



Corn Development and Maturity as Affected by Wind Storm Damage

September 1, 2006

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Some of the severe lodging from last week's tornado and wind storm occurred in fields not yet mature. Severely damaged immature corn will likely shut down prematurely (kernel black layer development). If silage is an option, obviously that would be a preferred choice for utilizing immature corn that is severely flattened.

Dry down of grain (mature or immature) will be slower where ears are literally lying near the soil surface simply because they are less exposed to sun and wind. Less-severely lodged corn will dry at fairly normal rates.

It is important to understand what the current crop stage is at now and where it was at the time of the storm. Listed below is a description of the dent stages of field corn as it relates to corn maturity:

Kernel Dent Stage (R5). About 35 to 42 days after silking, all or nearly all of the kernels are denting near their crowns. A distinct horizontal line appears near the dent end of the kernel and slowly progresses to the tip end of the kernel over the next 3 weeks or so. This line is called the 'milk line' and marks the boundary between the liquid (milky) and solid (starchy) areas of the maturing kernels. Severe stress can continue to limit kernel dry weight accumulation. Kernel moisture content at the beginning of the dent stage is approximately 55 percent. Generally the amount of time it takes to go from dent to black layer is about 25 days (10 days from dent to 50% kernel milk stage, and 10 days from 50% kernel milk stage to black layer).

Physiological Maturity (R6) and Volunteer Corn potential. About 55 to 60 days after silking, kernel dry weight usually reaches its maximum and kernels are said to be physiologically mature and safe from frost. Physiological maturity occurs shortly after the kernel milk line disappears and just before the kernel black layer forms at the tip of the kernels. Severe stress after physiological maturity has little effect on grain yield, unless the integrity of the stalk or ear is compromised (e.g., ECB damage or stalk rots). Kernel moisture content at physiological maturity averages 30 percent, but can vary from 25 to 40 percent grain moisture. Thus ears with kernel moisture of 40% moisture or less will continue to progress to black layer even if the stalks were "crimped over" but not broken off completely. Therefore grain harvest is possible for these ears as well as the problem of viable kernels resulting in volunteer corn next growing season.

Premature Plant Death

Severe lodging resulting in stalk breakage prior to physiological maturity can cause premature leaf death or whole plant death. Premature death of leaves results in yield losses because the photosynthetic 'factory' output is greatly reduced. The plant may remobilize stored carbohydrates from the leaves or stalk tissue to the developing ears, but yield potential will still be lost.

Premature death of whole plants results in greater yield losses than if only leaves are killed. Death of all plant tissue prevents any further remobilization of stored carbohydrates to the developing ear. Whole plant death that occurs before normal black layer formation will cause *premature* black layer development, resulting in incomplete grain fill and lightweight, chaffy grain. Grain moisture will be greater than 35%, requiring substantial field drydown before harvest.

Effect on Grain Quality

Growers should recognize that possible development of ear molds resulting from direct or rain-splash contact with fungi and bacteria on ears lying near or at the soil surface obviously increases the risk of poor grain quality. That risk plus potential kernel sprouting in ears lying close to the soil surface could increase grain quality headaches for growers on the worst lodged fields or areas of fields.

Growers may need to consider the segregation of grain storage from severely lodged areas from the rest of their corn if possible to avoid grain quality discounts when marketing the grain later. The U.S. marketing standards for corn allow up to 5% total damaged corn kernels in U.S. No. 2 corn.

TIPS FOR KEEPING LOSSES LOW

The best guide for correct combine adjustments is your operator's manual.

Remember that gathering head losses usually represent the greatest source of loss for the combine.

- Use a ground speed of 2.8 to 3.0 miles per hour.
- Close the stripper plates or snapping bars only enough to prevent ears from passing through.
- The chain flights over the stripper plates should extend beyond the edge of the plates about 1/4 inch.
- Ears should be snapped near the upper third of the snapping roll.
- Gathering snouts should float on the ground, and gathering chains should be just above the ground.
- Measure losses and make corrective machine adjustments whenever crop conditions change.

ADD-ON SNOOTS AND REELS

Use plastic snouts and reels to help pick up lodged corn and move it off the corn head and into the combine. Below is a list of manufactures and dealers for combine snouts and reels.

The Kelderman reel moves the corn off the header and into the combine to allow the combine to continuously move forward.

Kelderman Equipment
2686 Highway 92 East
Oskaloosa, IA 52577-9685
Phone: 800-334-6150
<http://www.keldermanmfg.com>

The Meteer corn reel is very similar to the Kelderman reel. Its revolving fingers help to feed lodged corn into the head, saving down corn that would otherwise be lost.

Meteer Manufacturing
RR1 Box 221
Athens, IL 62613
Phone: 217-636-8109
<http://www.meteer.com>

The Roll-A-Cone Manufacturing Company has two different types of plastic cone attachments, one for a corn head and the other for a soybean-type head.

Roll-A-Cone Mfg. Co.
Rt. 2, Box 25
Tulia, Texas 79088
Phone: 806-668-4722
<http://www.roll-a-cone.com>

SOYBEAN PLATFORM HEAD MAY HELP

If plants are extremely lodged and stalks and roots are badly deteriorated, a high number of ears may be lost over the outside snouts of a regular corn head. This is especially true if roots are easily pulled from the soil during harvest. In such cases another harvest option is to use a soybean platform head to completely cut the plants off. This may reduce the instances of corn trash plugging the head as well.

STAY SAFE

Disengage power and shut off engine before making any adjustments. Stalk rolls turn faster than you can react to release plugged stalks. Keep shields in place. Mechanically lock and block the corn head before getting underneath it. Carry two fire extinguishers, a small one inside the can and a 10-pound unit at ground level.

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