

Burrus Buzz

Delivering more than just seed

2.27.18

Will insect pests survive the winter?

by Jamie Long, Sales Agronomist

The Burrus sales agronomy staff has been receiving questions about what insect populations will be like this year based on the winter we've experienced in our footprint. Although it is difficult to actually predict what will happen, some information can help provide guidance regarding what populations might or might not be like in 2018.

Before we can decide if the insects made it through the winter, we first need to know what insects actually stay here during the winter versus which ones go south for the winter. The following charts show the migratory patterns of some common corn and soybean pests. The population of migratory insects in our area depends on the number of spring weather events that result in warm southern air being blown into the Midwest, ultimately carrying these migratory insects.

The two charts below show the migratory and overwintering habits of both soybean and corn pests. The charts are the property of Kelly Estes with the University of Illinois.

Soybean pests: Migratory and overwintering habits		
Pest	Migratory	Overwintering
Bean leaf beetle	No	Adults in woodlots near field
Blister beetle	No	Larvae in soil
Brown marmorated stink bug	No	Adults in homes/protected areas
Grasshoppers	No	Eggs in soil
Green cloverworm	No	Pupae in soil/crop debris
Japanese beetle	No	Larvae in soil below frost line
Kudzu bug	No	Adults in leaf litter
Loopers	No	Pupae in soil
Potato leaf hopper	Yes	—
Red banded stink bug	No	Eggs in soil
Red shouldered stink bug	No	Eggs in soil
Soybean aphid	No	Eggs on buckthorn
Soybean thrips	Yes	—
Twospotted spider mite	No	Female adults in sheltered areas
Yellow woollybear	No	Pupae in cocoons

Corn pests: Migratory and overwintering habits		
Pest	Migratory	Overwintering
Black cutworm	Yes	—
European corn borer	No	Pupae in stalks of corn
Corn earworm	Yes	—
Corn flea beetle	No	Adults in soil
Corn leaf aphid	Unknown	—
Fall armyworm	Yes	—
Grape Colaspis	No	Larvae in soil
Grasshoppers	No	Eggs in soil
Grubs	No	Larvae in soil
Japanese beetle	No	Larvae in soil below frost line
Northern corn rootworm	No	Eggs in soil
Southern corn rootworm	Yes	—
Southwestern corn borer	No	Larvae in stalks
Stalk borer	No	Eggs on weed hosts
True armyworm	Yes	—
Western bean cutworm	No	Larvae in soil
Western corn rootworm	No	Eggs in soil

Insects that overwinter in our area have adapted over time to survive Midwestern winters. For protection during the winter months, insects take shelter under debris or in the soil. Some insects can also produce compounds similar to antifreeze in our cars that prevent them from freezing solid during harsh, cold weather.

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How do different factors influence insect survival?

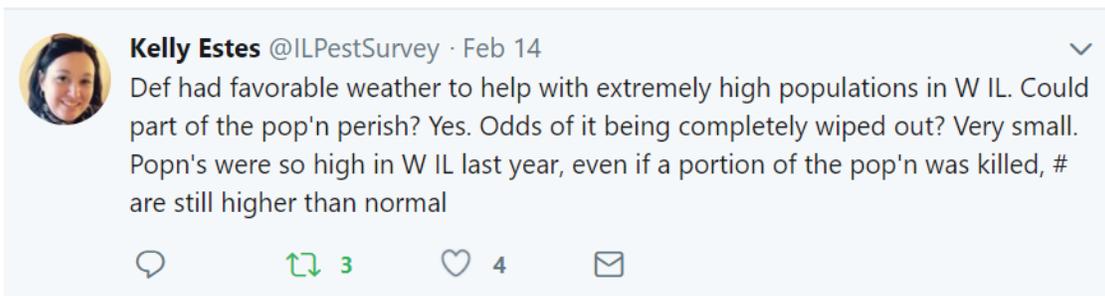
- Overwintering insects are typically adapted to the cold temperatures which does not lead to a large mortality rate.
- Snow cover provides insulation, keeping ground temperatures warmer and protecting insects.
- Mortality rates typically increase with more freeze/thaw cycles, because the insects have trouble adjusting to the temperature swings.
- The combination of moisture and cold temperatures can increase mortality rates.
- Approximately 70% of the population perishes naturally every year, due to a combination of factors including overwintering death, predation, and disease.

So, what will 2018 be like for some of the most frequently asked about pests?

Corn rootworm: Corn rootworm overwinter as eggs in the top 10 inches of soil. They are adapted to the cold temperatures, thus minimal mortality occurs due to cold temperatures. Freeze/thaw events can crush eggs, causing their mortality. Heavy rains and saturated soils in the spring can drown freshly hatched larvae creating a high mortality level. Corn rootworm populations were up slightly in 2017, although population levels are still considered very low. Early season conditions will likely play a role in the 2018 population numbers.

Japanese beetles: In 2017, Japanese beetles were present at very high populations in areas throughout Illinois and Missouri. The beetles overwinter as white grubs in the soil at depths of 8 to 10 inches. They can reach deeper depths to avoid freezing temperatures. Mortality can occur when soil temperatures are around 32 degrees F for an extended time, approximately 2 months, or if soil temperatures reach 15 degrees F.

As far as a prediction for this growing season, Kelly Estes with the University of Illinois explains in a tweet posted this month:



Questions or comments for our agronomy team?
Submit to us at burrus.seed@burrusseed.com.