

STORM-LODGED CORN RECOVERY POTENTIAL

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- Storm-lodged corn can recover to a degree. However recovery depends on the stage of growth, and the severity of lodging.
- Corn lodged during the vegetative stages has the best prospects of recovery, while root lodging just prior to or post pollination can cause the greatest yield loss.
- Corn with broken stalks that is green snapped will not recover.
- Damaged roots leave openings for stalk rot pathogens to infest and lodged fields should be monitored for early harvest late season.
- Assess fields for extent of damage after fields have a reasonable amount of time to return to some degree to an upright position.
- Degree of lodging dictates how complete pollination will be. As lodging increases greater than 45°, pollination begins to suffer.
- Fungicide application effectiveness decreases as lodging increases and spray coverage of plant decreases

Recent storms have toppled corn in a number of fields. Damage varies from *slightly leaning* to *completely flattened*. Since we are now several days past the storms, some recovery of this lodged corn should now be noted. How much recovery can be expected over time and what is the likely impact on yield?

University of Wisconsin research from 1985-86 (Carter & Hudelston, Journal of Production Agriculture, Vol. 1, No. 4, 1988) confirms a number of our thoughts about corn stalk lodging. Wind lodging of corn was simulated by soaking the soil with irrigation and then pushing over corn plants perpendicular to the rows. The researchers found that yield loss varied according to growth stage, with losses of 10 percent or less when lodging occurred at, or before, mid-vegetative growth stages. Yield losses increased to 15-30 percent when lodging occurred at late-vegetative to reproductive growth stages.

While still in the vegetative growth stages, corn has a remarkable ability to stand back up after it has been blown down. When the corn shifts to reproductive stages, lodging can interrupt the pollination and ear fill process but the corn will still attempt to straighten up. All lodged plants are expected to be temporarily less efficient at sunlight utilization. Any contact with the soil could result in increased diseases in the corn. Unfortunately, there is no way to accurately predict how much recovery of lodged plants will occur and how much yields will be affected. Here are some factors that should be noted.

- **Root Lodging Compared to Stalk Lodging** - Broken or severely bent stalks result in more yield loss than that from plants that have tipped at the roots. Bent stalks at early growth stages often recover completely. Broken stalks will not recover.
- **Degree of Toppling or Root Lodging** - As one would guess, the closer to upright that the corn remains following the lodging event, the less long-term damage occurs. As a general rule, corn that is lodged less than 45 degrees usually recovers nicely.
- **Growth Stage** - Corn that has root-lodged should return to an upright position by bending at the base. While the recovery occurs best during the vegetative growth stages, it can occur to a lesser degree even into the reproductive stages, though lignin deposition in the stalk at this stage limits the ability of stalks to bend upward. With lodging up to about the V13 growth stage, little yield loss is expected. Corn is probably most susceptible to yield loss when lodging occurs as the plants are pollinating.
- **Root Condition** - If roots tip is in softened soil, less yield reduction occurs than if the roots are torn or broken. Sections of stalk, near the base, that remain horizontal will have new “brace roots” originate at stalk nodes. Plants will retain the resulting “goose-necked” appearance for the rest of the season and this will result in harvest challenges.
- **Hybrid Response** - Some hybrids are more prone to toppling than others because of plant height (wind resistance), and root architecture and growth. Some hybrids also seem to be more capable of standing back up after being blown down.

When evaluating toppled corn fields, first determine how much stalk breakage has occurred, as opposed to root lodging. Broken stalks will not recover but several days should be allowed to see how much straightening will occur with root-lodged plants. Fungicide benefits with wind lodged corn have not been clearly established. Fungicides may help protect injured corn plants but application should be made according to label instructions and delayed until plants have had time to recover. Do not apply fungicides (with surfactants) to corn prior to the VT growth stage or injury may result. Harvest of affected corn fields is likely to be slower than normal, and corn head reels or other harvest aids may be of value.



Image 1: Cornfield badly wind-lodged Image 2: Leaning corn, good potential for recovery, GROWMARK