Biology and Management of Peanut Burrower Bug in Georgia

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The peanut burrower bug, *Pangaeus bilineatus*, represents a significant threat to Georgia's peanut industry. This research addresses the need for effective, sustainable management tactics for burrower bug and seeks to improve understanding of the pest's biology in peanut production systems. The objectives of our 2017 research efforts were: 1. Evaluate commercially available runner-type peanut varieties for resistance to burrower bug feeding damage; 2. Evaluate effect of tillage practices and insecticide chemistry on burrower bug populations and damage in Georgia; 3. Monitor burrower bug population dynamics with UGA Extension agent maintained light trap network.

Prior to 2016 nothing was known about inherent host plant resistance (HPR) to burrower bug in commercially available peanut cultivars. Nevertheless, HPR could provide an important tool for managing this pest given the lack of effective insecticide and cultural control tactics. Burrower bug injury was low in two years of on-farm trials in Emanuel County. Though no significant differences in injury were detected between any cultivars in 2016 or 2017, GA-12Y did have the least numerical injury in both years. Data will ultimately be combined over years. Laboratory bioassay results also suggest that GA-12Y may have some level of resistance to or be less preferred by peanut burrower bug.

Assessing the efficacy of chemical and cultural control tactics is critically important to the development of effective burrower bug management strategies. Two on-farm insecticide efficacy trials were conducted in Emanuel County at a site with a history of burrower bug infestation. One trial examined the effect of at-plant insecticides while the other was designed to test the efficacy of foliar insecticides applied at night. Burrower bug abundance in light traps was low at the study site and the incidence of damaged seed at harvest was less than 10%. There were no differences between treatments in either trial. Previous work suggested that night spraying could reduce burrower damage, but that trial was conducted under high burrower bug pressure. Damage levels less than 10% as assessed in the lab at UGA are economically insignificant.

The effect of tillage on burrower bug injury was examined in 2015 and 2016, and deep turning was shown to significantly reduce damage at harvest compared to strip and vertical tillage. A conventional disk harrow was added as a treatment in our 2017 on-farm trial. Very few burrower bugs were collected in pitfall traps at the study site, and overall damage level was below 4%. No significant differences were detected between treatments in 2017.

The occurrence of burrower bug is sporadic in nature, and there are currently no effective area wide monitoring or field level scouting methods. Because burrower bugs are cryptic, spending most of their lives in the soil, and because populations and damage potential varies significantly from year to year, monitoring populations for pest management decision making and biological studies is difficult. 2017 marked the third year of a county agent maintained burrower bug monitoring light trap network. The data generated by this project have provided valuable insight into the population biology of the insect. Fewer bugs were captured in 2017 than in previous years, and burrower bug damage levels across Georgia as measured by tonnage reports of seg 2 peanuts were also low. Light trap data will be an important part of continuing efforts to determine risk factors associated with burrower bug infestation and injury.