

Georgia Entomological Society Arthropod Survey

2019

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Apple

Apple insect and mite IPM in GA has been and continues to be quite stable. In most GA apple orchards insecticide applications timed by temperature-driven developmental models still provide excellent control of codling moth (*Cydia pomonella*), Oriental fruit moth (*Grapholita molesta*), and tufted apple budmoth (*Platynota idaeusalis*) our key complex of fruit feeding lepidopterans. That said, significant GA apple acreage exhibits signs of resistance to phosmet (Imidan), methoxyfenozide (Intrepid) and/or novaluron (Rimon). Fortunately, orchards experiencing declining insecticide performance continue to get good to excellent codling moth and Oriental fruit moth control with pheromonal mating disruption.

A potential new pest(s) for the region is a complex of ambrosia beetles (subfamily Scolytinae). These small beetles excavate tunnels in stressed trees and inoculate the bored-out galleries with a fungus. The resulting injury, fungal infection, and secondary infections can rapidly kill trees. Such injury, known as rapid apple decline, has been observed in surrounding states, such as North Carolina. Thus, season-long activity was monitored in North GA orchards in 2019 to better understand the incidence of this pest. Several species of ambrosia beetles and bark beetles were recorded with the black stem borer (*Xylosandrus germanus*) the most abundant species. Although numerous beetles were collected during sampling, there were no reports of ambrosia attacks or losses of trees due to rapid apple decline in North GA.

The relatively new invasive brown marmorated stink bug (*Halyomorpha halys*) is readily observed in GA's mountain counties, but to date has not been a significant pest in northern apple or peach production.

