

5-1-2006

Bean leaf beetles: A historical perspective

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Recommended Citation

Rice, Marlin E.; Pope, Richard O.; and Bradshaw, Jeffrey, "Bean leaf beetles: A historical perspective" (2006). *Integrated Crop Management News*. 1241.

<http://lib.dr.iastate.edu/cropnews/1241>

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Bean leaf beetles: A historical perspective

Abstract

The bean leaf beetle has undergone tremendous population changes in Iowa during the last 16 years. From 1989 to 1996, the populations (both first generation and second generation) were very insignificant. But beginning in 1997, the population in central Iowa began to accelerate nearly yearly until it reached a historical high in 2002. Populations that year were nearly 400 times larger than what we had experienced during the mid-1990s. Since that time the population has returned to more normal levels and is similar to what we witnessed at the beginning of the beetle explosion in the late 1990s.

Keywords

Entomology

Disciplines

Agricultural Science | Agriculture | Entomology



Insects and Mites

Bean leaf beetles: A historical perspective

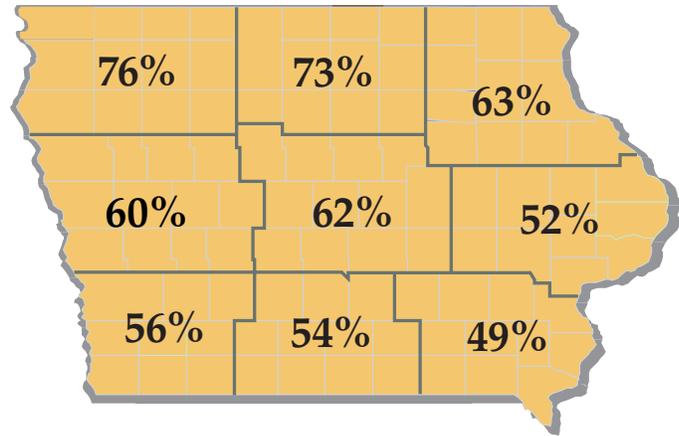
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The bean leaf beetle has undergone tremendous population changes in Iowa during the last 16 years. From 1989 to 1996, the populations (both first generation and second generation) were very insignificant. But beginning in 1997, the population in central Iowa began to accelerate nearly yearly until it reached a historical high in 2002. Populations that year were nearly 400 times larger than what we had experienced during the mid-1990s. Since that time the population has returned to more normal levels and is similar to what we witnessed at the beginning of the beetle explosion in the late 1990s.

So what are the primary reasons for the tremendous population increases several years ago? We believe there are two obvious answers—milder winters and earlier planting of soybeans. As the average winter temperature began to increase over several years, so did the insect population. A drop in the winter temperature during 2000–2001 brought a small decline in the bean leaf beetles, but the temperature went up the following winter and the insects rebounded. Earlier planting (and emerging) of soybeans allows beetles more time to lay eggs before they die as opposed to later emerging fields where fewer eggs are laid.

But since 2002, the bean leaf beetle has hit on “hard times.” Late season spraying for soybean aphids during July and August has greatly reduced the second generation. Each year that we spray aphids, fewer beetles are alive to go into hibernation. A resulting benefit from the soybean aphid applications is that the bean leaf beetle is now relegated to secondary pest status in many areas.

The beetles will be back again this spring—we are finding them now in alfalfa—but their populations appear small in the Ames area. Based on this past winter, we predict that the survival of overwintering bean leaf beetles was very similar to what we have seen the past couple of years. In other words, great conditions for the beetles throughout most of the state except for the northwestern corner (see map). Even though bean leaf beetle populations are low, the earliest emerging fields in an area (such as a township) should be closely scouted



Predicted mortality of overwintering bean leaf beetles in Iowa crop reporting districts.

for this pest and managed if necessary. Beetles are highly attracted to these early emerging fields. Fields that should be of greatest concern from this insect, and the virus it spreads (bean pod mottle virus), are food grade soybeans and seed beans. Reductions in yield and seed quality can be significant in these fields from these two pests. Information on managing this pest complex will be printed in an upcoming newsletter or may be found at <http://www.ipm.iastate.edu/ipm/icm/2005/5-2-2005/integrated.html>.

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