



Spotlight on Pests: Insects and the Cold

Here at Grow Pittsburgh we've been getting questions about the early and cold weather this winter, and whether we can expect fewer insects this growing season, because of it. The short answer is, we don't know! So many variables affect insect populations, and the winter's not over yet. However, we can tell you more about how insects adapt for the cold, and how winter and spring weather patterns can impact insect populations.

Insects have developed many different mechanisms for survival. They are some of the most adaptable creatures on earth, due to how quickly they reproduce and create new generations. However, insects are cold blooded, meaning that they cannot produce their own heat. So, they need to find alternative methods for survival over the winter.



The potato leafhopper migrates each year to areas around the Gulf Coast. [Photo from Penn State Univ. Extension.](#)

Some insects, like the famous monarch butterfly, migrate to escape the cold. Other insects accumulate carbohydrates before the winter freeze. These carbohydrates act like antifreeze, as they lower the insect's freezing temperature. Some insects actually do freeze; ice crystals can form within their body, while they are still alive! These insects' bodies are able to regulate the freezing process using amino acids, so the freezing occurs slowly and allows the insect to survive the freeze.



Tomato hornworm larvae overwinter in the soil. [Photo from Texas A&M Univ.](#)

Many insects burrow underneath leaves or plant debris in gardens, lawns, or woodlots. The layer of organic matter on top of the insects acts as insulation and buffers the temperature changes throughout the winter months. Similarly, a fluffy blanket of snow can act as insulation. Wet or heavy snow doesn't work quite as well to protect insects. Also, the period of cold makes a difference. A few days of single digit temperatures have a larger impact on insect populations than a quick overnight dip into low temps.



These rose aphid eggs overwinter on plant debris. Photo from [CO State Extension](#).

The type of spring that occurs can also make a significant impact on insect populations. An early thaw may signal to insects that it's time to emerge from their winter seclusion. Plants that begin growing in the early spring provide food sources for these insects. However, a heavy frost often occurs after warm weather in the early spring. This frost can damage plant growth and wipe out the insects' food sources, knocking back the insect population.

In general, a mild winter is easier for insects to survive. However, a cold winter can indicate various outcomes for insects, based on variables like the amount of snow cover when temperatures are cold, and the type of spring that follows the winter.

We always hope for low populations of pest insects, but prepare our gardens for the probability of pests. We plant flowers to attract beneficial insects, sow a diversity of crops so that *something* is bound to do well, and rotate crops so that overwintering insects have a harder time finding their preferred food. Because of tactics like these, well-managed gardens can thrive even with the uncertainty of variables like insect populations.