High Mortality Rates for Bean Leaf Beetle in Northern Iowa

Ashley Dean
Iowa State University, adean@iastate.edu

Erin W. Hodgson
Iowa State University, ewh@iastate.edu

Follow this and additional works at: https://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, and the Agriculture Commons

Recommended Citation
https://lib.dr.iastate.edu/cropnews/2677

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
High Mortality Rates for Bean Leaf Beetle in Northern Iowa

Abstract
Bean leaf beetle adults (Photo 1) are susceptible to cold weather and most will die when air temperatures fall below 14°F (-10°C). However, they have adapted to winter by protecting themselves from harsh temperatures under plant debris and loose soil. Each spring, adult beetles emerge from their overwintering habitat and migrate to available hosts, such as alfalfa, tick trefoil, and various clovers. As the season progresses, bean leaf beetles move to preferred hosts, like soybean. While initial adult activity can begin before soybean emergence, peak abundance often coincides with early-vegetative soybean.

Disciplines
Agricultural Science | Agriculture

This article is available at Iowa State University Digital Repository: https://lib.dr.iastate.edu/cropnews/2677
High Mortality Rates for Bean Leaf Beetle in Northern Iowa

April 21, 2021

Bean leaf beetle adults (Photo 1) are susceptible to cold weather and most will die when air temperatures fall below 14°F (-10°C). However, they have adapted to winter by protecting themselves from harsh temperatures under plant debris and loose soil. Each spring, adult beetles emerge from their overwintering habitat and migrate to available hosts, such as alfalfa, tick trefoil, and various clovers. As the season progresses, bean leaf beetles move to preferred hosts, like soybean. While initial adult activity can begin before soybean emergence, peak abundance often coincides with early-vegetative soybean.

An overwintering survival model developed by Lam and Pedigo from Iowa State University in 2000 is helpful for predicting winter mortality based on accumulated subfreezing
temperatures. Predicted mortality rates in Iowa are variable for the 2020-2021 winter, ranging from 54-87% (Figure 1). Mortality was highest in northern Iowa (78-87%); the average mortality rate across Iowa is 72% for the 2020-2021 winter.

Figure 1. Predicted overwintering mortality of bean leaf beetle based on accumulated subfreezing temperatures during the winter (1 October 2020 – 15 April 2021).

These mortality predictions have been tracked since 1989 with Marlin Rice. The predicted mortality of bean leaf beetle in central Iowa was 77%, about 5% higher than the 30-year average of 71.5% (Figure 2). It is important to remember that insulating snow cover and crop residue can help protect bean leaf beetle from harsh air temperatures, and variable snow and residue cover is not accounted for within the model. Fluctuating temperatures can negatively influence spring populations.
Although overwintering beetle populations are expected to be lower than last year, it is important to scout for this pest. Consider scouting soybean fields, especially in southern Iowa, if:

1. Soybean is planted near alfalfa fields or if the field has the first-emerging soybean in the area. Overwintering adults are strongly attracted to soybean and will move into fields with emerging plants.
2. Fields are planted to food-grade soybean production or are seed fields where reductions in yield and seed quality can be significant.
3. Fields have a history of bean pod mottle virus.

Bean leaf beetles are easily disturbed and will drop from plants and seek shelter in soil cracks or under debris while scouting. 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. More detailed information about bean leaf beetle and bean pod mottle virus are available.

Category: Insects and Mites
Links to this article are strongly encouraged, and this article may be republished without further permission if published as written and if credit is given to the author, Integrated Crop Management News, and Iowa State University Extension and Outreach. If this article is to be used in any other manner, permission from the author is required. This article was originally published on April 21, 2021. The information contained within may not be the most current and accurate depending on when it is accessed.

Tags:  bean leaf beetle  bean leaf beetle management  northern iowa  overwintering insects

Authors:

Ashley Dean Education Extension Specialist I
Ashley is an education extension specialist for field crop entomology at Iowa State University. She coordinates the Iowa Moth Trapping Network, develops educational resources for field crop pests in Iowa, and aids in the research efforts of the

Erin Hodgson Professor
Dr. Erin Hodgson started working in the Department of Entomology at Iowa State University in 2009. She is an associate professor with extension and research responsibilities in corn and soybeans. She has a general background in integrated pest management (IPM) for field crops. Dr. Hodgson’s curre...