

*News Article*

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## Did the winter kill any crop insect pests?

Purdue experts reported in the April 12 issue of Purdue *Pest & Crop* newsletter that due to the cold, wet start to April, not much is happening with most crop pests. And, they answer the question on many people's minds – did the winter kill any crop insect pests?

Writing about early April and the start of insect trapping season, John Obermeyer, Purdue entomologist, wrote, "The ultimate April Fool's joke, many areas of Indiana were greeted to several inches of snow." He said though black cutworm and/or armyworms moths may be present in the state, they are certainly hanging low until the conditions improve.

Obermeyer and colleague Christian Krupke, field crops entomologist, wrote that they get questions every spring about cold, wet weather and insect survival, including the prospect for problems with the upcoming crop. The supposition by many is that cold weather may kill insects, and wet weather may drown some of the soil insects. "The answer for both is (as always): 'It depends, but probably not,'" they said. "Most of our long-term established pests (rootworms, grubs, wireworms, corn borers, etc.) have been here for decades, and their populations have experienced these extremes in the past, so it's unlikely that their populations will suffer much."

"Overwintering insects utilize various behavioral and physiological mechanisms to keep them from dying during the long winter months," they said. "Survival tactics include, but are not limited to: lowering metabolic rates, reducing water content in essential tissues, and finding protected microenvironments."

The authors wrote that ambient air temperatures can be very cold, but the temperature at a 4" soil depth is much less harsh. "Insects typically do not overwinter above-ground – seeking shelter and safety from the elements and predators below ground instead," they said. "This subjects them to much less variation in temperatures – soil takes longer to warm up and cool down than the air does."

"At temperatures below 40°F, insect respiration rates are very low – essentially zero," they said. "So even in saturated conditions, insects are able to 'hold their breath' for long periods of time, as long as soils are cool." On the other hand, when soils warm (spring and summer) and insects increase their metabolic rates, they are subject to drowning and/or starvation, they said.

This is particularly true for larval insect stages, such as caterpillars and beetle grubs. "We have experienced this in past years when heavy rains saturated soils during the time of corn rootworm egg hatch in late May to early June," they said. "Newly hatched larvae require oxygen as they move in the soil profile searching for corn roots." The authors said that they are also "blinded" as their ability to detect root volatiles is greatly diminished in water-logged soils. "In these conditions, it is death by drowning or starvation," they said.

The black cutworm moth report for the first two weeks of April reports 1-4 moths captured in traps in a few southern Indiana counties, but basically nothing up north. The lone exception was 3 moths captured in Tipton County April 5-11.

Armyworms were a slightly different story, as 27 and 28 moths, respectively, were captured at Southwest Purdue Ag Center in Knox County, and at Feldun Purdue Ag Center in Lawrence County April 5-10. But, again, nothing in northern Indiana.

We'll see if this is a precursor to what Obermeyer has described as the great armyworm invasion of 2001. (Entomologists get excited about stuff like this). At one point in 2001, Obermeyer reported that black light traps picked up impressive numbers of adults, and Whitley County had the highest number: 670 moths. This set the stage for tremendous egg laying potential, and weather conditions favored armyworm development. Some videos from 2001 were almost apocalyptic in appearance. Armyworms get their name from their habit of "marching" in great numbers to find plants to feed upon. Although several species of armyworms can be found in the Midwest every year, economic damage is fairly rare. No need for excitement yet!

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