DEFOLIATING CATERPILLAR PESTS IN MISSISSIPPI PEANUT

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Abstract

A complex of defoliating caterpillars commonly infest peanut, *Arachis hypogaea* L., in Mississippi and often require management with foliar insecticide applications. To better understand the complexity of the defoliating complex infesting Mississippi peanut, multiple grower fields across the state were surveyed bi-weekly. A total of 9 species of Lepidoptera were recorded throughout the year. Differences in the complex were observed among regions. Granulate cutworm, fall armyworm, and velvetbean caterpillar were the most predominate species found using a drop cloth across all regions. Predominate species varied tremendously by region using the sweep net method.

Introduction

Originating from South Africa, *Arachis hypogaeae* L., commonly known at the peanut or ground nut, is a legume grown in subtropical and tropical areas (Hammons 1982). Globally, seasonal rain fed areas are where peanut production occurs (Nageswara Rao et al. 2001). Peanut are used in the food industry as supplements, oils, and edible seeds. (Mcwhatters and Cherry 1982, Stalker 1997, Nageswara Rao et al. 2001). Specifically in the United States, peanut are sold for human consumption (Stalker 1997). Not only is the seed important for consumption but meal for animal consumption is made from the foliage by extracting the oils (Stalker 1997). Harvested acres of peanuts in the United States has risen from a little over 4 hundred thousand hectares in 2013 to 6 hundred thousand hectares in 2016 (NASS 2017).

Materials and Methods

Four regions were established with multiple sub-locations within each region to ensure a suitable distribution. Two fields at each sub-location were sampled using two different methods and pests were recorded. The sampling methods used by weekly included drop cloth and sweep net samples. A total of 100 sweeps and 4 drops were taken at each sub-location. The 9 species recorded include bollworm, *Helicoverpa zea* (Boddie); fall armyworm, *Spodoptera frujiperda* (J. E. Smith); yellowstriped armyworm, *Spodoptera ornithogalli* (Guenée); cabbage looper, *Trichoplusia ni* (Hübner); southern armyworm, *Spodoptera eridania* (Stoll); beet armyworm, *Spodoptera exigua* (Hübner); green cloverworm, *Hypena scabra* (Fabricius); velvetbean caterpillar, *Anticarsia gemmatalis* (Hübner); and granulate cutworm, *Feltia subterranean* (Fabricius).

Results and Discussion

In a 2017 survey, method was an important factor. When using the sweep net method, more velvetbean caterpillar, bollworm, fall armyworm and loopers were collected than when using the drop cloth method (Figure 1). When using the drop cloth method more granulate cutworm and southern armyworm were collected than when using the sweep net method (Figure1). Similar complexes were observed using the sweep net method in the south and east region collecting predominately velvetbean caterpillar (Figure 2). Similar complexes were observed using the sweep net method in the north and west region. Complexes consisted of two peaks in caterpillar pressure, collecting predominantly bollworm in the first peak and predominantly soybean looper in the second peak (Figure 2). Similar complexes were observed using the drop cloth method in the south and east region collecting predominately velvetbean caterpillar (Figure 3). Similar complexes were observed using the drop method in the north and west region. Complexes consisted of two peaks in caterpillar pressure, collecting predominantly bollworm in the first peak and predominantly soybean looper in the second peak (Figure 3). In the west region using the drop cloth method, during

the first peak granulate cutworm were also abundant and in the second peak southern armyworm were abundant (Figure 3). Velvetbean caterpillar were found first in the south region (Figure 5) but more abundantly later in the east region (Figure 4). Bollworm were found earliest in the north and west region (Figure 5). Loopers were found earliest in the south region using the drop cloth method (Figure 6) but more abundantly a few weeks later using sweep cloth method (Figure 2).