Blueberry

No report submitted

Corn

No report submitted

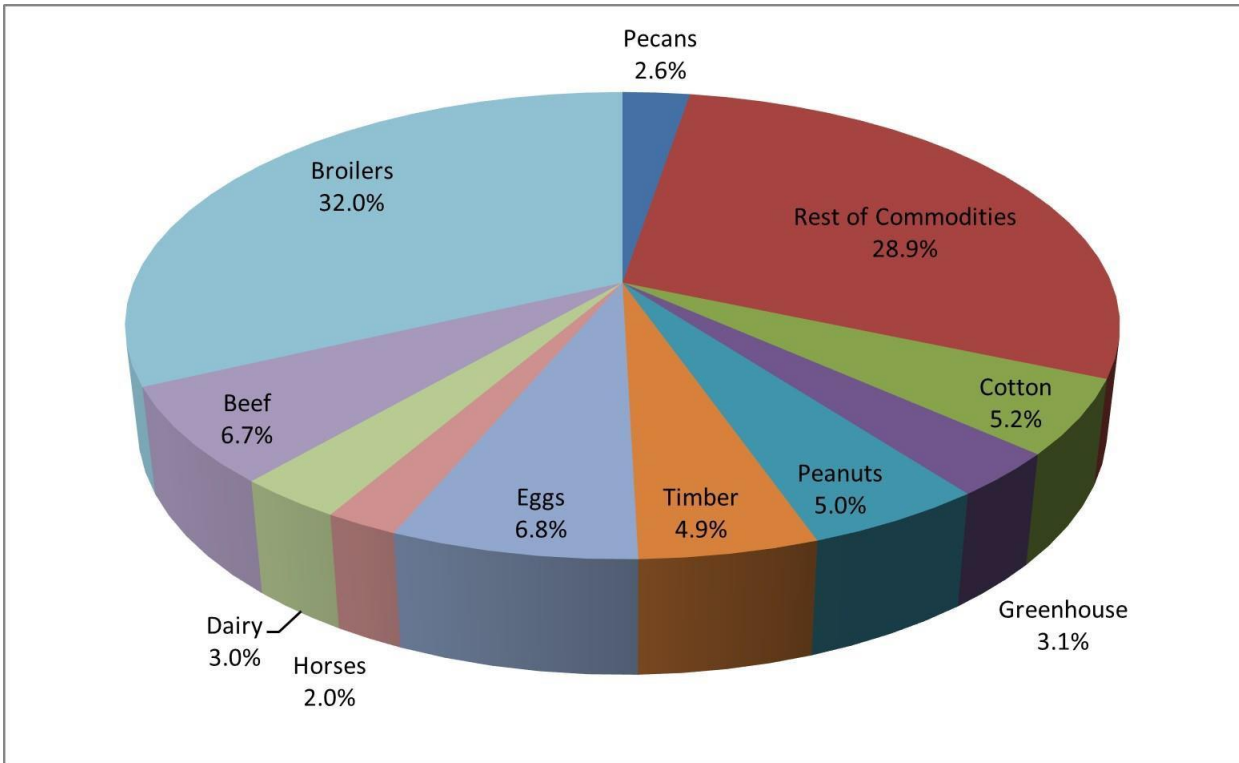
Cotton

No report submitted

Livestock, Poultry, and Pets

Among Georgia's Top 10 agricultural commodities, five are animal agriculture – broilers, egg-laying hens, beef cattle, dairy cattle, and horses. Combined, the farm gate value of these five commodities totals over half the state's entire agricultural farm gate income, illustrating the significance of animal agriculture in the state.

Georgia Top Ten Agricultural Commodities



Beef Cattle

Georgia ranks 21st nationally in cattle production, with about a million head produced annually, amounting to a farm gate value of over a billion dollars. Horn flies (*Haematobia irritans*) are the main pest of pastured cattle, causing cattle irritation and aggravation by their blood-feeding habit. More significantly, the cow's avoidance behaviors disrupt calf nursing, meaning calf weaning weights may be reduced by 18 pounds per calf compared with calves on mother cows with good horn fly control. Statewide, annual losses to horn flies on Georgia cow-calf operations are over **\$14 million**. Horn fly suppression is dependent on insecticides, although due to insecticide resistance there are few options that effectively reduce horn fly numbers for more than a few days. Stable flies, the other bloodsucking fly attacking cattle, account for over **\$15 million** in losses for Georgia cattle herds. To control horn flies and stable flies (as well as other ectoparasites such as face flies, lice, etc.), Georgia cattlemen invest ca. **\$6.1 million** annually.

Broilers

Georgia continues to be the nation's number 1 broiler producing state. Broilers rank at the top of Georgia's agricultural commodities, bringing in \$4.4 billion annually, or 32% of the state's farm gate value.

Worldwide, darkling beetles (*Alphitobius diaperinus*), whose larvae are known as lesser mealworms, are the primary pest of broiler production. These insects burrow into insulation to pupate, damaging facilities and lowering insulative capacity. Costs of heating during winter and cooling houses in summer significantly increase production costs. When litter is removed and applied to pastures or fields as soil amendment, beetles are distributed and may migrate to nearby homes, creating neighborhood friction. Lesser mealworms feed on dead birds and feces, thereby acquiring numerous pathogens which they can transfer to uninfected birds when consumed. They also maintain Salmonella in their guts during pupation, so that newly emerged adult beetles are infectious to chickens. Chickens are predators and prone to eating insects; filling their digestive tracts with indigestible beetles prevents their consuming nutritious feed and gaining weight, as meat birds are intended to do. *Alphitobius* populations worldwide have been shown resistant to most of the pesticides registered for their suppression, so management strategies are extremely limited. Suppression efforts have some effect on beetle numbers, but there are no tactics that significantly reduce beetle populations.

All 13,000 Georgia broiler houses are infested with darkling beetles, and broiler producers spend approximately **\$12.5 million** annually for *Alphitobius* suppression. Statewide, losses to the beetles are estimated at **\$4.9 million** annually, for lost production and control costs totaling ca. **\$17.4 million** annually in the state. Again, even the most conscientious and strategic intervention strategy is ineffective at suppressing *Alphitobius* beetles with current products and technology.

