Planting delays, poor ear formation, and lack of standability are just a few reasons why some farmers may want to consider taking their corn crop for silage. When making this decision, there are a few factors to keep in mind. These include how to optimize silage quality, tonnage, agronomics, and pricing of the crop.

### Optimizing Silage Quality and Tonnage:

The “milk line” method is widely used to determine when a field should be harvested. The relative position of the milk line in the kernel is an indicator of the plant’s moisture content. For a more precise indicator, farmers must chop plants up (typically with a small brush chopper) and then dry down the sample with a microwave or Koster oven. Keep in mind that the ensiling storage technique will determine optimal harvest moisture.

Kernel milk “line” halfway between the tip and base.

### Table 1. Using kernel milk as a trigger for checking corn whole plant moisture and predicting silage harvest.

<table>
<thead>
<tr>
<th>Silo Structure</th>
<th>Recommended Moisture Content (%)</th>
<th>Kernel Milk “Trigger” (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Bunker Silos</td>
<td>70 to 65</td>
<td>80</td>
</tr>
<tr>
<td>Bag Silos</td>
<td>70 to 60</td>
<td>80</td>
</tr>
<tr>
<td>Upright Concrete Stave</td>
<td>65 to 60</td>
<td>65</td>
</tr>
<tr>
<td>Upright Oxygen Limiting</td>
<td>60 to 50</td>
<td>40</td>
</tr>
</tbody>
</table>

Silage moisture decreases at an average rate of 0.5% per day. Days between early dent and 50% kernel milk is approximately 12 days; between 50% kernel milk and 0% milk (black layer) is approximately 13 days; kernel milk stage to begin checking silage moisture (90% HLY).
QUALITY FACTORS:

Cutting Height: Corn silage cutting height and quality are directly proportional. At a cutting height of 18 in., tonnage will go down compared to a 6 in. cutting height by as much as 15%, but the resulting silage has increased in quality (milk/ton). Increasing your cutting height leaves more beneficial crop residue in the field with only a marginal decrease in pounds of milk/acre. If harvesting drought stressed corn, keep cutting height above 8 in. to avoid excess nitrates in the silage.

Crop Condition: Corn with foliar disease, poor crop condition, or other factors that may make grain harvest a challenge can also reduce silage quality. The cost of additional tonnage to make a ration, difficulty packing the silage, and a prolonged period to achieve stable ensiled conditions may outweigh the complications for the combine.

AGRONOMICS:

Silage harvest typically begins earlier in the year and removes the entire above-ground portion of the plant from the field, so keep these things in mind:

Post-Harvest

- Almost all crop residue will be taken. Remember to protect the soil from erosion.
- Harvesting silage provides an excellent opportunity to put in a cover crop that will scavenge residual nutrients, prevent erosion, and build soil microbe populations.

Fertility

- Silage removes roughly three times the amount of (K2O) potassium that a grain corn crop would remove. For example, a 200 Bu./A. grain corn crop removes 50 lb. K2O in the grain while a 21-ton silage crop removes 153 lb. K2O.
- Higher levels of secondary and micronutrients will also be removed.

Compaction

- Because of the large number of pounds being removed, there will be more truck/machinery traffic.
- Since harvest timeliness plays a role in the silage quality, harvest may occur when soil conditions are less than ideal, resulting in more compaction.

SILAGE PRICING:

Unlike a grain corn crop which has many markets and straight-forward pricing structures, pricing silage requires farmers to look at a few more metrics (fertility, quality, grain price, etc.) to come up with a fair price for both the farmer and the buyer. Keep these points in mind when setting a price with a buyer:

<table>
<thead>
<tr>
<th>Grain Yield</th>
<th>Factor</th>
<th>Silage Yield</th>
</tr>
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<tbody>
<tr>
<td>200 Bu./A.</td>
<td>200/7</td>
<td>28.5 Tons/A.</td>
</tr>
</tbody>
</table>

Grain price * 7 = $/wet ton of silage

- Consider harvesting costs and the drying charges/shrink that you would have incurred had you harvested for grain.
- Don’t forget about nutrient removal costs; the extra nutrients removed with silage need to be replaced.
- If a silage-specific hybrid was grown to optimize quality, there needs to be a premium based on the nutritional qualities of the silage.