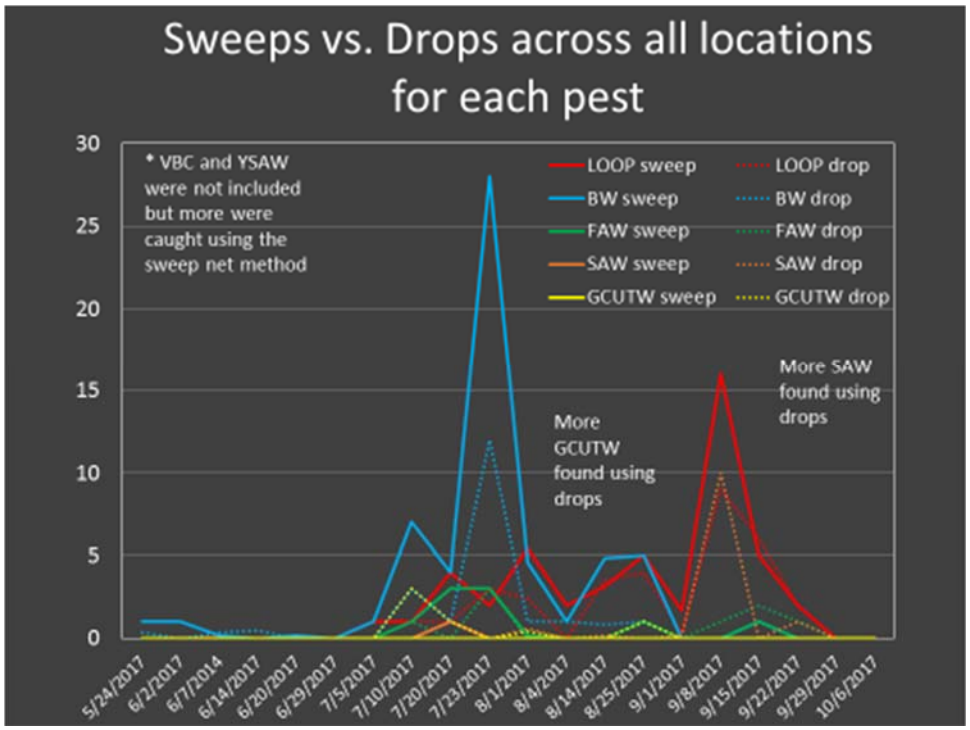

Figure 1. Sweep net method verses drop cloth method across all location for each pest. *Velvetbean caterpillar was excluded in graph due to a spike in collection numbers that skewed visual data. *Yellow-stripped army worm was exclude due to lack of pressure.

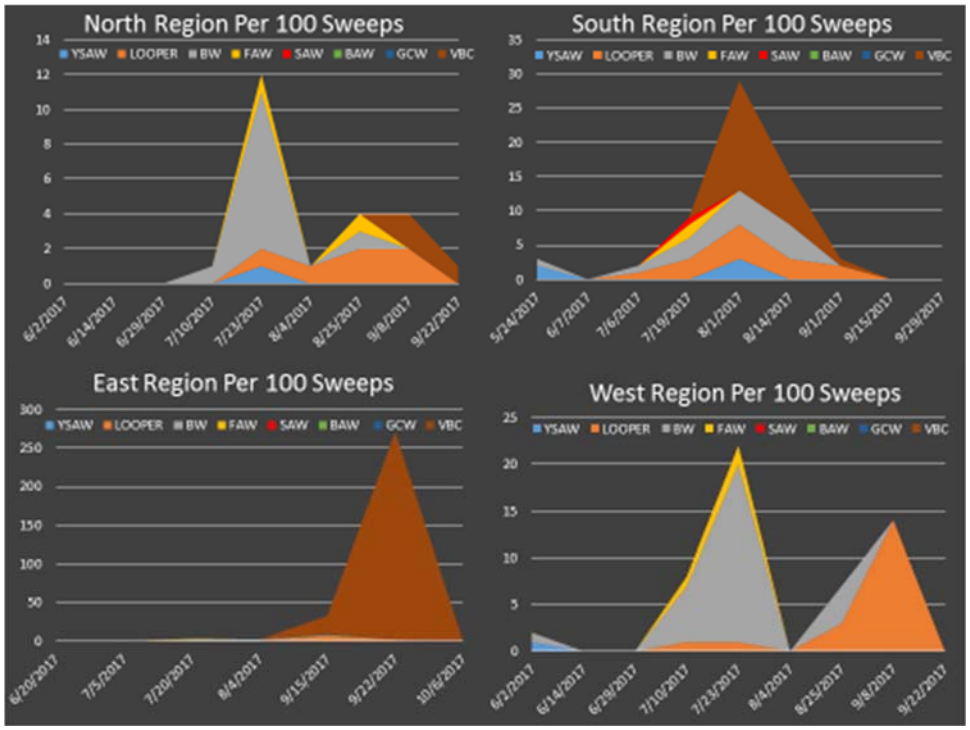

Figure 2. Complex per 100 sweeps by location throughout the season.

