

# Evaluation of Host Plant Resistance in Peanut Cultivars to Peanut Burrower Bug

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## Introduction

Georgia peanut producers invest significant time and economic inputs to manage insect pests that could negatively impact peanut yield and quality. There are currently few effective management tools for the peanut burrower bug (PBB) *Pangaeus bilineatus*, (Hemiptera: Cydnidae). PBB feeds directly on pods in the soil reducing the quality of harvested peanut. The risk of injury is highest in peanut produced on non-irrigated, reduced tillage acres.

Insecticides have been largely ineffective at reducing PBB injury, and growers are in need of efficacious management tools especially in areas where irrigation is not available and conservation tillage practices are utilized. Host plant resistance would provide significant benefits for growers with a history of losses to PBB.

### OBJECTIVE

- Evaluate selected peanut cultivars for host plant resistance to PBB in a high risk, commercial field environment



**Fig.1. PBB activity occurs primarily underground, but the insects are occasionally seen on soil surface.**



**Fig.2. PBB feeds by extracting juices from seed within the pod with piercing-sucking mouthparts.**

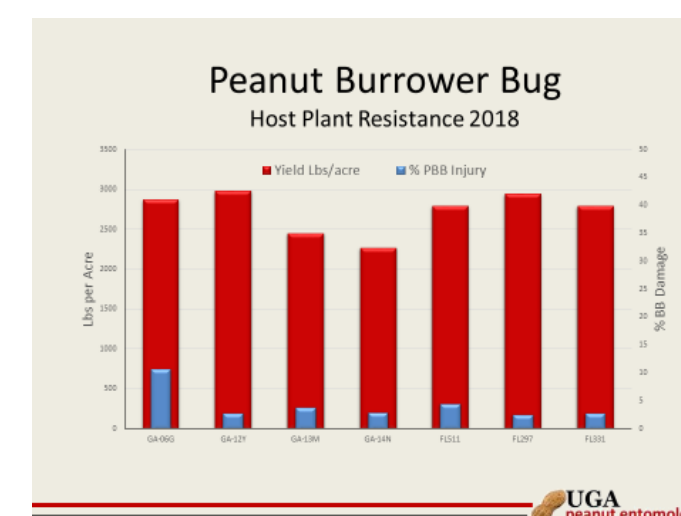
## Materials & Methods

- Experiments were conducted in three non-irrigated, commercial peanut fields in Brooks Co., GA with a history of burrower bug damage.
- Treatments consisted of runner type peanut cultivars planted in 18 x 30ft plots, replicated four times in a RCB design.
- Cultivars Evaluated: GA-06G, GA-12Y, GA-14N, FL331, FL297, FL511, GA-13M, GA-18RU, GA Green, GA-16HO, Tif NV HiOL.
- PBB activity within fields was monitored season long with pitfall and light traps.
- Plots were mechanically harvested to determine yield. A subsample of pods was collected from each plot. Peanuts were shelled, graded and evaluated for PBB damage.
- The force required to penetrate peanut hulls was measured using a penetrometer and a No. 3 insect pin.

