

**Kansas Soybean Commission Annual Report of Progress  
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**Project Title: “Development of Soybean Host Plant Resistance and Other Management Options for the Soybean Stem Borer”**

**Amount of Funding:** \$ 30,000

**Final Report:** March. 1, 2006 – Feb. 28, 2007

**Projected Completion Date:** Feb. 28, 2007

**Accomplishments since last report:**

**Objective 1: Continue screening soybean germplasm accessions for resistance to soybean stem borer.** We evaluated 8 Plant Introduction lines and 6 commercial varieties in greenhouse and field trials. The greenhouse results were similar to those of 2005 – 06 in that we got plenty of oviposition punctures, but found very few larvae developing in the plants. Thus we conclude that the greenhouse screening may not be very useful in evaluating soybean germplasm for resistance to the soybean stem borer. Field cage trials again worked very well, producing many oviposition punctures and many surviving larvae in susceptible lines. Two lines, PI165673 and PI165676, had high numbers of oviposition punctures relative to live larvae in both years of testing. We are encouraged to focus more attention to these two lines to determine what kind of resistance they may have to soybean stem borers.

**Objective 2: Evaluate the yield response of soybean varieties to soybean stem borer feeding.** We planted 6 commercial varieties with diverse maturities near Garden City, Hutchinson and Scandia with and without insecticide treatment. The plots at Hutchinson and Garden City were discontinued due to drought and hail, respectively. At Scandia, we found that 55% of the untreated plants were infested with soybean stem borers. There were 15.8 infested nodes per 20 plants and 5.6 larvae per 20 plants. The fipronil treatment gave 78-88% control of the soybean stem borers and the overall grain yields averaged 64.9 and 66.8 bu/acre for the untreated and treated plots. However, these yields were not significantly different. Therefore, we were unable to show a yield response to *Dectes* stem borer infestation. The six varieties yielded an average of from 60.8 to 68.5 bu/acre, but the yields of the varieties were not statistically different.

**Objective 3: Conduct a survey of the occurrence of soybean stem borer across the High Plains.** We have found that the soybean stem borer has been recorded throughout eastern North America and has reached pest status in many of the Midwest states as well as southern states along the Atlantic and Gulf Coasts. We have received reports of serious soybean stem borer infestations in Missouri, Kentucky and Delaware during 2006.

**Objective 4: Expand web pages and other educational materials associated with soybean insect pests.** The KSU website has been revised to include facts and information on all soybean pests, general comments on soybean pest management and a list of insecticides commonly used in soybeans. There are also links to a soybean insect photo gallery.