Caged Layers

Table eggs are Georgia's third most lucrative commodity, with an annual value to the state of over \$851 million (ranking Georgia 6th nationally). The principal pest in caged layer houses is the house fly (*Musca domestica*), which causes spotting of eggs, degradation of equipment through fecal contamination, and neighborhood consternation when flies migrate away from the poultry farm to nearby residences. Because of suitable conditions inside layer houses, house flies can be a year-round problem. Producers use manure and water management, trapping, biological control (fly parasitoids and predators), and various pesticides to suppress house flies around caged layer operations. Worldwide, house flies have been shown resistant to most insecticides, so control is seldom adequate. Losses due to flies combined with costs of management are estimated to total over **\$8.1 million** annually.

Northern fowl mites (*Ornithonyssus sylviarum*) are the second most significant pest in layer flocks. These mites are bloodsuckers that spend their entire life cycle on the chicken host, causing itching, scabbing, anemia, and general bird discomfort and lack of thriftiness. Losses due to reduced feed conversion efficiency and reduced egg production are estimated at **\$1.9 million** annually, while suppression costs (primarily acaricides) are about **\$1.8 million** per year, totaling **\$3.7 million** statewide annually.

Pets

Approximately 2.5 million Georgia households have dogs and cats. The three major arthropod pests affecting pets are fleas, ticks, and mosquitoes. Because fleas transmit tapeworms, ticks transmit pathogens such as *Ehrlichia*, and mosquitoes carry heartworm, pest suppression is essential for disease prevention and to maintain pet health. Recent advances in ectoparasite control have yielded flea and tick control products with enhanced efficacy and concomitant premium prices. In Georgia, expenditures for ectoparasite control on dogs and cats amount to over **\$135 million** annually.

Peach

After two years of major significant crop loss, 2019 was a considerably good harvest for the GA peach industry. Pest pressure from fruit-attacking insect pests, such as Oriental fruit moth (*Grapholita molesta*), assorted stink bugs, and green June beetles in peach orchards across GA was light to moderate in 2019. After two years of low levels, the plum curculio (*Conotrachelus nenuphar*) pressure was relatively high during the 2019 season. Management with primarily pyrethroids and phosmet kept plum curculio injury below levels of economic loss.

Premature tree decline associated with scale, lesser peachtree borer, and peachtree borer continued to cause serious losses in 2019. Cover sprays do little to control/suppress these key tree pests. Scale insects, such as San Jose scale (*Comstockaspis perniciosus*) in particular, are increasingly damaging. Scale control is very demanding but doable with rigorous application of dormant oils followed by block-specific responses with an insect growth regulator application for scale outbreaks through October. Regardless, every orchard needs to receive two dormant, dilute oil applications each year. Growers that apply their dormant oil applications at higher volumes, 150-175 gal/acre, are seeing improved scale management, but not complete control.

Lesser peachtree borer (*Synanthedon pictipes*) control is stable where dilute, pre-bloom chlorpyrifos sprays are complimented by in-season cover sprays and a post-harvest application of chlorpyrifos. Peachtree borer (*Synanthedon exitiosa*) infestations are worsening. Peachtree borer populations (univoltine) are showing the same upward population trends previously seen with the multivoltine lesser peachtree borer. Mating disruption utilizing the female sex pheromone of lesser peachtree borer is a highly effective management strategy in the Mid-Atlantic and Upper Mid-Western peach production areas, but this technology has previously

failed with the higher pest abundance and longer, warmer growing seasons of the Southeast. Cottrell et al. at the USDA-ARS have worked for years to adapt mating disruption to the Southeastern lesser peachtree borer and peachtree borer complex. As such, the Southeastern-formulated mating disruption pheromone, Isomate-LPTB Plus, was registered for use in Georgia and South Carolina for the 2019 season, and deployed on approximately 6,000 acres.

A supplemental and/or alternative method of management for borers is with entomopathogenic nematodes. Shapiro et al. at the USDA-ARS has developed methods to manage peachtree borer using nematodes with control levels that are better than the grower standard of chlorpyrifos trunk sprays. While nematodes have not been adopted by commercial growers, the interest and need for alternative management options for borers is crucial. It is expected that adoption of this practice will occur within the next couple of years.

The abundance of the invasive brown marmorated stink bugs (*Halyomorpha halys*) was observed to be increasing in Fort Valley, the key peach growing region of GA. Population numbers were highest post-harvest and there was no reported crop loss/injury due to this pest. The brown marmorated stink bugs will continue to be monitored in 2020 in GA peaches.

