



Does Pepper Weevil Overwinter in Southern Georgia



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Abstract:

The pepper weevil, *Anthonomus eugenii*, is the key pest of pepper wherever it occurs. While the adults can feed on pepper foliage, this pest requires fruiting structures for oviposition and larval development. The primary damage results from grubs feeding within the fruiting structures which frequently causes fruit abscission. Larger fruit which do not abscise are unmarketable because of the presence of the grubs, pupae, insect frass and feeding damage. The adult female deposits eggs in the fruiting structures of pepper, with a preference for small buds and pods, but will oviposit in large fruit as well. The eggs hatch within the fruit and the grub and pupal stage all occur within the fruit. With all of the immature development period spent within fruiting structures, the only stage that can be effectively controlled with insecticides is the adult stage. Because the fruit is directly attacked and even a low percentage of fruit infested can render a field unharvestable, the tolerance for this pest is extremely low. The combination of an extremely low tolerance for damage and being able to only control the adult stage generally makes preventive control a necessity.

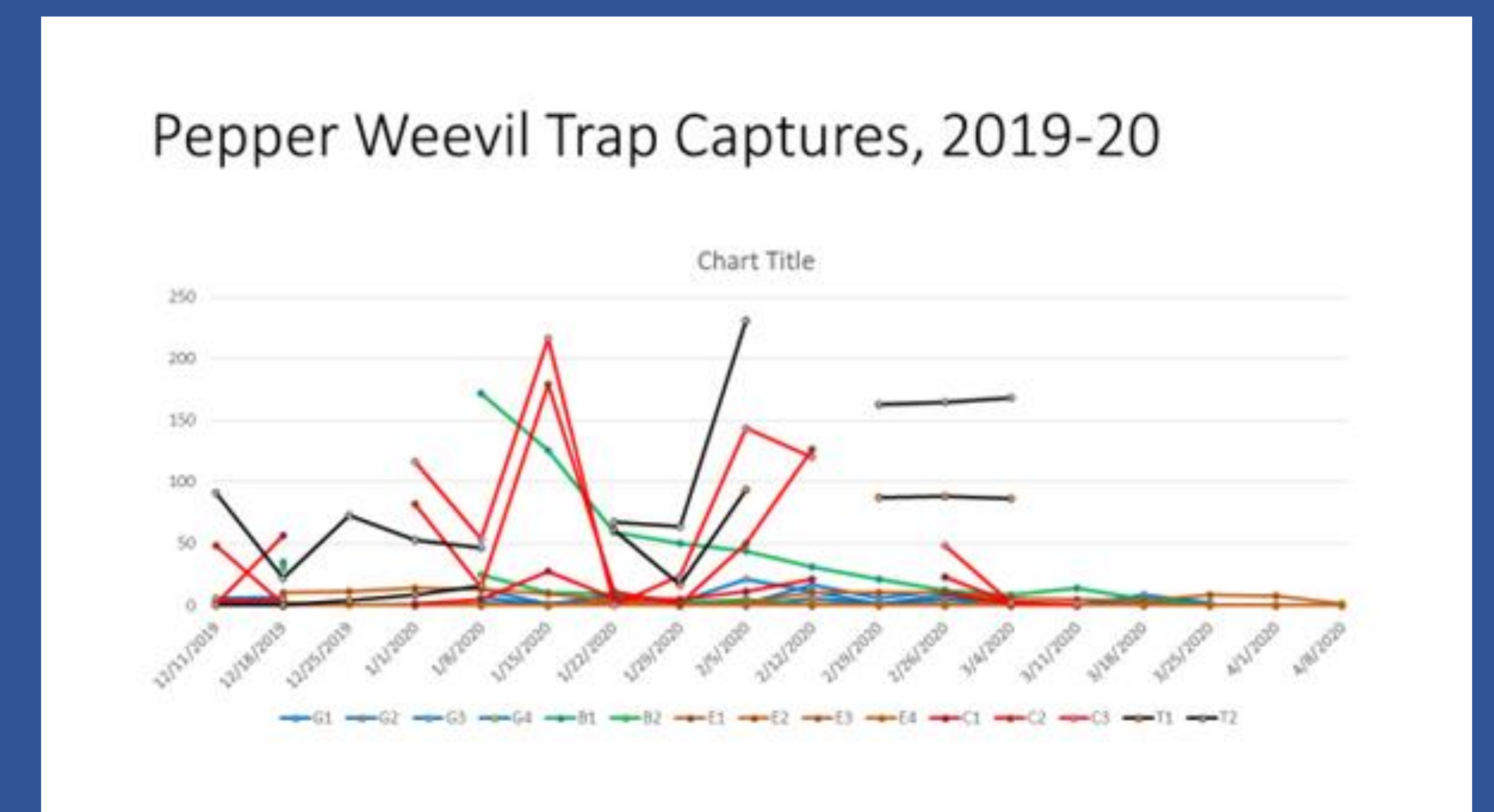
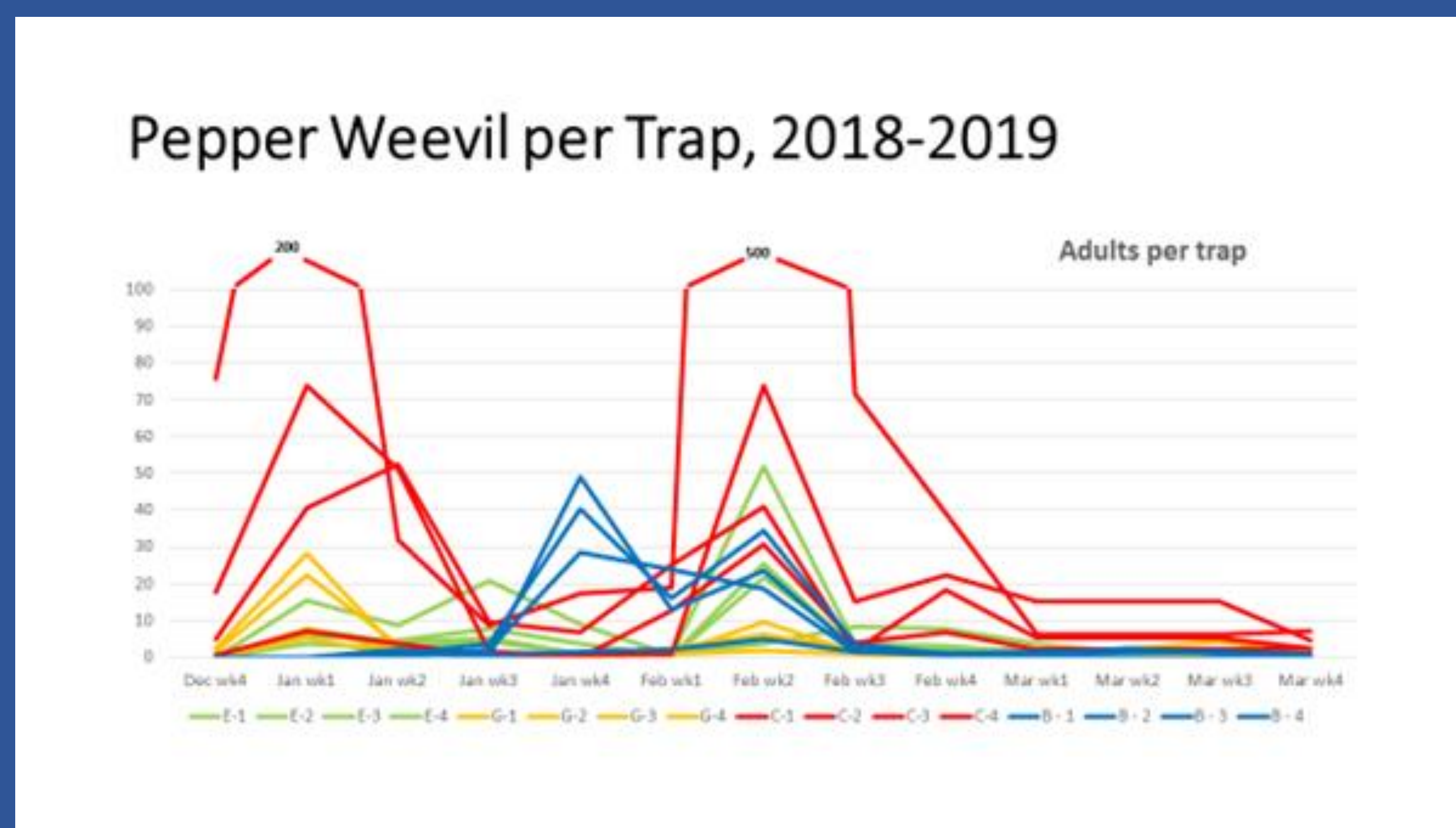
In southern Georgia, pepper weevil has historically been considered an occasional invasive pest. Most infestations were isolated and problems did not occur in the same location year-to-year. Because of this, these infestations were generally attributed to local introduction of the pest. In the fall of 2017, heavy infestation occurred in multiple fields throughout the pepper production region of southern Georgia. This did not appear to be explained as local introductions. The following Spring, pepper weevil adults were collected on pheromone traps in two fields in Colquitt County. This clearly indicated a potential that pepper weevil were overwintering in southern Georgia.

