

## Weather Impacts on Wheat

The age old adage “If you don’t like Kansas weather, just wait a minute and it will change” still rings true to this day! The week of the 9<sup>th</sup>, we went from mid 80s down to highs in the 50s during the day time while we saw our night time lows drop from the 60s to the low 30s.

Spring freeze injury to wheat usually occurs when low temperatures coincide with sensitive plant growth stages. Areas, where the cold air settles - along rivers, valleys and depressions in fields, tend to take the hardest hits. The degree of injury to wheat from spring freezes is influenced by the duration of low temperatures; 2 hours or more exposure to freezing temps creates greater injury than a brief exposure.

Factors such as plant growth stage, plant moisture content, duration of exposure, wind, and precipitation all affect the extent of injury, along with elevation and topography. Knowing the symptoms of freeze injury can help you identify it early and give you more time on planning for what to do with the damaged crop. The best thing you can do is walk through your fields for several days and observe lodging, crimped stems, and damaged leaves. It takes several days of warmer weather to accurately evaluate the extent of damage.

Most of the wheat is either at or near the jointing stage. Leaves of freeze-injured plants will become twisted and change from their dark green color to a light green or yellow color and can have a burned tipped appearance. During the jointing stage, the most serious injury occurs to the growing points. To evaluate this, you must split the stem longitudinally.

A normal joint that has not been injured will be bright white to yellow-green and turgid. If the plant sustained freeze injury, the joint will become off-white or brown and water soaked in appearance. Damage to the joints can occur even if the other parts of the plant appear healthy. This is due to the growing point being more sensitive to cold than other parts of the plant.

Other signs you may notice right away include:

- Silage smell. If a field of wheat is giving off the aroma of silage, that indicates the leaves have been damaged.
- Lodging, or falling over. If the wheat lodged immediately after the freeze, this is an indication of stem damage and is the most serious problem following stem injury. Wind or hard rain will lodge the plants easily, slowing harvest and decreasing grain yields. With severe stem injury, splitting of stems and collapse of internodes is common. The growing point will become dry and turn off-white to brown if it is damaged. The loss of these tillers will allow the release of later tillers that would not have normally developed due to too much competition.

The best thing producers can do is carefully observe their field for a few days following a late freeze. A full document titled **Spring Freeze Injury to Kansas Wheat** can be found on our website at: <https://www.butler.k-state.edu/docs/ag/misc/c646.pdf>