THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
COOPERATIVE EXTENSION
Arizona Pest Management Center

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Big-eyed Bugs Have Big Appetite for Pests

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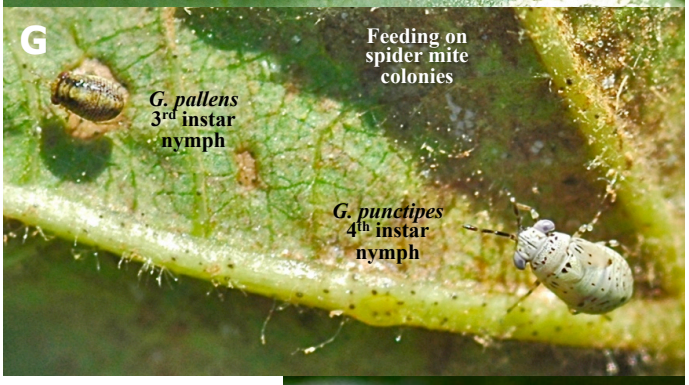
Geocoris (Family: Geocoridae) are important predators found throughout the United States in agricultural crops. They are commonly known as "big-eyed bugs" due to the **characteristic large, prominent, widely separated eyes on the sides of their heads** (A). They actively hunt their victims, and their big eyes give them a wide field of vision and boost their ability to locate prey. *Geocoris* use a long straw-like beak to stab and kill their prey before sucking up the liquefied contents, leaving behind a hollow cadaver (B).

Geocoris deposit eggs singly and horizontally on leaf or stem surfaces. These hot-dog shaped eggs are distinguished from other insect eggs by the presence of two red eyespots near the tip (C). Predatory stages include five nymphal instars and a winged adult. Nymphs look similar to adults but are smaller and lack wings. False chinch bugs, a closely related insect with decidedly plant-feeding tendencies, can sometimes be confused with *Geocoris* (D). They are more slender than big-eyed bugs and have less pronounced eyes.

In Arizona cotton, *Geocoris* feed on all stages of whitefly, *Lygus* nymphs, thrips, lepidopteran eggs and small larvae, and mites, as well as other beneficial species. Two *Geocoris* species are routinely found in our summer crops: *G. pallens (E)* and *G. punctipes* (F). They can be separated by color and size (E–H); *G. pallens* tends to be a slightly smaller and darker species. Both species feed similarly, but *G. punctipes* generally consumes more prey, and in most years is the more abundant species in cotton. Research shows they are important mid to late season predators with significant impact on whitefly and *Lygus* populations. However, they are also sensitive to many broad-spectrum insecticides. *Geocoris* is a key natural enemy with a work-horse reputation in cotton fields. Presence of *Geocoris* eggs and nymphs in the field indicates a healthy, reproducing population with excellent potential for biological control. **The selective chemistries recommended in our cotton IPM guidelines conserve *Geocoris* and maintain the "free control" we get from this important predator.**

The ratio of *Geocoris* to whitefly large nymphs is a good indicator of the biocontrol potential in a cotton system and can be used in whitefly management. This ratio is formed by the number of *Geocoris* (adults + nymphs) per 100 sweeps to whitefly large nymphs per leaf disc. When there are at least 1.5 *Geocoris* to 1 whitefly large nymph present in a field (1.5:1), a whitefly control spray may be deferred. Consult Vandervoet et al. (2014; see below) for more guidance on how to determine and interpret this and other predator to prey ratios.



Also see:

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Ellsworth, P.C., L. Brown, A. Fournier, X. Li, J. Palumbo, S. Naranjo 2011. "Keeping Cotton Green!" Univ. Ariz. IPM Short. URL: http://ag.arizona.edu/crops/cotton/files/SelectiveChemicalControlsvF.pdf

Ellsworth, P.C., J.C. Palumbo, S.E. Naranjo, T.J. Dennehy, R.L. Nichols. Whitefly Management in Arizona Cotton 2006. IPM Series No. 18. University of Arizona Cooperative Extension Bulletin, AZ1404, 5/2006. URL: http://cals.arizona.edu/pubs/insects/az1404.pdf

Vandervoet, T., P.C. Ellsworth, L.M. Brown, S.E. Naranjo. 2014. Making Whitefly & Natural Enemy Counts. University of Arizona Cooperative Extension IPM Short. http://ag.arizona.edu/crops/cotton/files/PredatorToPreyRatios.pdf

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A PDF of this publication is available on-line at: http://ag.arizona.edu/crops/cotton/files/GeocorisRatio.pdf