

4-14-2003

## Bean leaf beetle 2002-2003 winter survival

Jeffrey D. Bradshaw  
*Iowa State University*

Marlin E. Rice  
*Iowa State University, merice@iastate.edu*

Richard O. Pope  
*Iowa State University, ropope@iastate.edu*

Follow this and additional works at: <http://lib.dr.iastate.edu/cropnews>



Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), and the [Entomology Commons](#)

---

### Recommended Citation

Bradshaw, Jeffrey D.; Rice, Marlin E.; and Pope, Richard O., "Bean leaf beetle 2002-2003 winter survival" (2003). *Integrated Crop Management News*. 1609.  
<http://lib.dr.iastate.edu/cropnews/1609>

**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 Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user.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/>.**

---

## Bean leaf beetle 2002-2003 winter survival

### **Abstract**

More bean leaf beetles were found in central Iowa last year than ever recorded (see the [article](#) in the March 17, 2003, *Integrated Crop Management* newsletter). This historically high population has caused soybean damage, both by feeding injury and transmission of bean pod mottle virus, resulting in reduced yield and seed quality. High bean leaf beetle populations have been partially due to favorable winter conditions, such as mild temperatures or snow cover the past several winters.

### **Keywords**

Entomology

### **Disciplines**

Agricultural Science | Agriculture | Entomology

# INTEGRATED CROP MANAGEMENT

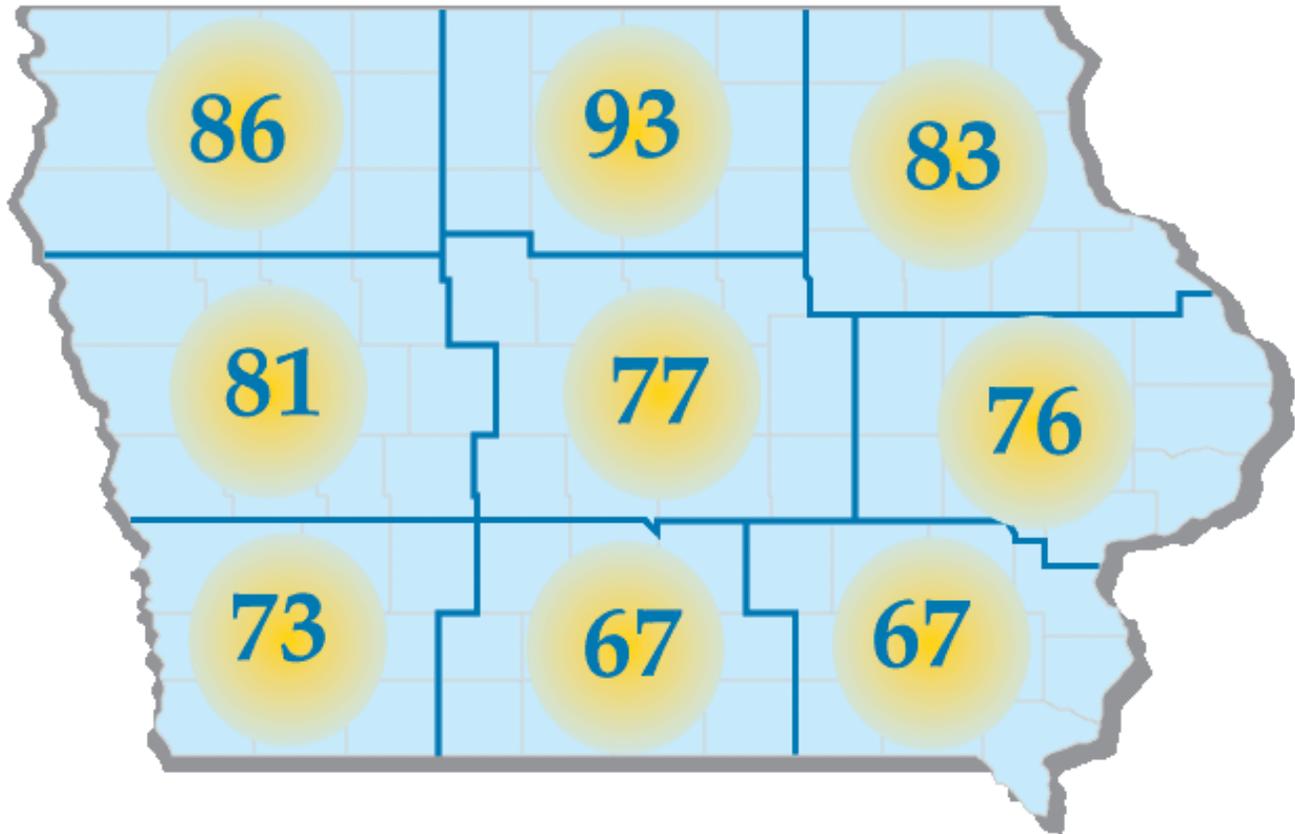
## Bean leaf beetle 2002-2003 winter survival

More bean leaf beetles were found in central Iowa last year than ever recorded (see the [article \[1\]](#) in the March 17, 2003, *Integrated Crop Management* newsletter). This historically high population has caused soybean damage, both by feeding injury and transmission of bean pod mottle virus, resulting in reduced yield and seed quality. High bean leaf beetle populations have been partially due to favorable winter conditions, such as mild temperatures or snow cover the past several winters.

The bean leaf beetle has two generations a year in Iowa. About 80 percent of second-generation adults (these are the beetles that fed on pods last fall) overwinter (hibernate) in leaf litter in woodlands. The other 20 percent overwinter in crop residue, alfalfa fields, and grassy areas. Beetles begin to emerge during late April and early May. Often, they first fly to alfalfa or wild hosts (such as trefoil or clover) before eventually flying into soybean fields.

Low winter temperatures have a great impact on the survival of overwintering bean leaf beetles. During the winters of 1996-1999, Frankie Lam at Iowa State University conducted a study on winter survival of this insect. He found that mortality of overwintering populations can be predicted by accumulating the daily average subfreezing temperatures through the winter. This value can be obtained by using the daily average temperature ( $^{\circ}\text{F}$ ) minus 32 and accumulating only those temperatures that are negative through the winter. For example, in October 2000, after taking each daily average temperature minus 32, negative temperatures were obtained on 2 days; one was -10 and the other was -20. Thus, the accumulated daily average subfreezing temperature for October was -30. By accumulating the daily average subfreezing temperature from October 1-April 15 of the following year, the percentage of beetle mortality can be estimated.

The map shows estimated beetle mortality in the nine crop reporting districts of Iowa during winter 2002-2003. The statewide average mortality is predicted to be 78 percent. Although this mortality is 1.5 times greater than the previous winter's statewide average beetle mortality of 48 percent, we must remember that last fall's population was nearly twice the size of the previous fall's population. Therefore, bean leaf beetles should be abundant throughout much of Iowa this spring.



**Estimated percentage mortality of overwintering bean leaf beetles from nine crop reporting districts in Iowa (October 1, 2002 through April 2, 2003).**

This article originally appeared on pages 31-32 of the IC-490 (4) -- April 14, 2003 issue.

**Source URL:**

<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2003/4-14-2003/blboverwint.html>

**Links:**

[1] <http://www.ipm.iastate.edu/ipm/icm/2003/3-17-2003/beanleafbeetles.html>

**IOWA STATE UNIVERSITY**  
University Extension