PLANT HEALTH INITIATIVE
AN NCSRP PROGRAM

David Wright, Ph.D.
Plant Health Initiative Coordinator

Early-Season Bean Leaf Beetle Control

Last year, bean leaf beetles were documented at the highest population size ever in Iowa. Bean leaf beetles were also documented at near record levels in parts of Illinois. This factor, coupled with the high winter survivability of beetles, strongly suggests that bean leaf beetles could be present in large numbers in soybean fields this spring.

The rise of the bean leaf beetle populations (Figure 1) and the bean pod mottle virus problems throughout the Midwest indicates that soybean producers may need to consider early-season control of this insect. Checkoff-funded research suggests that early-emerging soybean fields may benefit from an insecticide application during the cotyledon to first-trifoliate (VC-V2) stages to limit yield loss from bean leaf beetle feeding and reduce viral infection, says John Hill plant pathologist at Iowa State University (ISU).

"Times at which spray applications are made are very important to achieve control of bean pod mottle virus and the bean leaf beetle vectors that transmit it", says Hill. "The early application should be made at the time soybean plants emerge".

Timing of the mid-season application is also critical and should be made when the first teneral bean leaf beetles are detected in the field. This indicates the beginning of the first generation. If the grower waits until the peak of the first generation to make an application, it is probably too late to achieve maximum control. Consult your local agronomist or extension agent for specific insecticide recommendations.

Ongoing research on systemic insecticides applied as a seed treatment shows good early-season bean leaf beetle control. However, these treatments have not received government approval and may not be available to growers this year.

Scientists believe mild winters and abundant residue in woodlands adjacent to soybean fields have enabled this beetle to survive. Researchers at ISU show a strong correlation between bean leaf beetle populations and the average monthly temperatures for October through November (Figure 1). Although the data is from central Iowa, they are applicable to the survivability of bean leaf beetles in other soybean growing areas as well.

Insecticides should not be sprayed indiscriminately. The mere presence of bean leaf beetles on soybeans is not an indicator to immediately apply an insecticide. Economic thresholds have been developed.

Current thresholds for early-season control, from the University of Illinois, are 16 beetles per foot of row at the cotyledon to first trifoliate stage and 39 beetles per foot or row at the second trifoliate stage. These thresholds, however, are designed to prevent yield loss from damage caused by beetle feeding. They do not take into consideration the potential for 10-20 bu./acre yield loss from viral infection.

Not all researchers agree on the practice of applying an insecticide to reduce the potential for virus incidence. Clarification of this issue is clearly an area for further investment of checkoff dollars. The decisive indicator is the historical presence of a virus in the field. If you have had virus problems in the past, and you have a high population of beetles, it may be beneficial to spray. The decision to spray rests with each soybean producer.

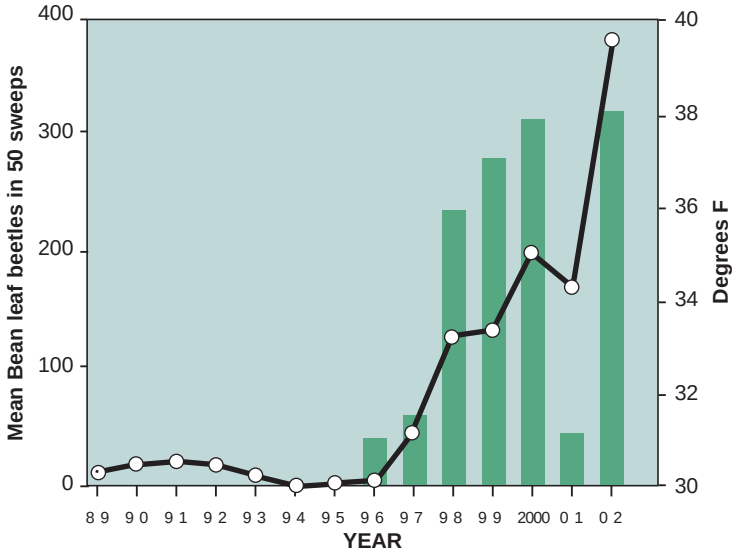

Figure 1: Bean leaf beetle populations in Iowa, 1989-2002 and mean winter temperatures for October through November 1996-2002. Source: Iowa State University.