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Ross Mosteller
District Extension Agent, Livestock & Natural Resources

Silage Management to Maximize Feed Value

Mid-August signals the start of a new school year, ending of hot summer weather in sight and silage chopping time, especially corn silage. Not every livestock operation utilizes silage as part of their feeding strategy, but for most dairies and beef feedlots, silage is a major feed component and critical part of the operation. South Dakota State University Extension has released a study that discusses ways to manage and maximize silage quality for livestock feed. It seems like timely information to share now.

It doesn't matter if the crop is corn, sorghum, alfalfa or small grain, ensiling provides a method to preserve the crop in a palatable form that provides flexibility to livestock producers. However, to optimize nutrient capture, the entire harvest and storage process must be well-managed. Everything, including hitting harvest moisture targets, managing cut length, and achieving the correct bunker or pile density, is important in achieving a rapid pH drop and preserving crop nutrients. Perhaps the most important step is the use of a cover to limit oxygen infiltration into the silage pile.

Anyone who has covered a silage pile well knows this process takes labor, one thing that is nearly always in short supply. First, the tarp needs to be put in place, followed by tires or other method to secure the tarp in place. So, it is not surprising that farmers have sought out methods that reduce the amount of labor required or decide that the losses are acceptable and do not cover the pile at all.

SDSU Extension Specialists (led by Sara Bauder and Kiernan Brandt, along with Warren Rusche) set out in 2022 to test how much loss could be occurring following these strategies. Each of these treatments were tested using corn silage with or without an inoculant applied. The silage was allowed to ensile for 104 days before being opened, sampled, and analyzed. They conducted a silage storage experiment in laboratory silos using four different covering strategies:

1) no cover
2) covered with CDS syrup (*condensed distillers solubles, a by-product of ethanol production*)
3) covered with white-black plastic
4) covered with white-black plastic plus an oxygen barrier film

Inoculation did improve fermentation in the silos that were covered with one of the two forms of plastic. However, inoculated silage stored in uncovered silos, or when covered with CDS syrup, was no better than uninoculated. The combination of white-black plastic plus an oxygen barrier did result in greater lactic acid content, indicating improved fermentation compared to white-black plastic alone. However, organic matter recovery was similar between the two forms of plastic covering.

Organic matter losses were considerably greater, however, for uncovered silos and those covered with CDS syrup. In fact, using syrup was numerically worse than doing nothing at all. Silage inoculants improved fermentation when used in covered silos but were ineffective in uncovered silos or when syrup was used. Farmers spend too much time, money, and resources to produce feed for their livestock only to lose it to spoilage. To best preserve nutrient value, there are no shortcuts. Every step needs to be taken to the best of our ability, and that includes using research-proven silage harvest management, like appropriate pack, inoculation and using effective covering methods.