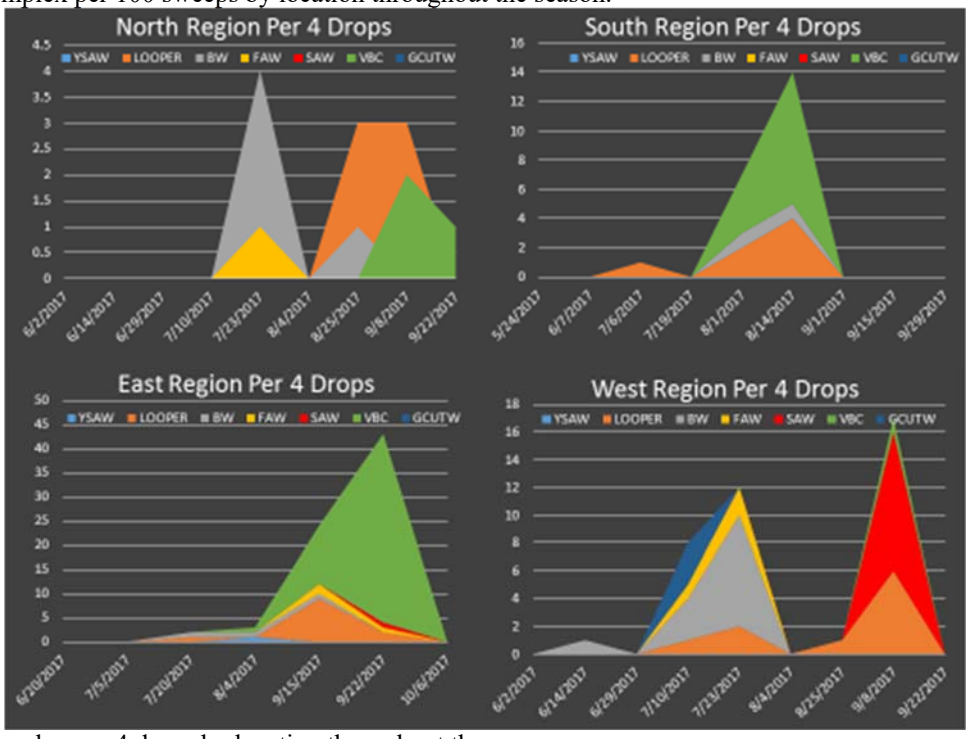

Figure 3. Complex per 4 drops by location throughout the season.

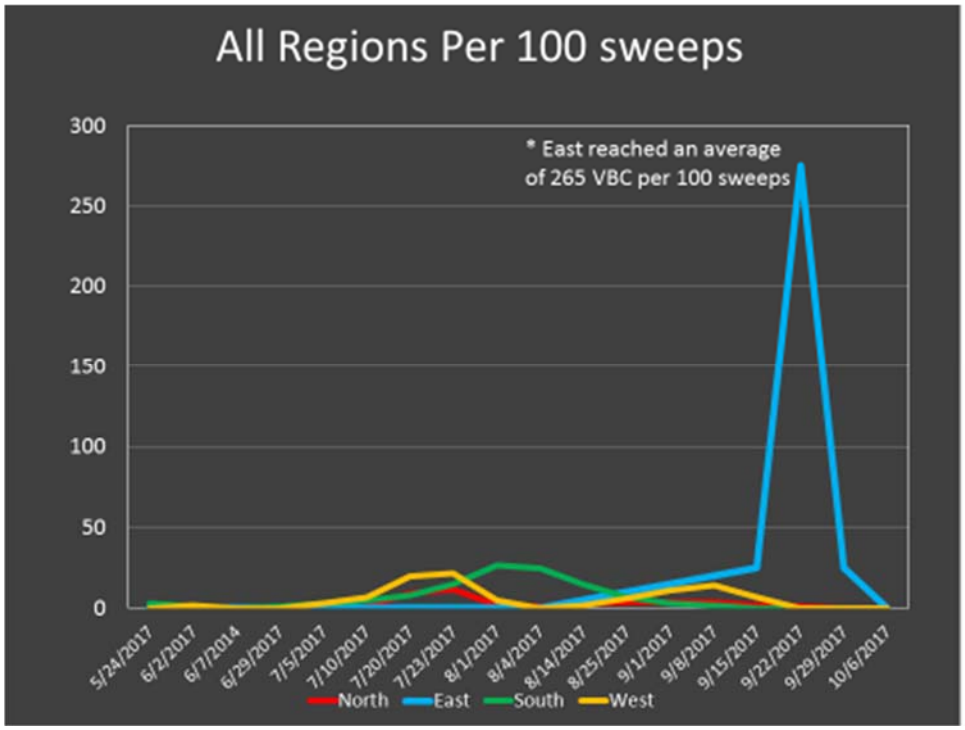

Figure 4. Timeline of complex per 100 sweeps by location throughout season across all caterpillar pest.

