems occurred with the "pickup" due to the unevenness of the field.

Another item that should be concerned is nitrate level. If the corn has had the opportunity to have a pretty good yield, the nitrate levels may not be too great. Most of the nitrates will be in the stalk and in the lower one-third. This is another advantage to removing the chopper and harvesting the middle rows. Mostly shucks and cobs and some grain will be in this material. But, have a test done to get a bench mark. Nitrate effects can be reduced by supplementation.

Tennessee Extension agents can obtain a nitrate screen testing solution to allow producers to know if there is nitrate in the stalks. For producers whose stalks test positive for nitrate, agents can assist in delivering the samples to the University of Tennessee Soil, Plant and Pest Control Center to be tested for the exact level of nitrate, as well as suggestions for utilizing the material that has accumulated nitrate. The laboratory has tested hundreds of hay and corn stalk samples this year. The good news is that most have not had toxic levels. In those cases that had nitrate in the material, most were low enough for usage with some care and management.

Delaying baling to assure reduced moisture in the residue may also somewhat reduce the nutrient content or quality.

It is difficult to make the bales firm enough to shed water. If the cows are on a definite breeding season and are in either the first third or the middle third of pregnancy, feed the bales first before weathering takes its toll on the quality.

Suggestions for Storing and Feeding

As with stacking of large round bales of hay, place bales in a well drained area that is easily accessible for feeding. It is suggested to place the butt end into the prevailing wind.

Feed the bales as soon as possible following harvest in that weathering will reduce the nutritional value. Due to the material harvested, it will be difficult for the bale to shed water similar to grass hay. Therefore, it is recommended that the bales be covered to maintain quality.

If the bales are fed "free choice," the cows will sort out the leaves, shucks and grain and leave the stalks and cobs. Free choice will also result in waste of a great percentage of the feed. Use of feeding racks, rings or other procedures to limit intake and reduce waste is suggested.

Nutritional Value of Corn Residue

Corn crop residue will have fair nutrient value, but supplementing may be required in some cases. The average nutritional value will be somewhere around 4-8 percent crude protein and from about 48 to low 50's in percentage TDN. This will be similar to the "average to low quality" Fescue hay. The nutritional values will vary depending on the percentage of shucks, grain and leaves in the bale. If there are more husks and leaves in the bale than stalks, the greater will be the protein and energy content. Producers should have a forage test done on the stover to develop, if needed, a supplement program.

Supplementation of Corn Crop Residue

Depending on the quality of the feed, dry mature cows may not need supplementation. As the cows progress through gestation and approach calving and lactating, they may require supplementation of both protein and energy supplementation. Use of a forage test is the best tool to make feeding decisions. The cows's body condition is another factor that indicates the effectiveness of the feeding program. The cows should have

a body condition score (BCS) of 5 at the start of the feeding period to utilize corn crop residue. Cows in a BCS of 3 or 4 will need to be supplemented with energy.

Use natural sources, such as soybean meal, cottonseed meal distillers grains or corn gluten feed and co-products from a distilling process for protein supplements. Liquid feeds or mocks that contain high levels of natural protein sources would also work. Generally, protein supplementation may need to be at a rate of 0.5 to 2.0 lb per day depending on the quality of feed and stage of production of the cow. Avoid using high levels of urea because the corn residue is slowly digested and the amount would be wasted in a high urea feed.

Mature, dry, pregnant beef cows in a BCS of 5 will not require energy supplementation during the middle third of pregnancy. As they approach calving, the cows may need two to five pounds of corn or the equivalent in energy per day. Again, this will depend on the quality of the corn crop residue and milking ability of the cows. Monitor BCS of the cows. This is a situation where the "eye of the master fattens the cattle."

A forage test report can be both a "money saver" and performance ensurer. Base decisions on supplementation on a forage test.

Summary

In summary, harvesting corn stover or crop residue by baling can increase the yield and result in a more effective, economical feeding program. It can be an excellent winter feed resource for beef cows. Use of the material can serve as an alternative feed either during times of feed shortage or to reduce the winter feed bill under normal situations.