Georgia Entomological Society Arthropod Survey

2022

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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*) and Oriental fruit moth (*Grapholita molesta*) our key 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.

Brown marmorated stink bug (*Halyomorpha halys*) is readily observed in GA's mountain counties. Population numbers have been on the rise over the past few years, but fortunately, to date there has only been marginal issues due to BMSB in North GA apple and peach production.

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 has been monitored in North GA orchards starting in 2020 to better understand the incidence of this pest. Several species of ambrosia beetles and bark beetles have continued to be recorded with the black stem borer (*Xylosandrus germanus*) the most abundant species. Although numerous beetles were collected during sampling, there still have been no reports of ambrosia beetle attacks or losses of trees due to rapid apple decline in North GA during 2022.

Blueberry

Spotted-wing drosophila (SWD) remains the key pest of blueberries in Georgia. SWD populations were lower early in the season, but they built up as the harvest season progressed. Most of the growers followed management programs developed by UGA Blueberry Entomology program and didn't experience any issues related to SWD infestation in their fruit. However, a few growers who didn't implement SWD management programs in a timely manner reported issues with SWD infestations in their fruit. Consequently, crop losses due to SWD infestations were very low. To improve biological control of SWD, after 10 years of sustained efforts, the national SWD SCRI project team members were able get permits to release the exotic parasitoid, *Ganaspis brasiliensis*. We have started field releases in GA, and at some of the locations we were able to recover *G. brasiliensis* in the follow up surveys, a positive sign for the long-term establishment of this beneficial insect in Georgia. Overall, SWD management costs ranged from \$100-150 per acre.

Secondary pest problems were on the rise last year. During 2022, gall midge and flower thrips populations were reported by several growers. Other pests reported in 2022 field season included scales, mealybugs, and bud mites. Whiteflies were also reported and seem to occur at more farms and at higher population densities than ever before. During the 2022 field season, growers reported a rather unique issue where in some fields a large proportion of berries remained at the pink stage for several weeks and didn't ripen, and consequently farmers were

not able to harvest those fields. Blueberry growers were very concerned about this issue. To address grower concerns, UGA CAES Administration held a listening session with farmers, extension specialists, and county agents, and gathered information from all stakeholders to identify priorities and develop plans to address those high priority issues. Other insect pests reported during 2022 included cherry fruit-worm, cranberry fruit-worm, leafhoppers, whiteflies, flat headed borers, blueberry leaf beetles, and slugs. Statewide, a significant proportion of the blueberry acreage was treated with 1-3 insecticide applications to control these secondary insect pests.

Corn

Corn acreage in Georgia was 425,000 acres planted and 385,000 acres harvested which was lower than in 2021. Growing conditions generally were cooler and wet to start but hot and dry in June during pollination which reduced grain yields. Average grain yield was 175 bushel/acre, which was less than the year before, but many irrigated fields yielded 250 or more bu/acre. Average corn grain price received was \$6.90 per bushel which is the highest price in several years. An additional 30,000 acres were harvested as silage with a yield of 20 tons per acre. All corn seed is treated with a neonicotinoid insecticide (mostly clothianidin or thiamethoxam), so soil insect damage was minimal. Stink bugs are the most important foliar pest of corn. Stink bug infestations were moderate in 2022 in most areas, but preventive sprays of pyrethroid insecticides were still widely used. Fall armyworm had a major outbreak in 2021 later in the season, but infestations were low in on-time planted corn in 2022. All commercially available Bt corn products are still effective in preventing fall armyworm whorl infestations. Bt products also continue to provide good control of stalk borers. Corn earworm infestations were low to moderate in on-time planted corn but increased to damaging levels in late-planted corn. Bt corn adoption is about 90% in the state. Cost of Bt technology was about \$16 to \$28 per acre depending on trait package. Significantly more ear/kernel damage by corn earworm was observed in Bt corn with older products with Cry type Bt toxins than a few years earlier suggesting that field-evolved resistance is occurring to Cry Bt toxins in Georgia. Studies in 2021 indicate resistance in corn earworm populations to the Cry1A and Cry1A.105 genes is now widespread in the southern U.S. The Vip3Aa Bt trait in pyramided Bt products was still highly effective against corn earworm in 2022. Hot, dry conditions also led to aflatoxin contamination of grain at levels exceeding federal standards in western areas of the state.

