Plant Disease and Insect Advisory

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Small Hive Beetle Found in Oklahoma

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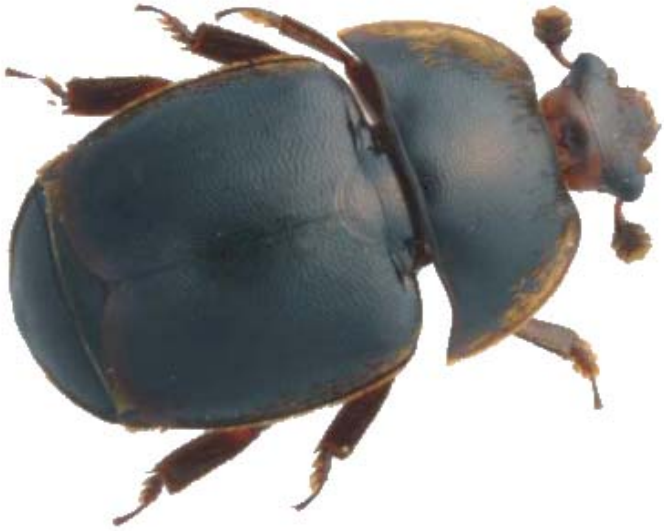


On October 15, 2005 samples gathered from bee hives in Tulsa County near downtown Tulsa, registered positive for small hive beetle, (*Aethina tumida* Murray). Another blow to our beekeeping industry, this small sap beetle has the potential to further devastate their stocks even more. Within two years of the discovery of this insect in the United States, at least 20,000 colonies were destroyed by the beetle, costing many millions of dollars. The beetles have also been found as far north as Manitoba, Canada.

The adult beetle is about 1/3 the size of a honey bee and reddish brown to black in color. It is covered with fine hairs and possesses very characteristic clubbed antennae. The elytra (forewings) do not typically extend the length of the abdomen. The larvae are small (reaching 10-11mm long) and are cream colored. To the untrained eye, they can be confused for wax moth larvae; however, they lack the characteristic prolegs typical of moth and butterfly larvae. The larvae consume pollen and wax but also will eat honey, bee eggs, and bee larvae. They complete their larval stage in 10-16 days and then drop to the ground where they will pupate in the soil. Adult beetles emerge about 3-4 weeks later and begin laying eggs approximately one week after leaving the soil. Adults are good flyers and will easily disperse to new colonies (perhaps up to 5-10 miles away). Individual female beetles are capable of producing up to 1,000 eggs during their 4-6 month lifespan. Reports from Georgia suggest that this pest completely shuts down reproduction during the winter months.

Adult beetles defecate in the honey causing it to ferment and run out of the combs. Full honey supers stored in the honey house or on hives above bee escapes, and weak hives with honey but few bees, seem most vulnerable to attack. Heavy infestations can cause honey bee queens to stop laying eggs and may cause the bees to abscond.

Adults can be detected under top covers or on bottom boards. Larvae may also be detected on the bottom board and within the comb itself, but unlike wax moth larvae, they do not produce silk.

To detect the presence of these insects use corrugated cardboard, with the paper removed from one side. Place this on the bottom board at the rear of the hive; this is where the beetles try to seek shelter within the corrugations. Plastic corrugated "cardboard" is preferred since the bees may chew up the regular cardboard. When infestations from this pest reach high proportions, a "decaying orange" odor may be produced by the fermented honey.

Currently, Oklahoma has a Section 18 emergency exemption for the use of CheckMite+ Strips containing the active ingredient (10%) coumaphos (an organophosphate). This material can be used up to four times per year for small hive beetle control or two times per year for Varroa mite infestations. The number of strips and procedures used for combating each pest will vary, so carefully check all label and supplemental label information. To increase the chances for success, all hives in a given yard should be treated when brood rearing is at its lowest (Fall- after the last honey flow and Spring- before the first honey flow). Remove any honey supers before application of CheckMite+ Strips. Strips should be left in the hives for at least 42 days, but no more than 45 days. Oklahoma also currently holds a Section 18 exemption for control of varroa mites using Thymol (Api Life VAR). These Menthol-impregnated tablets are not registered for use in controlling small hive beetles; they are specifically for varroa mite control.

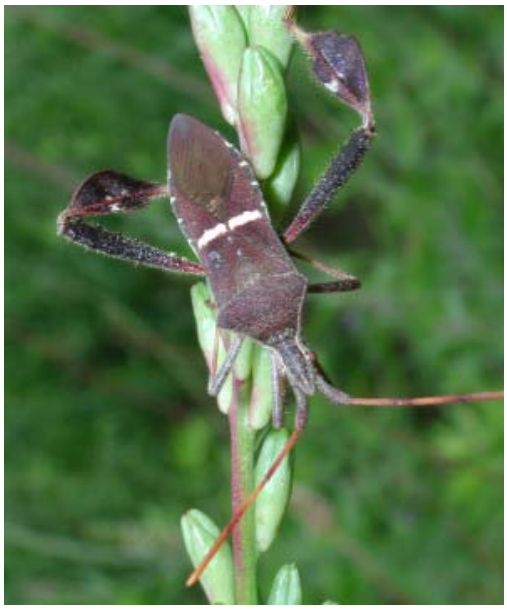
Additional cultural practices can help in preventing problems associated with the small hive beetle and other bee pests. These include; maintaining strong, healthy colonies, keeping apiary area clean of all equipment that is not in use, extracting honey as soon as it is removed from colonies and destroying any beetles as soon as they are detected.

