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Bean Leaf Beetle Survival Just Above Average

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Bean Leaf Beetle Survival Just Above Average

Abstract

Bean leaf beetle adults are susceptible to cold weather and will die when the temperature falls below -10°C . However, they have adapted to winter by protecting themselves in leaf litter. An overwintering survival model was developed by Lam and Pedigo from Iowa State University in 2000, and is helpful for predicting winter mortality based on accumulating subfreezing temperatures. Predicted mortality rates ranged from 40-90 percent for the 2012-2013 winter (Fig. 1). The northern third of Iowa did experience a colder winter, and more than 80 percent of beetles were not predicted to survive.

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Bean Leaf Beetle Survival Just Above Average

By Erin Hodgson and Adam Sisson, Department of Entomology

Bean leaf beetle adults are susceptible to cold weather and will die when the temperature falls below -10°C. However, they have adapted to winter by protecting themselves in leaf litter. An overwintering survival model was developed by Lam and Pedigo from Iowa State University in 2000, and is helpful for predicting winter mortality based on accumulating subfreezing temperatures. Predicted mortality rates ranged from 40-90 percent for the 2012-2013 winter (Fig. 1). The northern third of Iowa did experience a colder winter, and more than 80 percent of beetles were not predicted to survive.

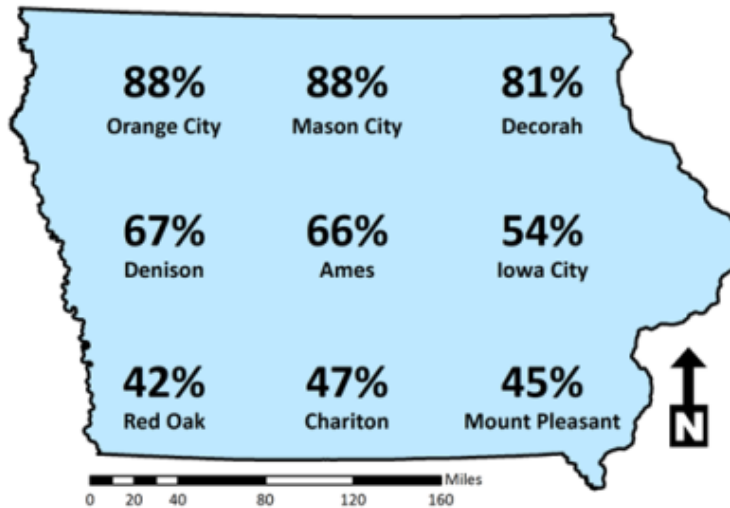


Figure 1. Predicted overwintering mortality of bean leaf beetle based on accumulated subfreezing temperatures during the winter (October 1, 2012 – April 15, 2013).

The average mortality rate over the last 24 years in central Iowa is 71 percent. The 2012-2013 winter had slightly better predicted survivorship than average (Fig. 2). It is important to remember insulating snow cover can influence the survivorship of bean leaf beetle. The recent cold weather could also influence spring activity in alfalfa and later in soybean.

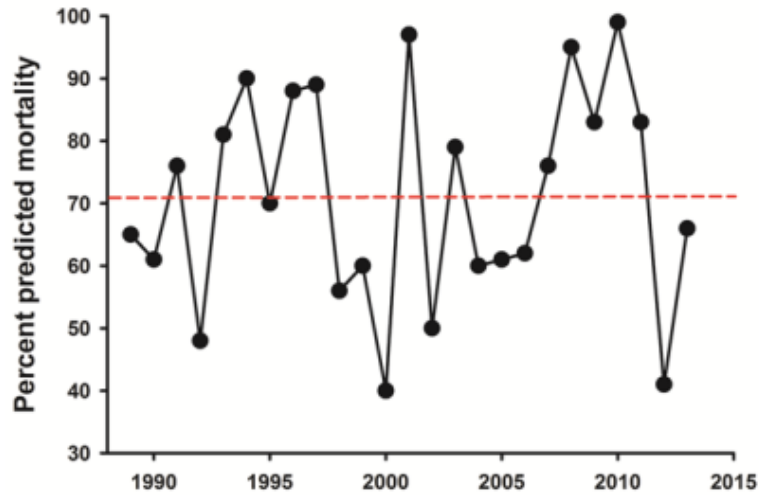


Figure 2. Predicted bean leaf beetle mortality by year for central Iowa. The red line indicates the average mortality rate.

Overwintering adults are strongly attracted to soybean and will move into fields with newly emerging plants (Fig. 3). First-emerging fields should be monitored this month, especially in southern Iowa. Other fields of concern include food-grade soybean and seed fields where reductions in yield and seed quality can be significant. Bean leaf beetle is easily disturbed and will drop from plants and seek shelter in soil cracks or under debris. Sampling early in the season requires you to be sneaky to estimate actual densities. Although overwintering beetles rarely cause economic damage, their presence may be an indicator of building first and second generations later in the season.

To learn more about managing bean leaf beetle and bean pod mottle virus, click [here](#).



Figure 3. Overwintering bean leaf beetles can defoliate young soybean plants and vector bean pod mottle virus.

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