Cotton

2022 was a good year overall for cotton producers. Timely rains during the growing season and good harvest weather in the fall allowed cotton growers to harvest the second highest yield per acre on record. Cotton was harvested on 1.28 million acres with an average yield of 975 lbs. lint per acre. Average insecticide applications were 2.75 per acre, average yield loss due to insects was 2.8 percent, and the total costs associated with insect pests (losses plus control costs) were \$105.47 per acre.

Thrips infestations were generally higher on April planted cotton compared with May and June planting dates. Most acres received an at-plant insecticide; however, 22 percent of the acres received a supplemental foliar application. Yield loss from thrips was minimal.

Tarnished plant bugs infested 60 percent of Georgia cotton, and 17 percent of the acres were treated for this pest. We continue to see a disturbing trend for increased numbers of tarnished plant bugs in cotton. Clouded plant bugs were present at lower levels compared with 2021 and were treated on about 1 percent of the acres. Insecticide applications targeting plant bugs disrupt beneficial insects and have the potential to flare secondary pests. Although cotton aphid infests most acres each year, this sucking pest rarely causes economic loss. However, growers treated 9 percent of acres for cotton aphid. Since the initial detection of Cotton leafroll dwarf virus (CLRDV) in Georgia during 2018, the virus which is vectored by cotton aphid has been observed in all cotton production regions in Georgia. Although CLRDV infections are common, yield loss has only occurred in a few fields. Aggressive applications of effective aphid insecticides (weekly sprays following emergence) have not significantly impacted CLRDV plant infections or yield.

Over 99 percent of cotton planted in Georgia is Bt cotton. The industry is transitioning to 3-gene Bt cottons which were planted on nearly 80 percent of the acres. This transition needs to continue since laboratory bioassays suggests high levels of resistance to Cry1Ac (the first Bt trait introduced in 1996) and decreased susceptibility to Cry2Ab. The third Bt trait, Vip3A continues to be very active on CEW. In spite of these concerns, only 7 percent of the 2-gene Bt cotton acreage was treated for corn earworm due to low corn earworm populations infesting cotton. Stink bugs continue to be the most common insect requiring treatment. Approximately 80 percent of acres were treated for stink bugs; averaging 2.4 applications per acre.

Winter and early spring temperatures were above average which favors silverleaf whitefly (SLWF) survival and reproduction. Approximately 50 percent of the acreage was infested and 14 percent of the acreage was treated for whiteflies.

Forest:

Numerous forest insects are typically problematic in Georgia forests, including emerald ash borer (*Agrilus planipennis*), southern pine beetle (*Dendroctonus frontalis*), redbay ambrosia beetle (*Xyleborus glabratus*), hemlock woolly adelgid (*Adelges tsugae*), black turpentine beetle (*Dendroctonus terebrans*), lps engraver beetle (*Ips calligraphus, I. grandicollis, I. avulsus*), and Nantucket pine tip moth (*Rhyacionia frustrana*).

Georgia Forestry Commission (GFC) pine beetle aerial surveys observed 13,614,358 acres. Statewide, infestations were lower than in many previous years, for example, in 2017 when thousands of acres of pine were infested after a drought. Eleven southern pine beetle spots were detected on 23 acres. Most spots were < 1 acre. Seven engraver spots were detected, all of which were < 1 acre.

Nantucket pine tip moth continues to be a problem in young (1-5 year) pine stands, causing delays in growth and tree form issues. The economic value of pine tip moth is difficult to determine, as the trees are harvested approximately 20 years after the damage to young trees

occurred. Emerald ash borer (EAB) was first detected in Georgia in 2013. In 2022 EAB was present in 48 Georgia counties. EAB is still only detected in the northern part of the state. Systemic insecticides (imidacloprid, dinotefuran, emamectin benzoate) can be used to protect ash trees with control that ranges from 1 – 3 years, depending on the active ingredient. Insecticide protection is generally only used in valuable landscape settings and for select conservation areas. Georgia Forestry Commission monitors for Asian longhorned beetle (Anoplophora glabripennis), which has not been detected in GA yet, and spongy moth (Lymantria spp). Oak leafminers (Cameraria hamadryadella) were problematic in the northern part of Georgia, damaging the foliage of many oak trees. Most trees are not permanently damaged by high oak leafminer populations, which do not occur frequently.