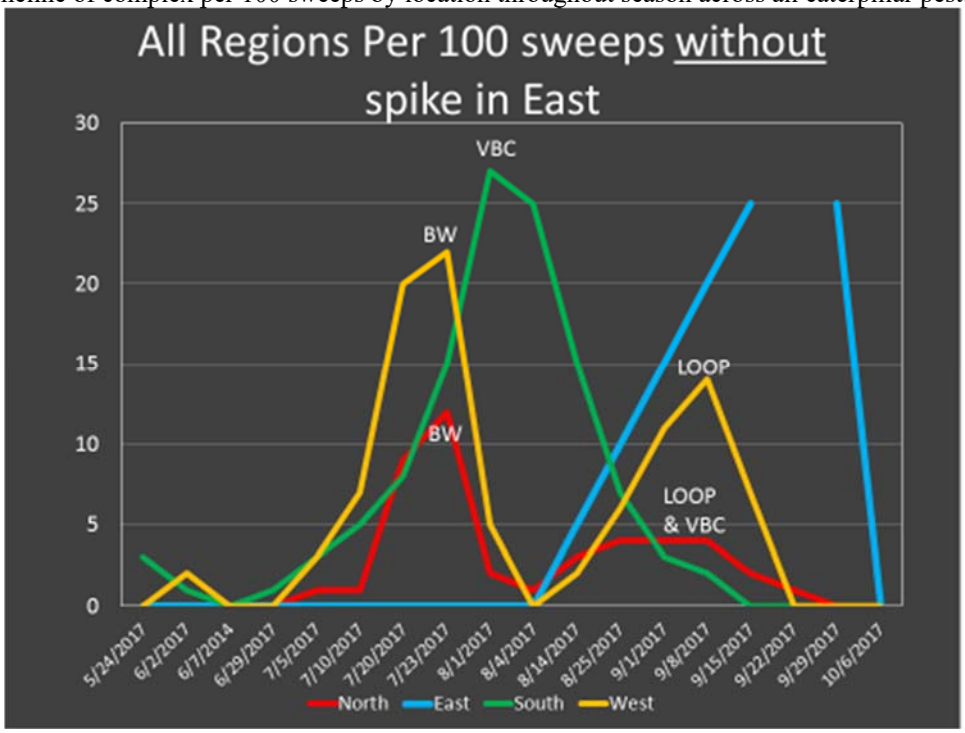

Figure 5. Timeline of complex per 100 sweeps by location throughout season across all caterpillar pest. *Spike in velvetbean caterpillar in east region excluded to see full visual representation of other regions. * Pest labels represent the most abundant pest found during that collection time and are not limited to the one caterpillar pest.

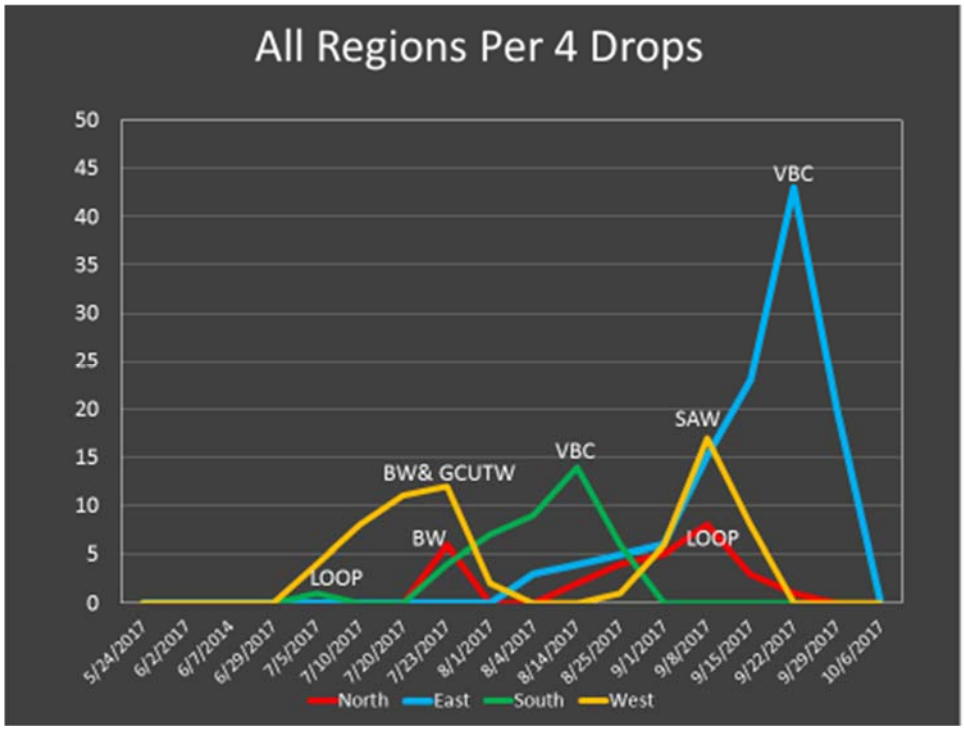

Figure 6. Timeline of complex per 4 drops by location throughout season across all caterpillar pest. * Pest labels represent the most abundant pest found during that collection time and are not limited to the one caterpillar pest.

Summary

In summary, complexes varied when assessing collection method. The north and west complex were similar with no relation to collection method. The south and east region was similar in complex with no relation to collection method. Some caterpillar pest may show up early in the season in low numbers but not spike until later in the season. Loopers which migrate from South America and do not overwinter in Mississippi were found in the south region first as expected.

References

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