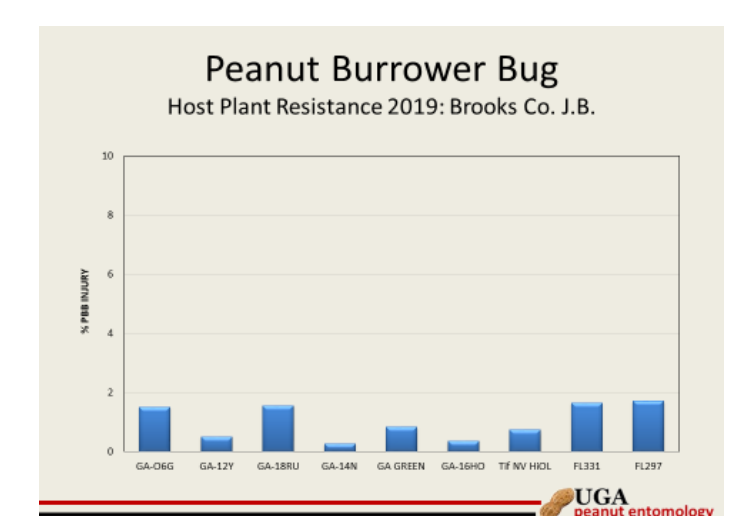


## Results

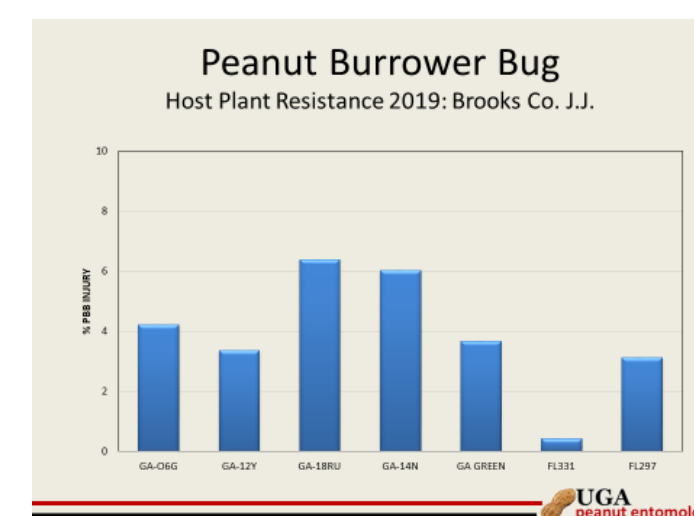
- Few significant differences were observed in PBB damage between cultivars in any year, nevertheless several cultivars had consistently low levels of damage.
- “Hull Strength” or force required to penetrate the hull may provide a level of resistance to PBB in some cultivars.



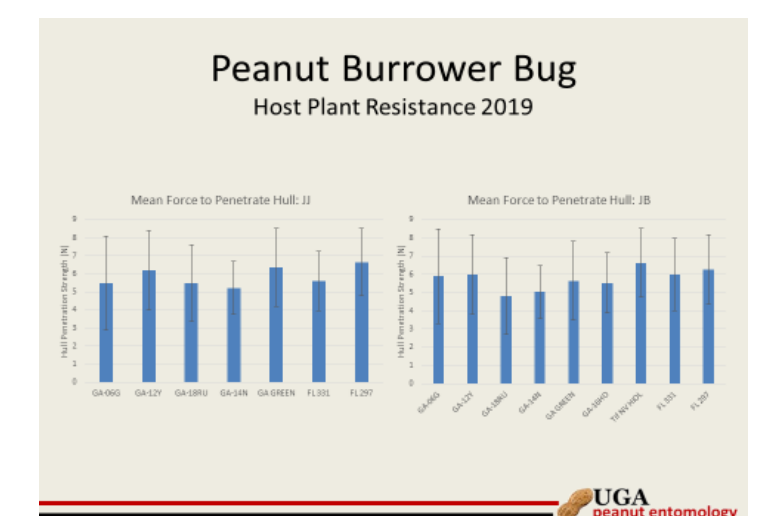
**Fig. 3. Five out of seven peanut cultivars had less than 5% PBB damage in 2018; GA-12Y, GA-13M, GA-14N, FL297, and FL331**



**Fig. 4. GA-12Y, GA-14N, and GA-16HO had the lowest PBB damage of the nine cultivars evaluated @location “JB” in 2019.**



**Fig. 5. Four cultivars had less than 4% PBB damage @ location “JJ” in 2019; GA-12Y, GA Green, FL331, and FL297.**



**Fig. 6. Results suggest that resistance to hull penetration could be responsible for lower PBB injury in some peanut cultivars.**

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