K-STATE Research and Extension | Meadowlark District

January 30, 2026

David Hallauer
District Extension Agent, Crops & Soils

Freezing Temperatures and Insect Life

When attempting to find something good from winter cold snaps, it's not uncommon to hear well maybe it will get rid of some insects. It's a nice thought – but results could be mixed.

Insect death by freezing is often attributed to ice crystal formation in the body (bursting cells result in organ and gut damage) more so than actual temperature, and insects often have mechanisms to mitigate even those issues. Some survive a low level of ice crystallization by producing proteins to 'control' the freezing process. Others go through 'dry hibernation', ridding their body of all food/water so ice crystals can't form inside the body. They're adaptive.

Some will hide – and often do so successfully. Bean leaf beetles overwinter in more exposed areas than other insects and succumb to temperatures into the 20s. Recent temperatures *might* effect on them, depending on how protected of a hiding spot they might have found.

University of Minnesota work suggests soil surface temperatures around 13 degrees can result in 20-30 percent alfalfa weevil mortality (some survive down to one degree). That provides a *little* hope – but not enough to skip scouting. Kansas Mesonet Station temperatures across the District are all in the low 30s. If they provided enough surface level buffering, temperatures still might not have reached a lethal level and likely are *not* low enough to affect soil overwintering insects like wireworms or Japanese Beetles.

Also, like humans, many insects migrate south in winter. Fall armyworm, black cutworm and corn earworm prefer warmer winter climates, migrating north during the growing season. Only if overwintering areas see injurious temperatures will we tend to see much effect on our growing season levels – and even then, it's highly variable.

While there *could* be a detrimental effect on insect life from recent cold snaps, we likely haven't seen temperatures cold enough (for long enough) yet to support the idea of a reduction in insect life next season. On the fortunate side, however, if the damaging insect has survived, it's likely beneficials have as well and that's good news for insects like parasitoids and other natural predators that can help us keep damaging pests at bay.