Use In-Season Guidelines to Predict Corn Silage Harvest Date

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Predicting when to harvest corn silage is the second most challenging management decision a farmer faces. A farmer may do everything right during the season, but once harvest begins, uncontrollable factors start to influence the harvest timing decision which could ultimately affect silage quality. Factors include weather, custom chopper availability, and harvest efficiency (packing and covering) to allow for good fermentation and storage.

Good decisions start with familiarizing yourself with the hybrid you are intending to grow for silage, noting hybrid maturity and planting date. Mid-July might seem like an unusual time to start prepping for the coming corn silage harvest, but it is the perfect time to consider corn silage harvest timing based on when the plants tassel. Kernels will be at 50% kernel milk (R5.5) ~42-47 days after silking. Silk dates (R1) occur when corn plants are at maximum or near maximum height and have maximum vegetative dry matter (DM). Variable spring weather can mean an extended corn planting season, so the range for corn silage harvest among fields can vary considerably. Silking is the most sensitive period for the crop. Silks on the ear must be present while pollen shed occurs for successful pollination and fertilization. Farmers can use the day of silking as the start of the reproduction process and a guide for when to harvest. When the corn plant reaches the half-milk line, plants will normally have 40% grain moisture and 88-95% of their total dry weight.

At some point, forage yield is no longer as important as timing harvest at the correct moisture for the storage structure to ensure proper fermentation and preservation. The wettest plant part on corn is the lower stalk, which is also of poor quality (low NDFD) and is high in nitrates. The driest plant part is grain. By raising the chopper cutter bar 12", forage moisture decreases 3-4% points. Also, the wettest, poorest-quality plant part is left in the field. Forage yield is decreased ~10-15%, but forage quality increases 8-12%, so that overall milk per acre is only reduced ~3-4%.

The effect on forage moisture is significant when the field is scheduled to be harvested by a custom chopper. By adjusting cutting height, the operator can better achieve the optimum moisture for the storage structure. About a one-week shift in harvest timing can be achieved (assuming 0.5%/day drydown rate). So even though ~1 ton DM/ac is left in the field, very little effect is measured for milk per acre since the most important part of the plant (grain) is harvested, leaving the poorest-quality part (lower stalk) in the field. The lower stalk can aid soil conservation by reducing erosion and capturing moisture by trapping snow over the winter season.

Use the following guidelines for the upcoming corn silage harvest:

1) Note hybrid maturity and planting date of fields intended for silage.
2) Note tasseling (silking) date.
   - Kernels will be at 50% kernel milk (R5.5) ~42-47 days after silking.
3) After milkline moves, use kernel milk triggers to time corn silage harvest.
   - Use a drydown rate of 0.5%/day to predict date when field will be ready for the storage structure.
   - See fyi.uwex.edu/silagedrydown/
4) Do final check prior to chopping.
   - Adjust cutter height if forage needs are adequate.
   - Raising cutter bar 1', lowers silage moisture 2-4% points.