Methods:

To determine whether pepper weevil adults were overwintering in southern Georgia, yellow sticky traps baited with a two part pheromone (Trece Pepper Weevil baits consisting of the pepper weevil aggregation pheromone and a plant extract) were established in commercial pepper fields in Grady, Colquitt, Echols and Brooks Counties and monitored throughout the winter. Traps were monitored on an approximately weekly basis and replaced every two weeks. Four traps were established in each field. In the winter of 2018-19, four fields were trapped in each county. In the winter of 2019-20, four fields were trapped in Grady and Echols counties, three in Colquitt County, two in Brooks County, and two in Tift County.

Results:

Results are presented in the attached graphs. For each year, the data is shown by trap, averaged by county, and averaged across all traps. Field to field variation was obvious, but somewhat irrelevant. Similarly, Colquitt County tended to show the highest trap captures, with one field averaging 500 adults per trap on one date and over 1000 adults on a single trap on the same date. All locations generally showed a decrease of weevil captures over time each year. However, the overall significance of this monitoring program is a clear indication that weevils were present throughout the winter during both years. While trap captures approached zero in the Spring, weevils were caught going into the Spring pepper planting window. Additionally, some of the low captures near the end of the study each year are a likely result of the documented poor performance of the pheromone traps in the presence of pepper plants



Significance of findings:

We clearly demonstrated that pepper weevils do currently overwinter in southern Georgia. This has significantly modified pepper production practices in this area. Growers now routinely treat preventively and monitor for pepper weevil infestation. While this has not eliminated issues with pepper weevil, it has undoubtedly prevented much more severe problems which would have negatively impacted growers had they not been aware of the issue and implemented pepper weevil management programs.

