

# impact

of the College of Agriculture and Life Sciences



## Competitive Agricultural Systems in Global Economy Managing Lygus Bug in Cotton

### Issue

Integrated pest management (IPM) plans must be flexible enough to accommodate different insect pest pressures from year to year. After years of lesser recognition as a cotton pest, Lygus bugs have become the number one pest of cotton since 1998. Among growers, typical control measures for Lygus have involved tank mixing combinations of broad-spectrum insecticides in the unfounded hope that this practice will give more control over the pest.

### What has been done?

The UA College of Agriculture and Life Sciences has developed an integrated pest management program (IPM) for Lygus in cotton aimed at reducing insecticide use through adequate field sampling, adherence to threshold guidelines, and using the right compound for the job. Above all, it emphasizes avoiding pest pressures wherever possible. These measures are being incorporated into the larger cotton pest management program, and focus on reducing spray applications from mixed broad-spectrum insecticides to more selective, targeted single insecticide applications. One key to the success of the program has been the accurate identification of single spray compounds that perform consistently against Lygus and knowing

precisely when to use them. The education component of this program has assisted growers in implementing this strategy during the last six seasons.

These efforts have helped stimulate the permanent development of a Cross-Commodity Research and Outreach Program (CROP) that involves stakeholder input in efforts to research, develop and implement insect management plans that span multiple crops and seasons. Cooperative Extension has organized CROP team to develop intercrop and disciplinary solutions for growers. This team has recently tackled such issues as cross-commodity, proactive management of whiteflies, including rational resistance management plans. The effort has been widely recognized scientifically and practically as being on the forefront of advancing pest management to a multi-crop context.

### Impact

In response to this IPM program, more than 50 percent of the region's cotton growers have changed their chemical tactics against Lygus by switching to single compounds used strategically and at appropriate rates as part of an IPM system. In 1999, growers applied the fewest number of sprays statewide against Lygus in cotton since

1993, thus reducing their costs per acre while protecting the environment. Education efforts across the border in Mexicali, Mexico have resulted in nearly 40 percent of the cotton growers there adopting threshold and other IPM guidelines for Lygus management. This has resulted in a 66 percent reduction in the number of acres receiving spray mixtures for Lygus, while increasing effective rates by about 20 percent.

Arizona extension cotton specialists have been able to teach and demonstrate to growers that single compounds are as effective or even more effective than broad-spectrum combination sprays, and that this practice helps reduce the risk of resistance in Lygus and other insects while minimizing negative impacts on beneficial insects. More growers are now aware of the specific timing (thresholds) required for the control of Lygus and for providing maximum economic return. The success of this program has led for the first time to efforts to control Lygus across multiple crops (Lygus are highly mobile and feed on several crops in addition to cotton). Growers have begun meeting with extension personnel to develop cooperative plans involving cropping sequences and cultural controls to reduce damage from Lygus and other pests of multiple crops.

### Funding

Hatch Act

Smith-Lever 3(d) (e.g., IPM)

USDA-CSREES: Western Region IPM; Pest Management Alternatives Program

Local (Arizona Cotton Growers Association); UA program enhancement (CES); UA IPM program

Other (Agrichemical companies), NSF's Pest Management Alternatives Program

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