Livestock, Poultry, and Pets

Animal agriculture continues to be a major component of Georgia's production, with five of the top ten commodities being animals – broilers, 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.

Beef Cattle

Nationally, Georgia ranks 20th in cattle production, with 1.3 million head on pasture. Horn flies continue to be the main pest of beef cattle, with blood-feeding aggravation disrupting feeding and raising body temperature. Horn fly biting interferes with nursing, so calf weaning weights are lowered, probably the main economic impact of this fly. In recent years southern parts of the state have reported horn flies year-round, with producers in some southern-tier counties initiating horn fly treatments in mid-winter. Another bloodsucking fly, the stable fly, causes substantial losses, as well. Combined losses and control costs of cattle ectoparasites in Georgia exceed \$30 million annually.

Asian Longhorned Ticks have now been documented in four Georgia counties, and their spread likely will influence how pest suppression is practiced on Georgia livestock.

Broilers

Georgia retains its claim as the nation's premiere broiler-producing state, and broilers rank at the top of Georgia's agricultural commodities, accounting for 32% of the state's entire farm gate value.

Darkling beetles are the most significant pests in broiler operations and infest each of the state's 13,000 broiler houses. They can serve as biological and mechanical vectors of several avian disease agents, including viruses such as those causing avian influenza. The outbreak of highly pathogenic avian influenza virus in North America reminded all aspects of the poultry industry of the significance of arthropods as virus vectors and spiked interest in effective suppression tactics. HPAI can be spread by dispersing arthropods (primarily house flies in layer houses and *Alphitobius* darkling beetles in broiler houses).

While insecticide resistance is widespread and adequate control is unobtainable with current products and technology, growers continue to attempt suppression with available materials, spending ca. \$12.5 million annually for darkling beetle control. Flock impacts from the beetles and the pathogens they transmit cost producers over \$6 million annually (not including HPAI).

Caged Layers

Georgia ranks 6th nationally in table egg production, with the commodity ranking third in importance among agricultural production. The principal pest in caged layer houses is the house fly, which causes spotting of eggs, accelerated equipment deterioration through fecal contamination, and community animosity when flies migrate away from the facility into surrounding neighborhoods. This does not include the very real risk of pathogen transmission, as of avian influenza virus, which would vastly increase the estimated economic impacts. Losses due to flies combined with fly management costs are estimated at \$9 million annually.

Northern fowl mites are the second most significant pest in layer flocks. These bloodsucking mites live on the bird's skin, producing constant irritation and resulting in anemia and lack of thriftiness. Mites may incidentally move to workers, producing itching and aggravation, resulting in refusal to work under such conditions. Losses due to reduced feed conversion efficiency and lowered egg production are estimated at \$2 million annually, while control attempts (mainly acaricides) amount to about \$1.8 million per year.

Dairy

Dairy cattle are affected by the same pests that plague beef herds, and stress from ectoparasites can compromise cow health and milk production. Stable flies are more severe on dairy animals, both because there is more larval habitat on dairy properties and because milk cows are more severely impacted by the aggravation of stable fly feeding. Milk cows are more susceptible to mastitis (associated with stable flies and horn flies). Stable fly pain interrupts cow feeding, while host avoidance behaviors raise animal temperatures and waste energy. House fly dispersal from dairies creates neighborhood ill will, so house fly suppression becomes a priority, even though this species has minimal direct impact on the animals. Dairy losses to arthropods due to lost production and control costs are estimated at about \$500,000 per year.

Pets

Pet-owning households in Georgia spend about \$135 million annually to control fleas and ticks. As Asian Longhorned Ticks spread through the state, growing concern will likely lead to increased expenditures for pet ectoparasite suppression.

