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Contact: Gene Schmitz
Livestock Specialist
University of Missouri Extension
(660) 438-5012
schmitze@missouri.edu

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Headline: Corn Silage Considerations

WARSAW, Mo. – Due to the short hay crop in many areas, cattle producers are considering alternative feed sources, including corn silage. Corn silage is an excellent feed, but there are harvest, storage, and feeding issues to consider in order to successfully utilize this forage resource.

The first issue on many producer's minds is nitrate toxicity, especially with drought-damaged corn. Prior to chopping, producers can take stalk samples to many Extension offices to do a quick test to check for the presence of nitrates in the stalk. If nitrates are present, leave 8 to 10 inches of stubble height since much of the nitrate is located in the lower portion of the corn stalk. During the fermentation process, approximately 30 to 50 percent of nitrate is lost. Finally, before feeding, have a nutrient analysis done on the ensiled forage, including testing for quantitative nitrate levels. If nitrates are present at that time, feeding rates can be adjusted so the silage can be fed at safe levels.

Harvest, storage, and feeding issues are the next items to consider. Management of these issues will depend upon how the corn is harvested: chopped or baled.

Let's first deal with baling. In this scenario, corn is mowed, baled at approximately 60 percent moisture, and wrapped in plastic for ensiling and storage. The main advantage to this method of harvest and storage is that most producers have balers and the silage bales can be fed in hay rings.

There are several disadvantages to this method of conserving corn for silage. Baling at the correct moisture is difficult because the stalks retain a lot of moisture while the leaves may be dried out and lost during the baling process. If there are corn ears present, many of these will be lost during the mowing and baling processes. It is very difficult to exclude oxygen from the corn stalks during baling. The corn stalks are prone to poking holes in the plastic wrap, and this will allow oxygen into the bale resulting in spoilage issues.

Feeding management is also difficult because the feeding unit is one bale. Corn silage generally needs to be limited in beef cow diets due to the high energy content of the feed. Limiting corn silage intake for each cow in the herd is extremely difficult, if not impossible, to achieve with free-choice access to silage bales. Some cows will get excess silage, and others may not consume enough to meet their energy demands. Blending corn silage bales with grass hay bales in a mixer wagon helps solve this problem.

Chopping corn for silage offers many benefits. Two main benefits are all plant parts are conserved, and the amount of silage fed per animal can be controlled. If packed correctly, chopping allows better oxygen exclusion, so better fermentation and feed preservation takes place.

Oxygen exclusion is key to silage preservation. Chopped corn silage can be piled on the ground, placed in bunker or upright silos, or put in bags. If using bunker silos or piling on the ground, the chopped material must be thoroughly packed to exclude oxygen. It is almost impossible to overpack silage piles.

Building some type of “bunker” out of hay bales is not recommended, because it is extremely difficult to pack the silage effectively, especially the edges of the pile. Improperly packed silage may not exclude enough oxygen and is subject to poor fermentation, mold and other deterioration, resulting in a loss of feed quality. The whole point of chopping silage is to provide a quality feed. Attempting to store silage in this manner defeats the purpose of chopping silage.

Piles and bunker silos should be covered with plastic as soon as possible to prevent excess spoilage due to oxygen exposure and rainfall soaking into the pile.

Harvesting corn silage at the correct moisture, and oxygen exclusion are the two keys to successfully harvesting and storing silage. Chopping and piling on the ground or putting the silage in bags or bunker silos provides the best opportunity to conserve a high quality feed that can be fed in appropriate amounts to all classes of beef cattle.

If you have questions on harvesting or feeding corn silage, please contact me by e-mail at schmitze@missouri.edu or by calling the Benton County Extension Center at (660) 438-5012.

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