Attractivity of Plant Volatiles and a Semiochemical- Based Bait to the Western Spotted Cucumber Beetles, *Diabrotica undecimpunctata undecimpunctata* Mannerheim (Coleoptera: Chrysomelidae)

by
Tawatchai Hongtrakul
Master of Science Student
Glenn Fisher
Extension Entomologist
Department of Entomology
Oregon State University

The adult western spotted cucumber beetle (WSCB), *Diabrotica undecimpunctata undecimpunctata* Mannerheim is considered a major pest of snap beans grown for processing in Western Oregon. Control consists of 1 or 2 insecticide sprays prior to harvest. A commercial semiochemical - based insecticide bait, Adios TIC®, 1.3% carbaryl + 5% buffalo gourd root powder + 0.7% TIC mixture (1,2,4- trimethoxybenzene, indole, and *trans*-cinnamaldehyde, 1: 1: 1), was evaluated for the control of WSCB in commercial snap beans. Adios TIC® did not result in improved WSCB control as reflected by number of beetles and pod damage.

Twenty one plant volatile compounds were evaluated for their attractivity to WSCB in snap bean and squash fields by comparing the number of beetles caught on sticky traps in 1 to 3 day periods. The chemicals beta- ionone, benzyl alcohol, and indole consistently attracted significantly more beetles than unbaited traps. An equal part of these chemicals caught more WSCB than those baited with any of the two component mixture blends or even individual components. Captures of WSCB increased significantly as doses of the IBb mixture in traps increased. Baited traps placed inside and at the edge of alfalfa fields caught similar numbers of WSCB. More WSCB were caught on traps inside than outside fields. Traps baited with the IBb mixture placed at canopy level or at 10 - 15 cm. above canopy caught equal numbers of WSCB. Traps below plant canopy caught fewer WSCB. Most WSCB were caught from 10:00 to 13:00 hrs. and from 16:00 to 18:00 hrs. Fresh preparations of IBb were the most attractive to the beetle. The majority of WSCB attracted by the IBb mixture were males (≈ 85%). Its individual components, indole and benzyl alcohol attracted mostly females (≈ 73% and 70% respectively), while beta- ionone attracted mostly males (≈ 80%).