Peach

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 2022. We anticipated high pressure from plum curculio (*Conotrachelus nenuphar*) during the 2022 season, but levels were relatively low and management with primarily pyrethroids and phosmet kept injury below levels of economic loss.

Premature tree decline associated lesser peachtree borer, and peachtree borer continued to cause serious losses in 2022. Cover sprays do little to control/suppress these key tree pests. Peachtree borer (Synanthedon exitiosa) infestations continue to worsen. Peachtree borer populations (univoltine) are showing the same upward population trends previously seen with the multivoltine lesser peachtree borer. Lesser peachtree borer (Synanthedon pictipes) control is stable where dilute, pre-bloom chlorpyrifos sprays are complimented by in-season cover sprays and in the past with a post-harvest application of chlorpyrifos. However, as of March 1, 2022, the EPA has banned the use of chlorpyrifos on all food crops, so the two key applications of this chemical are no longer permitted in peach production. Mating disruption utilizing the female sex pheromone of peachtree borer and lesser peachtree borer is now an effective management strategy in the Southeast with the Southeastern-formulated mating disruption pheromone, Isomate-LPTB Plus. However, adoption of mating disruption in Georgia peach production waned in 2021 and remained low in 2022. As such, reported injury from peachtree borer and lesser peachtree borer was higher in many orchards than in previous years. With the chlorpyrifos ban, it is expected that growers will return to using alternative management strategies like mating disruption in future season.

Scale insects, particularly San Jose scale (*Comstockaspis perniciosus*), have become a perennial problem for peach production in middle Georgia, however in 2022 populations were significantly reduced compared to recent years. Growers that applied two dormant oil applications at higher volumes, 150-175 gal/acre, and included an insect growth regulator, such as pyriproxyfen, experienced excellent management. Very few crawlers were collected via monitoring traps, and no fruit was observed to be damaged. The drastic decrease in San Jose scale numbers appears to be due to a 5-6 natural population cycle, which may be due in part to an entomopathogenic fungus that helps knock back the populations when they get too high. A pink fungus was observed throughout many scale infested orchards in 2022 and was also observed in 2017, the last year where the scale population was noted to be considerably low. While this is great news for the growers, it will be important for them to continue with their standard management programs to help keep the scale populations low. Because with the mild winter of the 2022-2023 season, the low San Jose scale population had the potential to thrive, so if the low numbers go unchecked, by the end of the season we may have another bad scale year.

The invasive brown marmorated stink bug (*Halyomorpha halys*) continues to be observed in considerable numbers in Fort Valley, the key peach growing region of GA, but population numbers continue to be highest post-harvest and there have been no reported crop loss/injury due to this pest.

Peanut

Peanut was planted on 685,000 acres in Georgia in 2022, and the state average yield was over 4,200 pounds per acre. Excellent average yields were achieved in spite of significant weather and pest challenges during the growing season. May and June were abnormally hot and dry over much of the Georgia coastal plain region. These conditions contributed to heavy lesser cornstalk borer (LCB) pressure in peanut. Results from a year-end grower survey showed that

nearly 40% of surveyed acres were treated with insecticide for LCB management. Chlorantraniliprole and novaluron were the active ingredients most commonly applied for LCB. Thrips pressure in seedling peanut was moderate to heavy in many locations, and the average incidence of Tomato Spotted Wilt (TSW) across the state was 13.23%. Approximately 50% of surveyed acres in Georgia were treated with phorate in-furrow at planting for thrips and TSWV management. Imidacloprid was applied as a liquid in-furrow on about 18% of acres. The rootworm complex consisting of southern corn rootworm and banded cucumber beetle resulted in significant losses in areas with heavy soil texture, irrigation, and a history of rootworm pressure. The cancellation of all food use tolerances for chlorpyrifos in February of 2022 left no effective insecticide for rootworm management in peanut. A two-year, on-farm research effort conducted by the University of Georgia showed that banded cucumber beetle adults outnumbered southern corn rootworm adults in peanut fields in Terrell County by a factor of nearly 9 to 1. The abundance of this non-native species could be responsible for recent reports of increased rootworm injury in peanut. Adequate to abundant rainfall occurred over much of the peanut growing region from July to September. A mid-October cold front resulted in several sequential days with frost. Though most peanuts were not visibly injured by the cold weather, the low temperatures likely ended any additional maturation of the unharvested portion of the crop.

