

HARVESTING METHODS FOR CORN SILAGE AFFECT PERFORMANCE

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Corn silage is a high-yielding and high-energy forage crop. In rations for milking cows, corn silage can be used nutritionally as an economical source of energy, a nutrient which often limits milk production during early lactation.

Harvest At Proper Stage of Maturity and Moisture Level

In order to get the most from your corn silage crop, harvesting on a timely basis is critical. Corn silage needs to be harvested at the proper stage of maturity so that it will ferment properly in the silo and cattle will want to eat it. For an upright silo, corn silage should be harvested when the milk line in the kernel is 1/2 to 3/4 the way down the kernel of corn. For a bunker or a pile on the ground, silage needs to be a little wetter, so the recommendation is to chop when the milk line is 1/2 way down the kernel. This recommendation differs from our earlier recommendations to harvest at the black layer stage of maturity. Research shows that corn harvested at this earlier stage of maturity results in silage with lower fiber content and a higher digestibility and protein content. When checking a field, be sure to check several spots and plants.

The dry matter or moisture content of corn silage definitely affects fermentation and thus, the acceptability of silage by both dairy and beef cattle. Silage ensiled too wet results in a butyric acid type of fermentation which cattle refuse to eat. On the other hand, silage put up too dry heats during the fermentation process, cattle may not consume the silage and the protein may become bound so that this protein is unavailable to cattle.

For upright silos and bags, harvest corn silage at 35 to 40% DM or 60 to 65% moisture. For bunkers, harvest corn silage a little wetter at 30 to 35% DM or 65 to 70% moisture. The best way to measure the moisture content of green chop is to use a microwave or drying unit such as a Koster tester. To estimate the percent dry matter, you can use the Grab test. Squeeze a handful of chopped material as tightly as possible for 90 seconds. Release your grip and if the ball of material expands slowly and no dampness appears on your hand, the material contains 30-40% dry matter.

Do Not Chop Silage Too Fine

The length of chop can affect animal performance. Silage chopped too fine can cause low butterfat tests, displaced abomasums or twisted stomachs, and feet problems. For milk cows, silage should be cut so that the material is 3/8 to 1/2 inch long. With a kernel processor attached to the chopper, corn silage should be chopped at 3/4 inch long.

Fill Silo Quickly, Distribute Silage in Silo, and Cover When Done Filling

For proper fermentation in the silo, silage needs to be filled rapidly to minimize the exposure to air. By distributing the silage evenly, especially at the top of the silo, air pockets which cause spoilage can be minimized. Covering uprights and bunker or trench silos after filling will help reduce losses due to spoilage.

Piling Silage on the Ground Does Work!!!!

Excellent quality silage can be piled on the ground and used to supplement upright silo storage space. The key to making good silage in a pile is ensiled corn at the proper moisture and packing sufficiently using a tractor. Putting up silage too dry and not packing it correctly or long enough will result in poor-quality silage. When piling silage on the ground, lime can be spread to form a base. If silage will be fed during the wetter parts of the year, a gravel base in front of the pile may be necessary. For more information on how to construct a bunker silo using round bales see Agricultural Engineering Bulletin #AEU-41 entitled "Temporary Silage Storage".

Test Silage for Nutrient Content

As with any forage, the nutrient content of corn silage varies tremendously between years and farms. Without a forage analysis, cows can be over-fed or under-fed protein and/or energy which can decrease the farmer's profits. The easiest way to sample corn silage is to collect a couple of handfuls from each load of silage as it is being unloaded. Remember to keep the container with your samples out of the sun. At the end of the day, mix the silage collected and place a handful in a plastic bag in the refrigerator. Samples collected over a couple of days can be combined and sent off for analysis.