

Investigation of Chemical and Cultural Methods to Control Peanut Burrower Bug Populations in Dryland Peanuts: Stephanie Hollifield, Brooks County CEC/ANR & Dr. Mark Abney, UGA Peanut Entomologist

Due to the number of dryland peanut production acres in Brooks County, it is important to recognize and assess potential agronomic challenges and/or pests, which may be more evident or pronounced in dryland production. *Pangaeus bilineatus*, common name Burrower Bug, is a significant pest of various crops but in Brooks County, dryland peanut fields have suffered the most adverse effects. The damage to peanuts is due to the burrower bug feeding on developing pods. The pod damage, which is attributed to this pest, is not evident every year but when the burrower bug pod damage is present it results in significant economic losses. In order for Brooks County Extension, to have an impact and significant role in resolving the negative economic toll on Brooks County peanut production, I conducted research and evaluations of both chemical and cultural control methods in 2015 & 2016. For both growing seasons, I worked with Dr. Mark Abney, UGA entomologist and two Brooks County peanut producers, to conduct chemical and cultural commercial field burrower bug research.

My main objective/goal has been to determine the cultural and/or chemical control methods most effective in decreasing burrower bug activity and damage. In evaluating chemical control methods/options, I have considered a split application of Lorsban (Chlorpyrifos) to extend the window of control. In 2015 & 2016, the following protocol was implemented with a Brooks County peanut producer to observe varied rates and application timings of Lorsban.

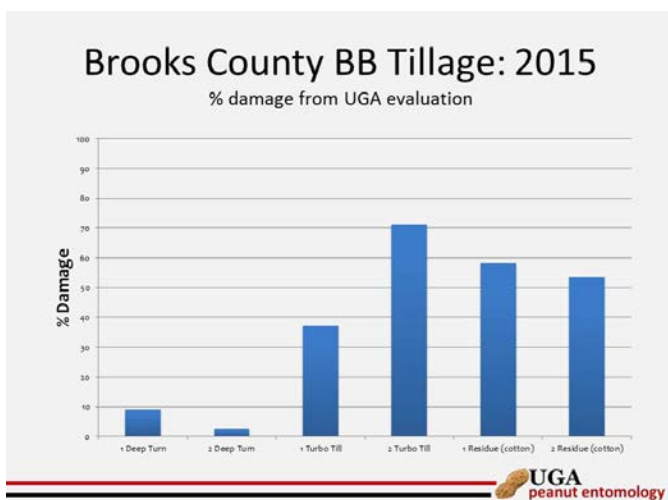
2015/2016 Evaluation of Lorsban (Chlorpyrifos 15G) for control of peanut burrower bug in peanut.

Trt. No.	Treatment Name	Formulation Type	Rate / Rate unit	Application Description	Amount Product to Measure	Rep 1 Example	Rep 2 Example	Rep 3 Example
1	Untreated Check					104	203	301
2	Chlorpyrifos	15% A/W/W granular	15lb /A	Granular over the row @ Pegging	1218.3 g/1 pl	101	201	303
3	Chlorpyrifos	15% A/W/W Granular	7.5 lb/A	-Granular over the row @ pegging	609.2 g/1 pl	102	202	302
	Chlorpyrifos	15% A/W/W Granular	7.5 lb/A	-Granular over the row @ 110DAP	609.2 g/1 pl			
4	Chlorpyrifos	15% A/W/W Granular	15 lb/A	Granular over the row @ 110 DAP	1218.3 g/1pl	103	204	304

Also, in 2015 and 2016 I conducted an evaluation of tillage depth required for decreased burrower bug population and damage. Current University of Georgia Burrower Bug control recommendations

include deep turning of soil, with bottom plow, as one potential effective control method. But, Brooks County primarily produces peanuts utilizing minimum tillage management practices and the concept and practice of deep turning (approximately 10-12" depth), has not been a standard cultural practice for many years. However, prior to planting, Brooks County peanut producers frequently utilize vertical tillage (approximately 4-5") with their minimum tillage production plantings. So with this knowledge, minimum tillage peanut producers have questioned at what depth soil must be turned, in order to gain the benefit of decreased Burrower Bug populations.

In order to determine and quantify an answer to this valid question, a dryland tillage comparison evaluation was conducted in Brooks County during the 2015 & 2016 peanut growing season. The evaluation included three replications of peanut plantings into three treatments; residue (conservation/minimum tillage), vertical (turbo) tillage, and deep tillage. The plantings consisted of peanuts planted into cotton stalk residue, turbo tillage at soil depth of approximately 4-5 inches, and deep tillage at soil depth of approximately 10-12 inches. At harvest, resulting peanut weights/yields were obtained from each treatment and samples acquired for quality grading. The results from 2015 are provided in the following chart. In 2015, the results demonstrated that vertical tillage has no positive effect in decreasing burrower bug damage. The amount of burrower bug pod damage was significant in both the residue and vertical tillage replications. However, the deep turning of soil did decrease the amount of pod damage.



The data obtained in 2016 is still being compiled and finalized. The 2016 information is not yet available for publication.

The Georgia Peanut Commission funding, that I received for this project in 2016, was used to purchase a portable weather station. This was a valuable tool in my continued burrower bug research and enabled me to carefully and closely monitor rainfall events and soil moisture in subject fields. The presence of burrower bug and pod damage is much more evident in dryland field situations and this tool allowed me to correlate rainfall /moisture events with burrower bug populations and activity.