Pecan:

Ambrosia beetles on young pecan trees were a concern for growers, but infestation level appears to be low as indicated by low tree mortality in different growing regions.

Budmoths, a pest of concern on young pecan trees, were also relatively low and growers did not seem to be taking extra effort to manage this pest.

Population pressure of pecan nut casebearer was average to low. Since 2022 was a "on year", with heavy crop load, this pest was not a priority for the growers.

Pecan aphid (including: yellow pecan aphid, back margined aphids and black pecan aphid) populations were moderate to high depending on the variety and location. This was especially true in the later part of the season close to harvest. Growers made insecticide applications for pecan aphids.

Pecan leaf scorch mites were reported in few orchards around the state and received miticide applications, but overall mite pressure was low. This could be due to abundant rainfall during the months of June, July and August.

Stinkbugs and leaf footed bugs can occasionally become a concern, but in 2002, population pressure of these hemipterans was fairly low.

Flatheaded appletree borers have been reported from few pecan orchards. Although the infestation level was low, this pest was able to cause mortality of infested trees in the range of 8-10 years old.

Sorghum

Sorghum acreage and yield estimates in 2022 were not available at the time of this writing. Sorghum acreage was about 30,000 acres for grain production and 12,000 acres for forage/silage production. Grain yield probably averaged about 50 bushel/acre. Price received also is not available for 2022 but was probably similar to corn at about \$7.00 per bushel. Acreage was stable as compared to a few years ago, but continues to be limited by low commodity prices and cost of controlling the sugarcane aphid (SCA). Anthracnose disease also was damaging in 2022. SCA infestations were first detected in late May in southern GA and throughout the state by the end of June. Similar to 2021, SCA infestation were not serve in most fields, although some fields of susceptible hybrids were sprayed for control. Lower SCA infestations and damage may be due in part to weather conditions and increased prevalence of natural mortality factors. An increasing number of grain-type hybrids are available with good levels of plant resistance to SCA, while silage type hybrids remain mostly susceptible to SCA. Control of SCA in silage and forage sorghum is problematic. Virtually all grain sorghum hybrids were pretreated with the neonicotinoid insecticides (clothianidin, thiamethoxam or imidacloprid) which provided good control for SCA for 30-35 days after planting. Sivanto prime and Transform WG are registered and effective for control of SCA. Estimated cost of insecticide application for sugarcane aphid control was about \$15 to \$20 per acre. Sorghum midge infestations were absent or very low. Some later planted fields were treated for fall armyworm in the whorl or headworms (fall armyworm, corn earworm and/or sorghum webworm) on the grain heads. About 110 acres of sweet sorghum is grown in Georgia for syrup production with a retail value of about \$5,000 per acre. Sivanto prime is now labeled for use on sweet sorghum for syrup production, and it was used on nearly all acres which prevented severe damage by SCA in sweet sorghum fields in 2022.

Soybean

Insect pest problems in soybean were relatively minor during 2022. Soybeans were harvested on 160,000 acres with an average yield of 41 bushels per acre. Velvetbean caterpillar, stink bugs, soybean looper, and kudzu bugs were the most common pests treated; 50, 35, 9, and 12 percent acres were treated respectively. Average insecticide applications per acre was 1.1, yield loss was 3.21 percent, and the total cost associated with insect pests (losses plus control costs) was \$31.10 per acre.

Turfgrass

Mole cricket continued to be a threat to golf courses in 2022. Most golf course facilities used acephate and fipronil for management. These insecticides were applied preventatively. We suspect most of the issues were related to poor application timing. Applications that are administered too early may not provide adequate control of the nymphs hatching later in the season. Understanding peak adult flight activity in the local area in the spring is critical to determine the appropriate application timing of insecticide. Southern mole cricket will continue

to fly, mate and lay eggs until early May. Thus, delaying the insecticide application to the first week of June should provide good control.

