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Harvesting Corn Silage

Corn silage harvest is just around the corner. We harvested some demo plots last week and were surprised to find moistures of 69% and $\frac{1}{2}$ milk in some short season dryland varieties. It's know that timing harvest right is critical to silage harvest success, and knowing what to look for can help make the decision to begin a bit easier.

When we talk about corn being ready for silage harvest, we often are looking at two different factors, whole plant moisture and milk line. You've probably heard me talk about it before, but accurately assessing whole plant moisture is key to proper fermentation of the silage pile and getting a good pack. Too dry and packing is difficult, oxygen gets into the pile. Overheating, mold/yeast/bad microbe growth, and spoilage follow. If we harvest too wet the pile weeps and energy and nutrients are lost. Also of danger here are the growth of clostridial bacteria colonies, which we really want to avoid. Ideally, we want to harvest at 65-70% moisture.

So how do we get the right moisture? We can either test chop a few areas in the field and take grab samples from that or select 10-20 plants to chop by hand. The key is to get samples that are fairly representative of the field as a whole. These test samples can be chopped fairly fine to speed along the drying process. This isn't what we are going to be packing into a bunker, we want it to dry out quickly for testing.

Once we have about 2 gallons worth of sample, mix well and weigh out around 100 g worth on a scale for our starting green weight.

Next we have to dry the sample down. This can be done with a kitchen dehydrator, spreading the sample out and letting it run overnight, a dedicated forage moisture tester like a Koster Tester, or a microwave oven. If using the microwave, be aware that there will be unpleasant smells produced, so using the main family microwave in the kitchen might not be the best idea. Find a cheap option and do this in the shop. Microwaves can burn the sample easily as well, so take your time and go slow.

Once all the moisture has been removed from the sample, the dry weight and initial green weight can be used to calculate percent moisture. Subtract the green weight from dry weight to find how much water was in the sample, then divide by the green weight and multiplying by 100. Make sure your calculations and weights do not include the weight of your container, just the sample.

We can also do a quick and dirty version of this with the hand squeeze test. Grab a handful of your fresh sample and squeeze it firmly in your hand for 10 seconds. Open the hand slowly and watch what happens. If juices ran from your hand and the silage stays in a ball, it's too wet. If your palm remains dry and the silage does not form a ball or falls apart right away, it's too dry. The correct moisture will produce a moist hand with a ball that barely stays together or falls apart slowly.

The other factor we have to consider when chopping is milk line. This is a visual indicator of how much starch the corn plant has set down in the kernel and how much is still wet "milk". Starch is one of the most energy dense feed components we have, so silage that contains higher amounts of starch will be higher energy overall. So, the further down the kernel the milk line is, the more starch we will end up having.

The trouble is that plant moisture and milk line aren't correlated. While they do tend to trend in the same direction, you might have a year where corn that is 55% moisture and ¼ milk that is 65% moisture at the same ¼ milk the next field over. Both variables need to be watched. Exactly when to pull the trigger is dependent on each operation's resources and needs, but can be a very short window for an optimal product.

Corn silage is a great feed resource that can benefit greatly from some extra care and planning at harvest. Keep an eye on total plant moisture (65-70% for best results), and milk line (lower means more starch and higher energy silage) to find your ideal harvest window.

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