NUTRITION NOTES
Innovation + Research from Kent Nutrition Group
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CORN SILAGE – ONLY ONE CHANCE

Remember the old adage, "A dry year will scare you to death, but a wet year will starve you to death?" As with most farm management, good practices enhance profitability while poor practices hurt the bottom line.

Corn silage is a valuable feedstuff! On most farms it is a major source of feed energy. Since it is difficult to meet the energy needs of a high-producing dairy cow, it is helpful to get as much energy out of the crop when fed as when it was growing in the field. Harvesting only lasts a few days. There is only one chance to get it right! If not done properly, a great deal of corn silage's valuable energy can be lost. For example, one of the laws of physics is that energy can neither be created nor destroyed, it can only be transferred or changed from one form to another. When silage ferments, energy is lost as heat. We want it to ferment quickly so minimal heat energy is lost. Packing well eliminates oxygen and shortens the aerobic phase of fermentation, and reduces energy lost as heat. Using an inoculant speeds up the anaerobic phase of fermentation by more quickly lowering the silage's pH. As the pH drops, fermentation slows, lactic acid levels rise, and heat loss stops. We then have a stable silage that remains preserved until it is opened up and again exposed to oxygen.

The key management practices that will help to get more out of your corn crop's nutrients into your cows are:

Harvest at optimal dry matter (DM)

- If too dry, it is difficult to pack and eliminate oxygen from the forage.
- For bunk silos, optimal is 30-35% DM (65-70% moisture).
- For tower silos, 33-38% DM (62-67% moisture) works best.

Chop to a Theoretical Length of Cut (TLC) of:

- 0.25 – 0.50" if unprocessed
- 0.75" if processed. A coarse chop promotes rumen health and takes less fuel to harvest.

Process correctly

- Goal is to make grain starch more digestible by breaking the hard seed coat of the kernel. If done properly, in a 2-pound sample there will be no more than two whole or half kernels. This should be checked frequently, even within field. Once in the silo, it's too late!
- Clearance between counter-rotating rolls of processor should be adjusted to 1/8" - 3/16" (1-3 mm). Despite proper adjustment, whole kernels are sometimes seen because rolls are worn. These should be regrooved or replaced.

Pack well

- Packing layer should be no more than 6" deep. If delivery to silo is too fast, there isn't enough time to properly pack. If so, additional packing tractors may need to be added.
- Minimum packed density, at 2/3 the height of the silo should be 15 pounds/ft3, but closer to 20 pounds/ft3 is best.

Cover ASAP after filling

- First, cover with low-permeable-oxygen barrier plastic believed to stop more oxygen because it adheres to the silage.
- Second, cover with 5 mil of white/black plastic.
- Overlap seams 4 feet.
- Cover entire surface tire to tire.

Maximum feed value is not reached for many months. If possible, don't open until Christmas.

- Over time, the biggest improvement is to starch digestibility. Newbold et al (2006) found that at 2 months ensiled, starch digestibility was 53.2% while at 10 months it increased to 69%.
- It's always important to get as much as possible out of the corn crop. The nutrients that are in the crop when harvested should end up in front of the cows. This is even more important in a marginal or poor crop year. Yes, it's necessary to harvest quickly, but it's also vital to pay attention to the details of good harvest management. Every year there is Only One Chance to get it right.

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