Peanut

Georgia's statewide average peanut yield in 2019 was 4200 pounds per acre on 660,000 harvested acres. Prolonged high temperatures and below average rainfall resulted in significant losses on non-irrigated acres and contributed to outbreaks of lesser cornstalk borer and two-spotted spider mite across the state. Tonnage reports suggest that insect damage was relatively low in harvested peanuts at the buying points; just under 7,000 tons were graded segregation 2 for damage of all kinds. Though mold (*Aspergillus* spp.) did not appear to be a serious concern going into storage in 2019, a much higher than anticipated percentage of the crop coming out of warehouses to be shelled failed to meet specifications for aflatoxin levels.

Foliar, broadcast applications of chlorantraniliprole or novaluron provided good control of lesser cornstalk borer infestations. Options for spider mites were limited to a single registered product in 2019. The use of pyrethroid insecticides on non-irrigated peanut fields contributed to mite outbreaks on many acres.

In spite of dry conditions, rootworms continued to be a problem in irrigated peanuts in some areas of the state in 2019. Though empirical data are lacking, the abundance of banded cucumber beetle relative to southern corn rootworm seems to have increased in recent years along with increases in observed rootworm injury in Georgia. The only insecticide currently registered for use in peanut that has provided adequate control of rootworm species is the granular formulation of chlorpyrifos. This active ingredient is under continued regulatory

pressure from groups within the USA and Europe. Additional research is needed to address the apparent emerging pest status of rootworm in Georgia.

Velvetbean caterpillar reached outbreak proportions in 2019. Though relatively easy and inexpensive to manage with insecticides, velvetbean caterpillar infestations resulted in defoliation rates greater than 75% in many fields due to a lack of scouting. There were no reports of control failures associated with insecticide applications for velvetbean caterpillar.

There were several reports of severe early-season defoliation caused by large populations of granulate cutworm in 2019. Other foliage feeding caterpillars were relatively uncommon and caused little injury to the crop.

Thrips pressure on seedling peanut varied across the state in 2019 but could generally be characterized as moderate to heavy. Insecticide applied in the seed furrow at planting combined with cultural practices that reduce the risk of thrips infestation continue to be the standard for thrips management in Georgia. Grower surveys in 2020 indicate that phorate and imidacloprid are the most commonly used insecticides targeting thrips in peanut. Tomato spotted wilt disease was higher in 2019 than recent years, and surveys suggest TSW incidence was higher in regions of the state where a greater proportion of acres were treated with imidacloprid.

Pecan

In 2019, the arthropod pest situation for Georgia pecan production was normal except for sporadic outbreaks of some pests at certain times during the season. Similar to the previous year, early in the Spring, there were reports of ambrosia beetle infestations in young orchards with minimal tree losses. In the summer, older trees (5+ yr old trees) attacked and killed by ambrosia beetles in commercial orchards were reported and observed. In those cases, the trees were either diseased or subjected to stress-inducing factors including flooding and spading. Most if not all growers whose trees were attacked applied a pyrethroid insecticide for control.

Pecan bud moth infestations were also reported by several growers in the southeast GA area in the spring and early summer. In certain areas in southwest and southeast GA, some growers reported heavy infestations and nut drop attributed to pecan nut casebearers. Last year was particularly a high infestation year for this pest relative to previous years, which may be attributed to the prolonged dry and hot spring. Another pest that pecan growers reported constantly throughout the season were ants that compromised the irrigation sprinkler systems.

Apart from the pests mentioned above, the other pests that growers did manage for were yellow aphid complex and black pecan aphids, requiring 1-2 sprays throughout the season. Other minor pests were reported occasionally, including pecan leaf scorch mites and

shuckworms, which some growers had to spray for. The year 2019 was a particularly low population year for pecan weevils as per research trapping efforts and commercial grower trap monitoring.

Sorghum

No report submitted

Soybean

No report submitted

Urban and Structural

No report submitted

Vegetables

No report submitted

Wheat

No report submitted