

Unharvested Corn Can be Feed for Cattle

Producers have options for using unharvested corn.

The 2019 growing season has not been conducive for corn grain production in many areas of the northern Plains.

The late planting season, combined with cooler temperatures, has left many fields unharvestable or not cost effective for harvesting corn for grain, especially with late-season varieties. Alternative uses for corn include grazing, chopping it, harvesting as earlage or harvesting high-moisture corn and using it for livestock feed.

However, producers must take precautions when grazing unharvested corn to assure animals don't develop health issues, North Dakota State University Extension livestock specialists say.

Grazing Standing Corn

"When grazing standing corn with cobs that are filled with grain, the grazing has to be managed to reduce any risk of causing health issues and even death to livestock," cautions Kevin Sedivec, Extension rangeland management specialist. "Consuming too much grain can cause digestive upsets (acidosis), lameness, abortions, and death in extreme cases. Some issues will develop through time, making them difficult to detect."

Before turning cattle out to graze standing corn, make sure they're ready for it. After a brief learning period, cattle will graze corn ears if any have developed. However, the cattle first need to adapt to a higher grain diet; otherwise, acidosis or other digestive disorders could develop.

"It is important to control the amount of corn and forage to which the animals have access," says Miranda Meehan, Extension livestock environmental stewardship specialist. "You can effectively do this by cross-fencing or grazing in controlled strips. This technique will reduce high overload of grain and waste through trampling.

"Cross-fencing and strip-grazing are usually recommended with access to no more than a two-day supply of fresh corn at a time; a one-day supply is even better, especially for younger, growing cattle," she adds. "If you cannot limit feed grazing animals in standing corn, this option is not recommended because the risk for high death loss is great."

A basic rule of thumb for determining two days' worth of feed is that each acre of standing corn that is about 6 feet tall and tasseled should provide enough grazing for about 125 to 150 cows for one day. Observe animal behavior and the amount of grazeable corn each day, as well as in-field variations, to determine whether to increase or decrease the area allotted with each new grazing strip. Do not bother with back fences so animals can travel back to water.

Producers can mitigate the risk of grazing standing corn by:

- Carefully considering the class of cattle allowed to graze cornstalks. Cattle new to eating corn (calves or yearlings) will take some time before they actively seek corn. This delayed consumption can serve as a good acclimation period (or explain the suddenly dead calf after being on the corn field for two weeks). Cows with experience grazing corn will look for grain and ears immediately when turned out. Consider grazing calves, yearlings or cull cows on fields to clean up some of the corn before turning out pregnant cows.

Images



North Dakota's late planting season, combined with cooler temperatures, has left many corn fields unharvestable. (NDSU photo)

- Adapting cattle to corn before turning out to graze corn stalks. Start with 3 pounds daily and move up to 7 or 8 pounds during a 10-day period before turnout.
- Cross-fencing fields to minimize the amount of the field that cows have access to at any one time. Early in the grazing period, this may mean moving the fence daily. Then progress to two-day moves.
- Not turning hungry cattle out to graze. Provide good-quality hay for two to three days so cattle don't overeat corn immediately. Cows experienced in eating ear corn will shell it off the cob.
- Watching the concentration of corn kernels in manure because as the amount of whole corn kernels in the manure decreases, the feed value in the field is decreasing. When you no longer find whole corn kernels in the manure, the cows will need supplemental feed or to be moved to new grazing.

Chopping Corn

Corn still can be chopped for feed, but achieving “true” silage likely will be impossible without adding water to the pile. Because most of North Dakota has experienced a killing freeze, the corn will be too dry to harvest as silage.

“The whole corn plant is probably running at 25% to 45% moisture, and even up to 60%, so harvesting as silage is still an option,” says Karl Hoppe, Extension livestock systems specialist at NDSU’s Carrington Research Extension Center. “Silage that is below the recommended moisture content (65% to 75%) still should be chopped finer and packed repeatedly to remove as much oxygen from the pile, but it will not fully ferment; thus it is susceptible to spoilage.”

Inoculates may be beneficial in speeding the onset of fermentation. Using products containing oxygen eliminators may enhance oxygen elimination. Silage piles should be covered with two-ply plastic to decrease spoilage and maintain the longevity of the pile.

“Producers also have chopped corn that was frozen and stored frozen,” Hoppe notes. “This feed, if it remains frozen, will make good feed. However, frozen whole-plant chopped corn, when it thaws, will spoil next spring. So plan to harvest only what you can feed this winter season.”

Corn as Earlage

Earlage is ensiled corn grain, cobs and, in some cases, husks and a portion of the stalk. Earlage allows the production of a relatively high-energy feed product, which can be harvested, stored and fed much like corn silage, using the same types of equipment used to produce corn silage.

It is higher in energy than corn silage with similar protein content, but it has lower energy than dry or high-moisture corn grain. Earlage is harvested at 35% to 40% moisture and packed and stored like silage. At harvest, cob material will be higher in moisture than grain. With earlage, the biggest problem usually is harvesting the corn when it is too dry.

Earlage can be harvested several ways. Many custom forage chopping operations have equipment to produce good-quality earlage. The most common harvesting method is a snapper head on a forage harvester with a kernel processor so that just the ear, cob and husk are harvested.

Earlage can be stored in bunkers, trenches and plastic silage bags. However, whatever storage method is used, oxygen must be limited. Earlage is denser than corn silage; consequently, ensuring that your unloading equipment and storage facility can handle the extra weight prior to filling is important. For more information, see the NDSU Extension publication “Harvesting, Storing and Feeding Corn as Earlage” (<https://tinyurl.com/Earlage>).

High-moisture Corn

High-moisture corn offers many advantages for producers who feed beef or dairy cattle. However, successfully using high-moisture corn requires attention to harvest timing, processing, storage conditions and feeding management. High-moisture corn is corn harvested at 24% or greater moisture (maximum 40% moisture), stored and allowed to ferment in a silo or other storage structure, and used as feed for livestock.

This type of corn should be processed (ground or rolled) prior to storage, Hoppe says. Grinding or rolling and subsequent packing of the corn facilitates oxygen exclusion. The goal with processing should be to have no more than 5% fines and no more than 5% whole kernels.

For feeding purposes, rolling is the preferred method of processing (compared with grinding) because rolling will result in less fines and lower probability of acidosis due to rapid fermentation when feeding.

At moisture levels below 27%, water may need to be added to facilitate packing and fermentation. A good rule of thumb is to add 3.5 gallons of water per ton of corn for each percentage point the corn is below 27% moisture.

“This is the best option for large volumes of corn harvested in a short period of time but will require a large-volume roller or hammer mill to process grain rapidly,” says Janna Block, livestock systems specialist at NDSU’s Hettinger Research Extension Center. “Packing is done with tractors, which may be equipped with a dozer blade or front-end loaders.

“During feed out, the face of the bunker must be kept fresh to avoid heating, so the width of the high-moisture corn bunker should match the rate of use,” she says. “Bunkers constructed of a cement base and sides will reduce spoilage better than earthen structures and provide a firm surface for equipment throughout the year.”

The specialists also recommend that producers take care when feeding high-moisture corn because it has a faster ruminal digestion rate than dry corn. Consequently, better bunk management typically is required for successful feeding. For more information, see the publication “Harvesting, Storing and Feeding High-moisture Corn” (<https://tinyurl.com/High-moistureCorn>).

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