True Bugs in Pecan can Still be a Problem

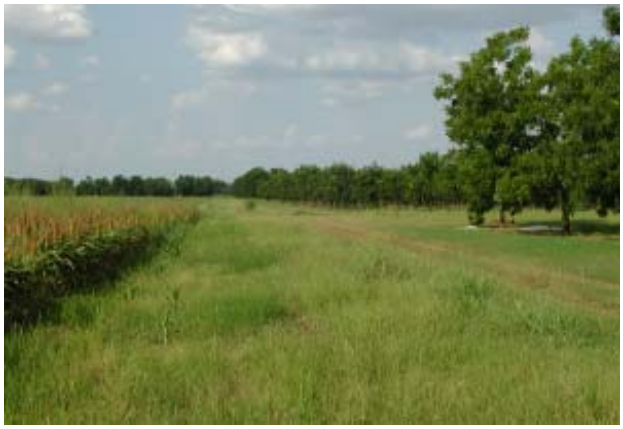
Phil Mulder, Extension Entomologist

Now that many of the early varieties of pecan (Pawnee, Peruque, etc.) have reached shuck split, growers feel their concerns about insect pests are over. This may not be the case for many folks. In areas that have large acreages of soybean, peanut, cotton or alfalfa; stink bug and leaf-footed bug populations can quickly move from one crop to the other, particularly if the orchard environment adjoins any of these types of cropping systems. Damage from these insect pests can occur even in mature pecans that are ready for harvest. Damage from this insect is further compounded by the fact that it is completely invisible until you spend the time, effort and expense to grade or sell the pecans. Once the nut shell is cracked and the kernel meats become visible the edible product may appear very inedible. Blackened pits across the kernel meats are characteristic of stink bug and leaf-footed bug feeding. Someone consuming a pecan damaged by these bugs, will be very shocked at the bitter taste associated with this normally delicious treat. Growers retailing shelled or unshelled pecans run an enormous risk in dispersing

a very low quality product to consumers. Therefore, caution should be used when growing pecan in areas surrounded by these leguminous crops.



Stink bugs and leaf-footed bugs feed on a wide variety of crops and weeds. Basically, they need seed heads or nuts on which to feed. They have several native weed hosts on which they can survive including; thistle, golden crownsbeard and silver leaf nightshade. For many growers that experience just an occasional problem with these pests, just simply switching to a synthetic pyrethroid (e.g. – Warrior) during the latter half of pecan weevil season, can help reduce or eliminate this problem. If the problem is chronic, late and historically heavy then we suggest growers think seriously about using a trap crop. Trap crops are placed outside a tree planting and are used to serve as a site to attract the bugs in and then monitor, manage and treat them on a much smaller scale. Using small plantings of purple-hull peas, soybeans, cowpeas or pearl millet can serve as excellent trap crops for keeping the true bugs out of your pecan orchard. In addition, for some stink bug species there are pheromones available that can be used in conjunction with the trap crop to add additional attractant to the monitoring and treatment area. Likely, one of best choices of trap crops for our state is pearl millet. This plant is relatively drought tolerant, lasts a long period of time with seed heads, and attracts a wide variety of true bug species. Peas are only a fair choice because they are too determinant and therefore, pods are available for the bugs 30-35 days after planting. Once the pods are gone the crop looses its attraction. In Oklahoma, stink bugs and leaf-footed bugs are normally late season pests, so the trap crop must be one that remains attractive late into the season.



Regardless of trap crop, it should be planted about 50 feet from the edge of the orchard in such a way to allow treatment on both sides. Many growers may not have a boom sprayer (especially if they farm pecans exclusively), therefore, an air blast sprayer with the spray pattern directed into the trap crop from one or both sides can provide excellent control of these pests. The choice of insecticide can be quite broad as long as the trap crop is not harvested or used for seed or feed.

A discussion on using any type of trap crop would be incomplete unless we addressed the three "W's"; water, wildlife and weeds. Every plant needs water to grow, so if you wait three weeks after planting to figure out that your pearl millet has not grown much, it may be too late. There can be a negative side to this, since pearl millet can reach eight feet in height with good irrigation or rainfall. This could make it more of a challenge to treat with a boom sprayer. While peas may seem like a good, cheap choice as a trap crop, deer and other wildlife love it more than stink bugs, be certain you select the best option for your trap crop. Finally, like any other plant, the

young trap crop cannot compete with an equally good stand of johnsongrass, so good weed control is a necessity.

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