

The Peanut Entomology Program at the University of Georgia focuses on research and Extension activities that will improve peanut profitability and sustainability by developing novel insect management tactics, refining existing practices, and providing timely, science-based recommendations to producers. Key research areas in 2016 included thrips and soil insect biology and management, establishment of economic thresholds, and insecticide efficacy testing. Funding for these activities was provided by the Georgia Peanut Commission, the National Peanut Board, USDA, and private industry.

The peanut burrower bug, *Pangaeus bilineatus*, is a soil insect that feeds directly on developing peanut seed and can cause significant economic loss at relatively low levels of damage. Current management recommendations are limited to deep tillage prior to planting and application of granular chlorpyrifos, but neither of these practices provides adequate control in all situations. Our research efforts are concentrated on two areas: 1. identifying risk factors associated with burrower bug infestations, and 2. evaluating potential management tools. Increased knowledge of the insect's biology is critically important to understanding why infestations occur where they do. 2016 was the second year of a light trapping study designed to determine variation in the distribution of burrower bugs in Georgia and identify the peak periods of flight activity. Burrower bugs were collected from all thirteen counties where light traps were placed, and the data showed that relatively distinct peaks in flight activity occurred in June, July, and August. Data collected in 2016 suggest that flight activity is unrelated to soil temperature or moisture. Efforts to create an effective inexpensive light trap for monitoring burrower bugs have proven unsuccessful to date, but research showing that most flight activity occurs between dusk and midnight will facilitate more efficient use of our large traps.

Four on-farm trials were conducted in 2016 to evaluate burrower bug management tactics. A significant reduction in burrower bug damage was observed where granular chlorpyrifos was applied in a Brooks County large plot trial, but no differences were detected between insecticide treatments in a small plot trial in Emanuel County. Twelve commercially available runner-type cultivars were evaluated for potential host plant resistance in an Emanuel County field with a history of burrower bug infestations. No statistically significant difference in damage was detected between any of the cultivars, but the results may have been confounded by the small plot size required due to the large number of treatments. GA-12Y, a cultivar known to have good disease resistance, had the least burrower bug damage numerically of any treatment. A large plot study with fewer cultivar treatments is planned for 2017. Tillage trials conducted in Brooks County in 2015 and 2016 consistently show that deep tillage can reduce the risk of burrower bug damage compared to either strip or vertical tillage. We plan to add a disc harrow treatment to the experiment in 2017.

Tobacco thrips, *Frankliniella fusca*, are present in almost every peanut field in Georgia every year. Thrips are most important in their role as vectors of tomato spotted wilt virus, but feeding can injure young seedlings directly. Low commodity prices, insecticide resistance, and regulatory action have and will continue to affect thrips management decisions. The peanut entomology program uses funds from the Georgia Peanut Commission to provide weekly thrips flight activity updates to growers during the spring planting season. This information can help growers make appropriate decisions regarding insecticide applications, and the data are important for researchers seeking to better understand thrips biology and behavior. 2016 research that focused on evaluating the effect of plant date and insecticide efficacy on thrips injury demonstrated the importance of using effective insecticides to manage thrips especially on early planted peanut. Studies that examined the impact of thrips injury and post emergence herbicide application suggested that TSWV may be higher and yields lower when thrips feeding and herbicide injury co-occur. Additional analyses that combine two years of data are on-going.