5-2012

ARS Assists in Fight Against Kudzu Bug

Jan Suszkiw
ARS, jan.suszkiw@ars.usda.gov

Walker Jones
USDA-ARS, walker.jones@ars.usda.gov

ARS Assists in Fight Against Kudzu Bug

Don't let its common name fool you: The kudzu bug is not your friend.

RICHARD EVANS (D2500-1)

Adult kudzu bug, *Megacopta cribraria.*

Sure, this distant relative of the brown marmorated stink bug will feed voraciously on the stems of kudzu, the "Vine That Ate the South." But *Megacopta cribraria* also has a taste for soybean and other legumes. In Georgia, where this native of Asia was first discovered in the United States in October 2009, there's worry that the pest will set its sights on peanut, endangering a $2 billion crop that supplies nearly 50 percent of America's peanuts (Georgia Peanut Commission, 2009).

Like the brown marmorated stink bug, *Megacopta*—also known as the "bean plataspid"—seeks shelter inside homes, buildings, and vehicles during the fall as temperatures cool. And when disturbed, it too emits a foul smell.

Researchers, however, haven't been idle. For example, at the Agricultural Research Service's Stoneville [Mississippi] Quarantine Research Facility, entomologist Walker Jones is evaluating a secret weapon in the form of *Paratelenomus saccharalis,* a tiny black wasp received, under permit, from Japan in 2011.

Though nonstinging and harmless to humans, pets, and other animals, *P. saccharalis* is a top natural enemy of *Megacopta* in Japan. More specifically, the wasp lays its eggs in the bug's eggs. Upon hatching, the wasp's maggotlike brood devour the bug's own developing embryos, reducing the size of the next generation.

In North America, there are no specific natural enemies to keep the pest's numbers in check—hence the interest in *P. saccharalis* for potential use in biocontrol programs. But first, the wasp must pass muster on a long list of requirements assuring its host specificity and environmental safety—starting with quarantine trials at Stoneville.

Megacopta belongs to an insect family that doesn't occur naturally anywhere in the Americas. Thus, importing its coevolved natural enemies isn't expected to endanger native U.S. bug species. If research bears this out, getting permission to release a promising host-specific natural enemy like *P. saccharalis* will be facilitated. Its successful establishment would not only reduce crop damage, but also curb the rate and intensity of *Megacopta's* spread.

"I am presently screening eggs of native species of related bugs to see if it will attack them, and so far, it doesn't look like it will," reports Jones, who leads ARS's Biological Control of Pests Research Unit in Stoneville. He's conducting the evaluations using a steady supply of bugs, representing 4 families and 15 species, sent by colleagues from ARS, private industry, and universities, including the University of Georgia and Clemson University.

Cooperators in Asia and at ARS's European Biological Control Laboratory in Montpellier, France, are also searching for natural enemies.

On a related front, Jones's lab has devised a procedure for freezing *Megacopta* eggs and thawing them as needed, which will help with timing the mass production and release of the wasps.

Besides the wasp evaluations, this effort includes tracking *Megacopta* (it has spread to Alabama, North Carolina, South Carolina, Tennessee, and Virginia) and genetic fingerprinting. Using this sophisticated procedure, U.S. scientists recently matched DNA from Georgia's *Megacopta* population to indigenous populations of the bug in Japan, a finding that should help them discover how the pest arrived in the United States.

Meanwhile, more is being learned about *Megacopta's* basic biology, host-crop range, economic impact, chemical control, and vulnerability to native predators, parasites, or pathogens. Researchers want to provide farmers with an arsenal of weaponry to choose from. It may be a few years before egg-parasitizing wasps are patrolling crop fields, but chances are the bug will still be around.—By **Jan Suszkiw,** ARS.

This research is part of Crop Protection and Quarantine, an ARS national program (#304) described at www.nps.ars.usda.gov.

Walker Jones is in the USDA-ARS Biological Control of Pests Research Unit, 59 Lee Road, Stoneville, MS 38776; (662) 686-5229, walker.jones@ars.usda.gov.