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Blacklands IPM Update

GENERAL:

Corn is drying down and getting close to harvest with a few fields that could be ready to go by the end of next week. Sorghum that was planted on time is also nearing harvest, while our late planted sorghum crop is just now getting into the boot stage. Headworms and stink bugs were infesting area sorghum fields earlier this month, while sugarcane aphids remain present in area sorghum fields. Cotton ranges from cutout to fields that have yet to start blooming. Current pest issues in cotton include fleahoppers in prebloom cotton, bollworms, and stinkbugs in cotton that is already blooming.

COTTON:

Cotton ranges from cutout in fields on the western side of the county to fields that have not even started to bloom yet on the eastern side of the county. Most cotton fields should be out of the woods for economic fleahopper damage by the end of this week if not sometime next week. Current pest being observed in area cotton fields include bollworms and stink bugs in bloom cotton, fleahoppers in pre-bloom cotton. I have received reports of a handful of fields with spider mite populations that needed to be treated, but I personally have yet to see spider mites in our cotton crop yet.

Bollworm season has arrived, as I found the first live worms in cotton on Monday (7/15) in a field between Hillsboro and Covington. These worms were 1-day old and found on cotton that contain the Bt proteins Cry1Ac and Cry2Ab. Just because I am seeing 1-day old worms in a 2-gene cotton field, does not automatically mean the genes are failing. The worms must feed on the plant for the Bt protein to be ingested and kill the insect. There is an abundance of eggs being found in area cotton fields, however this does not mean we need to prep for a war against worms, because we have a few things in our favor right now. These include the high temperatures which is can lead to low survivorship of the eggs and newly hatched bollworm. The second item in our favor is the abundance of beneficial insects in area cotton fields that will help manage bollworm population by either feeding on the egg or newly hatched larvae before the can make it past the Bt technologies.

All cotton especially 2-gene cotton varieties (Bollgard II, Widestrike, and TwinLink) should be scouted for bollworms, these technologies have seen worms make it through the Bt proteins over the last few years throughout the Cotton Belt. Cotton varieties with 3 Bt genes (Bollgard III, Widestrike 3, and TwinLink Plus) should still be scouted for live worms. When checking fields for bollworms we need to check not only the terminal of the plant for young larvae, but also need to be checking squares, bolls, and bloom tags for larvae and/or feeding damage. The economic threshold or bollworm varies based on the crop's growth stage (Table 1). In fields that have not started blooming the economic threshold is 8 or more worms ¼" or larger per 100 plants, or when population threaten to reduce square retention below 80 percent. Once fields start blooming the economic threshold is 6 percent damaged squares and/or bolls with worms present.

Table 1. Cotton bollworm and tobacco budworm economic threshold based on boll damage	
Growth stage	**Action Threshold (both Bt and non-Bt)**
Before Bloom	≥ 8 wrom (≥1/4 inch) per 100 plants or when populations threaten to reduce square retention below 80 percent
After boll formation	≥ 6% damaged squares and/or bolls and worms are present
Fields that have accumulated 350 DD60 (degree days 60) beyond 5 Nodes Above White Flower are no longer susceptible to first or second instar bollworm/tobacco budworm larvae. Action threshold should be adjusted according to yield potential and production system (dryland vs. irrigated)	

Stink bugs have been found in older cotton on the western side of Hill County, with some fields already being treated. Stink bugs use their piercing sucking mouthparts to puncture the carpel wall of the boll to feed on the developing seed inside. This feeding causes the lint to be stained, wart like structures to form on the inside of the boll and makes the boll susceptible to boll rot pathogens. Currently I have seen the green stink bug (Figure 2) and the brown stink bug (Figure 3), but sometimes we can see leaf-footed bugs (Figure 4) infesting area cotton fields. Stink bugs can be quite difficult to scout for in tall vigorous cotton. Adults typically aggregate together, and their distribution tends to be concentrated in patches throughout the fields. They are also easily found around field margins, which is why it is best to get away from the edge of fields when scouting for stink bugs. When scouting for stink bugs you can use a sweep net, drop cloth, or visual inspection. While scouting 10 to 20 bolls roughly 1-inch in diameter (quarter size) should be pulled from at least four different regions of the field. These fields should be cracked open and inspected for internal damage including stained lint and/or warts on the inside of the boll's carpel wall. The economic threshold for stink bugs in cotton is 20 percent of bolls check with warts on the carpel wall and/or stained lint, with stink bugs present in the field.

Figure 2. Green stink bug adult. Photo credit: Russ Ottens, Univeristy of Georgia, Bugwood.org

Figure 3. Brown stink bug adult. Photo credit: Russ Ottens, Univeristy of Georgia, Bugwood.org

Figure 4. Adult leaf-footed bug. Photo credit: Ronald Smith, Auburn University, Bugwood.org

Aphids are also present in a few area cotton fields, with most fields having a few plants here and there with less than 10 aphids per plant. However, there is one field in the Brandon area that has patches of heavy aphid populations. Aphids use their piercing sucking mouthpart to feed on the plants sap, robbing the plant of carbohydrates that would otherwise be used for fruit production. In cotton aphid colonies are usually found on the underside of leaves, in the terminal, on stems and occasionally on fruit including square and bolls. Heave and/or prolonged aphid populations can cause the leaves to curl downwards, older leaves to turn yellow and be shed from the plant, squares and small bolls to be shed from the plant, and the development of small bolls which can lead to incomplete fiber development. Like most other aphids the aphids commonly found in cotton produce honeydew which is a sticky sugary substance that can be found on the upper leaf surface below aphid colonies. This honeydew can attract sooty molds, and lead to sticky cotton which leads to harvest, ginning and spinning issues. Aphid populations can be controlled naturally thanks to unfavorable environmental conditions, beneficial insects including predators and parasites, and some insect pathogens. Since we are starting to see more and more bollworm eggs laid in area cotton fields, small colonies can be beneficial in the since that the colonies will help to attract and build our beneficial insect populations in these fields. To scout for aphids 60 leaves divided between the upper, middle and lower canopy should be inspected for aphids and the number of aphids present on each leaf. The economic threshold for aphids in cotton depends on whether open bolls are present in the field. Prior to the first cracked boll the economic threshold for aphids is 40 to 70 aphids per leaf, using a lower threshold for higher yield potential fields. After the first cracked boll the economic threshold drops to only 10 aphids per leaf, where rain is not likely to wash honeydew from the lint.

SORGHUM:

Our early planted sorghum crop is at the point where the only insect pest to worry about is the sugarcane aphid, except for some low-lying areas where growth was delayed due to excessive soil moisture and/or standing water. Headworms were present in a few area sorghum fields the last few weeks with some fields needing to be sprayed. Stink bus have also been found in the past few weeks, but now that most of our early planted fields are in the hard dough stage stink bugs are no longer an issue. Some area fields did have stink bug populations that justified an insecticide application two weeks ago. Sugarcane aphids remain present and area fields that were treated with a pyrethroid for headworms and/or stink bugs are at a heightened risk for sugarcane aphid populations to spike and should be scouted twice a week. Sorghum fields not treated with a pyrethroid for headworms and/or stink bugs should have enough beneficial insect that we will not see a sudden spike in aphid numbers per leaf, but fields should still be scouted weekly. Fields that are close to being ready for harvest may be able to make it until a kill shout of a herbicide like glyphosate is applied to prep the field for harvest. In these fields if aphids are present mixing in a generic Malathion product can prevent the aphids from moving into the head and causing issues with sticky grain both at harvest and when you take the grain to the buying point.

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