Rhodesgrass mealybug, Tuttle mealybug, bermudagrass mite and zoysiagrass mite issues persisted in golf courses during the 2022 growing season. The mealybugs can be managed using neonicotinoids, but re-applications are warranted at 30 d intervals, especially at the beginning of August or September. These problems are mostly restricted to golf courses in Georgia's southern and coastal regions. Bermudagrass mite problems were also reported from golf courses and lawns across the state. The mite infestations are challenging to manage using miticides.

In 2022, fall armyworm issues were less severe, although the densities of fall armyworms were severe in some pockets during September. Sporadic issues with sod webworms were also reported. Problems with two lined spittlebugs were reported from the eastern parts of the state, where the turfgrass was continuously irrigated.

Urban and Structural: No report submitted

Vegetables

Onions experienced a light year as far as thrips pest pressure. The loss of chlorpyrifos for soil application occurred after planting season and did not impact production practices in 2022.

Cole crop production continues to experience problems with managing diamondback moth, with most populations of this pest showing resistance to multiple insecticide MOAs. Resistance to the diamide insecticides appears to be broadly distributed and either stable or maintained through continued exposure. Resistance levels to most other MOAs vary field-to-field. Novaluron showed moderate efficacy in a field trial in 2022, which had not been documented in several years. DBM pest pressure was moderate in 2022, with some individual fields experiencing severe pressure, but most light to moderate pressure. Imported cabbageworm is becoming a more consistent pest and appears more difficult to control. Pyrethroid insecticides no longer eliminate this pest; however, most newer chemistries for lepidopterous pests work well. As in 2021, Cole crops produced in the spring did experience infestations of aphids, mostly green peach aphid. This is becoming a more consistent pest problem for this crop group.

Thrips densities in spring crops where high in multiple crops, but occurred later in the spring. Squash bugs were an issue in multiple cucurbit crops and have become a more consistent issue in recent years, with infestations occurring in the spring and carrying over to fall production.

Pepper weevil is now a consistent pest in both spring and fall pepper and eggplant production. While most growers are managing this pest successfully, management does require insecticide applications on a maximum 5-day interval from first flower bud until final harvest. Fields with inadequate control experience crop loss early followed by early crop termination.

Silverleaf whitefly and associated viruses occurred somewhat late in 2022. Whitefly pest pressure was light to moderate in early fall production, with insecticides providing adequate control. Whitefly pest pressure increased in August. Virus (TYLC) incidence was high in non-resistant tomato varieties. Viruses in cucurbits was high at some locations, but was light overall.

Resistance to the diamide insecticides was detected in beet armyworm populations in southern Georgia in the fall. This was the first report of diamide resistance in beet armyworm in the US. The distribution of this resistance is unknown.

Research on host plant resistance to cowpea curculio has identified some southern pea non-GMO breeding lines that tolerate curculio damage better than pinkeye purple hull peas, but we still do not have a good insecticide treatment.

Wheat

Planted wheat acreage in 2022 was about 200,000 acres with about 100,000 acres harvested for grain. Acreage was substantially higher than the previous year but remained low by historical standards. Average statewide yield was 58 bu/acre at \$8.30/bu. Indeed, grain price futures increased to about \$16 per bushel in March, which is the highest it has been in many years due to the Russian invasion of Ukraine. Farmers responded by increasing inputs to maximize yield of existing winter wheat fields. Consequently, some farmers harvested 80-100 bu/acre under a high-input system. Resistant varieties continue to be the main line of defense against the Hessian fly. Some fields of susceptible varieties had Hessian fly damage in the spring. Aphids and barley/cereal yellow dwarf disease levels were generally low to moderate in the coastal plain region but caused some damage in northern Georgia. Cereal leaf beetle infestations were low, but some fields were treated in east-central Georgia. Scab disease remains a major concern but was not as severe as the previous season. In addition, about 200,000 acres of winter rye were planted for winter grazing, and 30,000 acres of winter oats and 5,000 acres of winter barley were planted in Georgia. Aphids and barley yellow dwarf infection were a problem in some early planted oat fields. Winter barley acreage is increasing due to interest in barley grain for craft beer production.