

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

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, North Carolina, and South Carolina. In 2012, this pest was found in most North Carolina counties, as well as in Virginia, Alabama, Tennessee and Florida.

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 probably 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.

Furthermore, sooty mold can develop on the leaves from the sugary excretion of the insect, reducing photosynthetic output. 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 percent 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.



Initial research indicates that the kudzu bug overwinters as an adult 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, wisteria or soybeans where they mate, lay egg masses (Fig. 3), and develop through five nymphal stages. Adults that move from overwintering sites directly to soybeans prefer those that are early-planted and/or early maturing. The kudzu bug can complete development from egg to adult in six to eight weeks. After this first generation develops, additional adults are produced that will move into soybeans that may have been planted later.

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, the migration from overwintering sites begins in March and April. The second yearly migration of the first generation is expected to begin in July and continue mid-August. Field edges are colonized first, and then the bugs move to 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.



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. These products also have supplemental labels for the kudzu bug. A number of other insecticides provided control in the 80 to 90 percent range in a summary of nineteen 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 this and 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.

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