



EVAREC Superintendent & Extension Specialist Dr. Joseph Oakes shares this update regarding the freeze event March 28 & 29.

At the Eastern Virginia AREC in Warsaw, we experienced eight hours of sub-freezing temperatures on the morning of March 29. With most of the wheat in the area jointing, this freeze event is a legitimate concern. At jointing, wheat can be injured with two hours at 24 degrees F, at boot stage two hours at 28 degrees F. Since most wheat is not yet at boot stage and the coldest we got was 27.4 degrees F, wheat that is not yet at boot stage should be ok. However, any early wheat that is already at boot stage, would be a cause of concern since we had 4 hours at 28 degrees F. The picture of the wheat stems planted October 16 here at the center show we are jointing, but not yet in boot. For more info about spring freeze, check out this publication: <https://www.sunflower.k-state.edu/.../c646 Whole Wheat...>

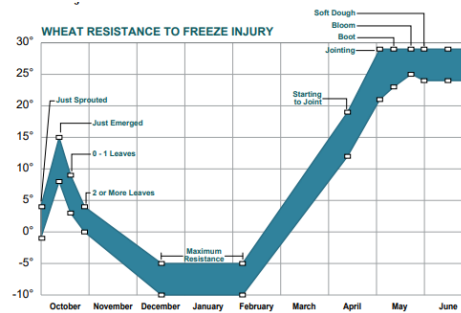


Figure 1. Temperatures that cause freeze injury to winter wheat at different growth stages. Winter wheat rapidly loses hardiness during spring growth and is easily injured by late freezes (graph adapted from A.W. Pauli).

Table 1. Temperatures that cause freeze injury to wheat at spring growth stages and symptoms and yield effect of spring freeze injury.

Growth stage	Approximate injurious temperature (two hours)	Primary symptoms	Yield effect
Tillering	12 F (-11 C)	Leaf chlorosis; burning of leaf tips; silage odor; blue cast to fields	Slight to moderate
Jointing	24 F (-4 C)	Death of growing point; leaf yellowing or burning; lesions, splitting, or bending of lower stem; odor	Moderate to severe
Boot	28 F (-2 C)	Floret sterility; spike trapped in boot; damage to lower stem; leaf discoloration; odor	Moderate to severe
Heading	30 F (-1 C)	Floret sterility; white awns or white spikes; damage to lower stem; leaf discoloration	Severe
Flowering	30 F (-1 C)	Floret sterility; white awns or white spikes; damage to lower stem; leaf discoloration	Severe
Milk	28 F (-2 C)	White awns or white spikes; damage to lower stems; leaf discoloration; shrunken, roughened, or discolored kernels	Moderate to severe
Dough	28 F (-2 C)	Shriveled, discolored kernels; poor germination	Slight to moderate