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Silage Chopping Moisture

SITUATION

How do you know when your silage is ready to chop? Determining silage moisture can be a challenge. Dry matter content of the whole plant can vary with maturity; therefore, it is important to know when the field is ready for harvest.

FACTORS TO CONSIDER

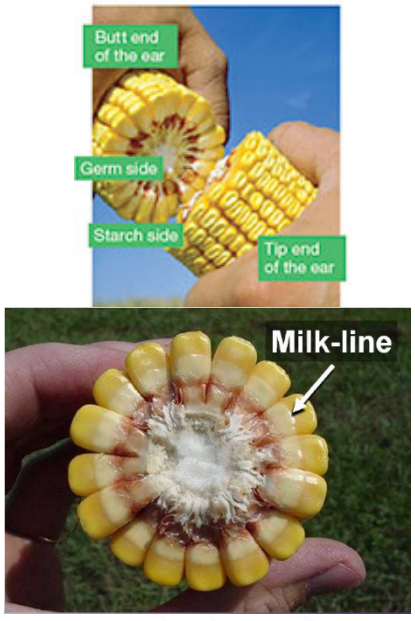
Harvest timing can be estimated using the kernel milk-line as it is a good indicator of when to start sampling fields to measure plant dry matter. However, the only reliable method of determining the optimal harvest time is to sample the crop and measure the percent dry matter of whole plants.

- Kernel milk-line
- Whole-plant moisture
  - Microwave
  - Koster Tester

ACTION PLAN

Even though the kernel milk-line is an indication of whole-plant moisture, it is not an accurate measurement. To accurately determine whole-plant moisture, use moisture tester techniques, such as the Koster tester and microwave oven.

A. Kernel milk-line: The milk-line is the line in the kernel separating the liquid and solid portions of the kernel. When monitoring fields, a quick moisture estimate can be done by breaking a cob in half and looking at the kernels on the tip half of the ear. The milk-line will move from the outer edge of the kernel toward the cob. Harvest should typically begin when the milk-line reaches the halfway mark (when half of the kernel is milky and the other half is doughy). Remember that the milk-line should only provide a rough estimate point and should not be relied upon solely to determine moisture content.



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B. Microwave oven dry down test:

1. Weigh a 100-gram sample of chopped silage on a paper plate (don't count the weight of the plate).
2. Spread the silage evenly over the plate and place it in the microwave. Place an 8-ounce glass three-quarters full of water in the microwave's back corner to prevent igniting the sample.
3. Heat the sample for 3 minutes, initially on high power.
4. Remove the sample from the microwave, weigh and record the weight. Stir the sample and return to the microwave.
5. Continue to heat the sample, using one-minute time intervals and repeat Step 4. To prevent burning, use 30-second intervals as it approaches dryness. Continue drying and weighing until the total weight changes by less than 1 gram.
6. The final dry weight, minus the plate weight, is the dry matter percentage. To determine moisture content, take the final dry weight, minus the paper plate, and subtract from 100.
7. Repeat Steps 1 through 6 with a duplicate silage sample and average the results.

C. Koster tester: The Koster forage moisture tester works on a principle similar to that of an oven. A forage sample is dried, and the moisture content is determined from the weight change.

SUMMARY

Accurately determining the moisture content of corn silage is a challenging process but it is very important. Once you have the results of your moisture test you are one step closer to knowing when to start chopping. Use a dry-down rate of 0.5 percent - the average percent moisture which corn plants lose per day - to predict when the field will be ready for the storage structure.

RESOURCES

It's all about starch – Progressive Dairyman
Silage Harvesting and Storage - Wisconsin Corn Agronomy
Timing Corn Silage Harvest - Integrated Pest and Crop Management

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