KANSAS SOYBEAN COMMISSION
Biology and Management of the Soybean Stem Borer in Kansas

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JUSTIFICATION: The soybean stem borer has caused severe lodging problems to soybean in some parts of Kansas, however research on the basic biology and management options for this pest have been very limited.

PROJECT OBJECTIVES:
1. Investigate the interaction between soybean stem borer development and girdling relative to planting date and/or variety maturity group.
2. Evaluate the effectiveness of insecticides in reducing tunneling, girdling and yield.
3. Produce a color brochure on the soybean stem borer to aid producer awareness about the pest, life history characteristics, crop damage, and management options.
4. Expand web pages associated with soybean insect and disease pests.
5. Study the impact of various management practices on stem borer over-wintering success.

RESULTS:
Objective 1: The data on the interaction between soybean stem borer (SSB) development and plant development supported the proposed hypothesis that SSB feeds and oviposits in soybean tissues that occur higher on the plant as the season continues. The vertical distribution of oviposition scars and entry nodes were higher on the plant in early plantings than in late plantings because the plants in the late planting were shorter during the July SSB flight. Beetles apparently are feeding and ovipositing in tender recently expanded leaves and these occur higher up the plant as the plant develops. There was also a trend for fewer entry nodes, oviposition scars and feeding scars in the late planted soybeans.

Objective 2: Data from insecticide trials conducted from 2001-2003 were presented in a poster at the NC meeting of the Entomological Society of America. Kansas City, March 2004, entitled: “Summary of Soybean Stem Borer Management Trials”. In the final year of the study an 80% reduction in the percent of infested plants was obtained by using two sprays timed to control adult beetles.

Objective 3: An extension publication on the soybean stem borer was produced during 2003 and is now being distributed at meetings, through the county extension offices, and on the www at: http://www.oznet.ksu.edu/library/entml2/MF2581.pdf.

Objective 4: Information from the 2004 Soybean Insect Management guide has been placed on individual web pages and linked to the web site at: http://www.oznet.ksu.edu/entomology/extension/InsectInfo/Soybean/Soybean%20Insects.html. This will allow us to link digital images and video clips to this information.

Objective 5: No differences were found in the over-wintering success of larvae in stubble subjected to various types of stubble management like mowing, undercutting or smashing stubble with a packer.

SIGNIFICANCE: Data from these studies are being used to develop management strategies and to guide future research. Currently producers are being encouraged to make sure harvest is timely in areas where infestations are detected. The success in reducing infestations through treating for adult beetles has encouraged renewed interest in testing other insecticides that may have improved efficacy. More detailed biological observations have identified additional parameters to use in searching for host plant resistance and in sampling for pest management. Plans are in place to test a new line of transgenic soybeans for evidence of host plant resistance. We will also be looking at other ways to manage stubble to reduce survival of overwintering larvae. Information from all of these studies will be used to update and expand our web pages, management guides and presentations on soybean pest management.