

Kudzu bug (*Megacopta cribraria*), a new potentially devastating pest of soybeans

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A new invasive stink bug-like pest of soybean is expected to transform insect management in the Southeast and beyond. *Megacopta cribraria* (Fabricius), commonly referred to as kudzu bug, bean plataspid, lablab bug and globular stink bug, was first discovered on kudzu in the vicinity of Atlanta Georgia during the fall of 2009. From this initial introduction, kudzu bug has quickly become established as a severe economic pest of soybean in Georgia and South Carolina. In 2011, this pest was also found in most North Carolina counties, and well as in Virginia and Alabama.

The kudzu bug was introduced from Asia, where it is widespread. It is the only representative of the family Plataspidae in North and South America. The insect taps through the veins of plants to reach the phloem, using piercing sucking mouthparts. As a result, injury to plants likely results from nutrient and moisture loss, rather than a direct loss of biomass from removal of plant tissue. On soybeans, the kudzu bug adults (Fig. 1) and nymphs (Fig. 2) feed on stems (last instar nymphs with purplish wing pads), while small nymphs have been observed feeding on leaf veins. In 2011, yield losses of up to 47% were recorded in Georgia on untreated beans on a research station near Midville; only two kudzu bugs were found at this location the previous fall. In North Carolina, two kudzu bugs were found at the Upper Coastal Plain Research Station near Rocky Mount in the fall of 2011.



Fig.1



Fig. 2

Initial research indicates that the kudzu bug overwinters as adults near kudzu patches and soybean fields in plant debris and behind tree bark, but it will also attempt to overwinter in structures such as houses and other buildings, where it can be a [nuisance pest](#)

(<http://www.ces.ncsu.edu/depts/ent/notes/Urban/kudzubug.htm>)

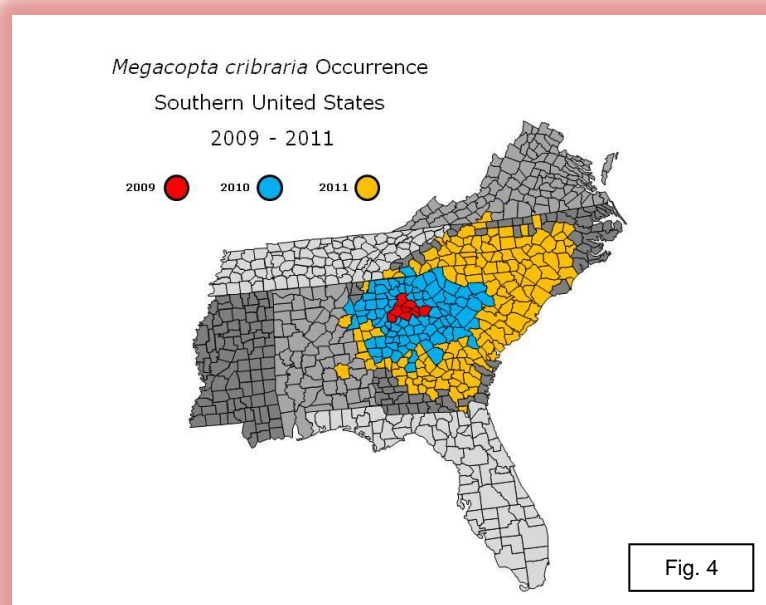
When temperatures warm, the strong-flying adults emerge from overwintering sites and move into kudzu or wisteria where they mate, lay egg masses (Fig. 3), and develop through 5 nymphal stages before moving into soybean as adults. In Georgia, the kudzu bug can complete development from egg to adult in 6-8 weeks. Kudzu appears to be an important initial host for the development of the first generation, and the insects have been shown to reduce kudzu biomass. Egg masses from the overwintering generation have not been observed on soybeans. Bacteria from by egg-laying females appear to provide the subsequent generation with the capability to survive on other legume hosts such as peas, beans, peanuts and the insects' preferred host, soybean.

Because the migration of kudzu bug from kudzu to soybean takes place over several weeks, application of an insecticide is not recommended until nymphs are observed on soybean, even though densities of the migrating adults can be quite large. In North Carolina, this migration is expected to begin during late-July through mid-August. Field edges are colonized first, followed by the interior of the field. Kudzu bug is more effectively sampled with a sweep net than with a beat cloth. Several randomly selected samples of 15 sweeps (defined firm pendulum "swooshes" of the net) per sample should be taken from interior areas of the field. A preliminary threshold of one nymph-stage bug per sweep (i.e., 15 nymphs per 15-sweep sample) is recommended and may help reduce the need for multiple sprays.



Preliminary insecticide evaluations conducted in Georgia indicate that bifenthrin (e.g. Brigade), bifenthrin + chloronicotinoid combinations (e.g. Brigadier) and lambda-cyhalothrin + thiamethoxam (e.g. Endigo) are very active against kudzu bug on soybean. A number of other insecticides provided control in the 80 to 90% range in a summary of 19 tests conducted in Georgia and South Carolina in 2010 and 2011. Because these chemistries are broad-spectrum, beneficial insects will likely be eliminated, putting fields at greater risk for mid- to late-season lepidopteran infestations, such as corn earworm, armyworm species and soybean looper. Fields should be intensively scouted through R7 for all other pests. Initial studies are underway to determine the impact of manipulating planting dates (later plantings appear to have fewer kudzu bugs), and the effect of maturity groups and variety on attractiveness and susceptibility to kudzu bug.

Kudzu bugs were found in most of North Carolina's soybean producing counties in 2011 (Fig. 4). By 2012, we expect this rapidly invading pest to infest all of North Carolina's soybean acreage, with much of this acreage reaching the treatment threshold. For now, the most effective approach to managing this threat to profitable soybean production is to scout regularly, use recommended thresholds, and spray when needed with effective insecticides.



Photos courtesy of J. Greene. Map adapted from W. Gardner.