



Green Snap in Corn

What is Green Snap (sometimes called Brittle Snap)?

This is the condition where rapidly growing stalks are broken by strong, sudden winds, associated storms and similar related weather activity. During rapid growth, the cell walls are extremely fragile and stalk tissue may be at a greater risk of brittleness compared to other growth stages.

What Factors Affect Green Snap?

Many factors affect green snap severity. The timing and velocity of the wind are the most obvious, coupled with the hybrid involved. Heavy winds during cool morning hours will cause more green snap than if the wind occurred during the heat of the day when plants are more flexible. Strong-rooted hybrids with less give at the base will have more green snap than a shallow-rooted variety. Conditions that favor rapid growth will increase the incidence of green snap; some of these conditions include adequate nitrogen, high temperatures, good soil moisture and the use of growth stimulator herbicides such as 2,4-D, dicamba, and clopyralid. Field geography, soil type and crop management practices also influence green snap severity.

When is a Corn Plant Most Susceptible to Green Snap?

During a corn plants vegetative growth phase, rapidly elongating internodes are often brittle and susceptible to breakage. The two most common periods for green snap are the V5 to V8 stage, or when the growing point is just emerging from the soil line, and the V12 to R1 stage, which is about the two weeks prior to tasselling, until just after silking.

The V5 to V8 Stage?

When the growing point is just emerging above the soil line, the corn plant is entering a period of rapid change. The nodal root system is beginning to expand rapidly so the plants ability to take up water and nutrients is increased dramatically which enhances faster leaf and stalk growth in the plant. Fast growth means the cell walls become thinner or are more fragile. Also at this stage of growth, the many nodes and internodes are arranged together in a small area. This concentration may make the plant less flexible and more susceptible to breakage. Green snap at this stage usually occurs below the growing point so snapped plants usually do not recover.

V12 to Tasselling?

At this time the corn plant is going through its most rapid stage of growth. This is the 21 to 28 day time period when the corn plant increases in size from about 3 feet to its mature



height. One of the key factors for green snap during this period (late June, July and early August) is that the enlargement of the leaf surface and plant height increases wind resistance during thunderstorms and wind events. Upon reaching mature height, the risk of green snap decreases as cell walls are strengthened with lignin and other structural material. The most common sites of stalk breakage at this stage are the nodes just below or above the ear. Studies show that yield loss from stalk breakage above the ear is dependent on the stage of ear development when the break occurs. Those upper leaves are responsible for a lot of nutrient production. Even if snapped plants have visible ear shoots remaining after the wind damage, the severely reduced leaf surface area usually results in limited or no grain production on the injured plants.

Management and Its Effect on Green Snap Potential

- Plant a package of hybrids and maturities every year to spread green snap risk.
- Manage application and timing of growth regulator herbicides to reduce injury concerns. Understand the additives being used too; they may increase your weed control, but they may also increase your risk of crop injury. Always follow label directions!
- Post-plant applications of N tend to increase green snap potential over pre-plant applications.
- Conventional tilled fields warm up faster and corn grows more rapidly than no-till fields, leading to higher risk of green snap.
- High organic matter soils tend to have more incidence of green snap than low organic matter soils.
- Thunderstorm winds come from varying directions; thus, there is no best row direction (north-south versus east-west) to prevent green snap.
- Planting corn seed at the recommended 1 ½ to 2 inch depth may not directly influence brittleness; however, planting too shallow can restrict nodal root development. Planting corn under 1 ½ inch deep promotes corn plants with shallow root systems. These plants may have part of their developing root system just above, at or near the surface of the soil and have more potential to experience decreased tolerance to herbicides such as dicamba which would lead to increased risk of green snap or other injury such as brace root malformation.
- Typically, the best managed fields are the biggest victims of green snap.
- Corn following soybeans has more potential to green snap because corn usually grows faster in old bean ground than on corn on corn. Corn on old bean ground tends to develop a better root system which means less give or flex in higher winds.
- Fields with high plant populations are at a greater risk of green snap because the corn plants are more competitive with one another for sunlight. They tend to grow taller, quicker and the leaves are generally longer and narrower.
- Earlier planted corn may have less green snap potential at the V5 to V8 stage because early growing conditions are cooler so the corn usually does not grow as fast.

CREDITS: University of Nebraska
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