

## Wet at Soybean Planting

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Soybean planting is well underway in Kansas with 43% planted, based on the USDA-NASS Crop Progress and Condition Report from May 19, 2024. However, heavy rainfall has occurred in many locations across the eastern half of Kansas, with some fields underwater and others with completely saturated soil. If you have been fortunate to get some early soybeans planted here are things to remember.

Wet soil conditions will slow emergence, make the soil more susceptible to compaction (limiting root growth), and cause poor plant-to-plant uniformity after emergence. Sidewall compaction occurs when soybeans are planted when the soil is too wet, immediately followed by dry weather. Soil surface crusting is another potential challenge for soybean emergence. If soybean plants are submerged for less than 48 hours, there is a good chance they will survive. Plants can survive underwater longer in cool temperatures than in warm temperatures. Submerged soybean plants can survive for up to 7 days when temperatures are less than 80 degrees F. To determine whether the soybeans are damaged after the water recedes, split the stem at the tip and examine the growing point. A healthy growing point will be firm and white or cream-colored. A soft, dark growing point indicates injury. In some cases, the silt coating the plant after short-term flooding can cause more injury than the water itself, possibly even plant death.

Even if the fields do not have standing water, and plants are not totally submerged, waterlogged soils can cause problems if the waterlogging lasts too long. When soils are saturated for a prolonged period, a lack of oxygen in the roots can lead to the accumulation of lactic acid and other products of anaerobic respiration. This is the underlying cause of damage to plants in waterlogged soils where only the roots are flooded. Injury can depend on variety, growth stage, duration of waterlogging, soil texture, fertility levels, and diseases present. Interactions of these factors make it hard to predict how a given soybean field will react to waterlogged soils. Variety differences have been reported, and researchers have identified possible genes associated with tolerance to waterlogged conditions. Scientists in Missouri have screened a number of soybean varieties, subjecting them to two periods of flooding, each two weeks in duration. The average yield reduction for all varieties was 61%. Yields were reduced by 39% for the most tolerant varieties and 77% for the least tolerant. Producers should check with their seed supplier regarding information about a particular variety.

As always if you are noticing issues in your fields feel free to contact me through your local K-State Extension Office to set up a consultation and field visit to assess and try and alleviate the problem. If needed, I will work with you to send photos of the problem (close-up, seedling, field shot) and plant samples to the K-State Plant Disease Diagnostic Lab.

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