

BLACKLANDS IPM UPDATE

D. TYLER MAYS, EXTENSION AGENT-IPM, HILL AND MCLENNAN COUNTIES

ZACH T. DAVIS, CEA-AG/NR, HILL COUNTY

June 22, 2024

Volume 6, Issue 7

GENERAL:

Corn, sorghum and cotton are progressing nicely despite the adverse weather conditions they have faced most of this growing season. Cotton acres are still battling high fleahopper numbers, but it appears our second application may be slowing their movement into the field. The younger cotton that was planted near the deadline is up and growing, and thrips are present in these fields, but the cotton is growing quick enough that thrips will have minimal impact. Sorghum is heading out or pollinating, and there are a number of pests we need to keep an eye out for in sorghum including headworms, stink bug, sorghum midge, and sorghum aphid. Corn is on the home stretch but still has a way to go before grain harvest. In corn we need to be cognizant of spider mite populations, and grasshoppers. Corn yields may not be what we originally thought they would be, because there are a lot of fields, I have looked at with either poor pollination or poor kernel set. We also need to be on the lookout for corn leafhoppers, given how far along our corn crop is they will likely do little to no economic injury, but we would like to see how far the outbreak expands to the north and east.



BLACKLANDS IPM UPDATE IS A PUBLICATION OF TEXAS A&M AGRILIFE EXTENSION IPM PROGRAM IN HILL & MCLENNAN COUNTIES.



213 STADIUM DR.
P.O. BOX 318
HILLSBORO, TEXAS 76645
PHONE: 254-582-4022
FAX: 254-582-4021
MOBILE: 979-482-0111
EMAIL: TYLER.MAYS@AG.TAMU.EDU



CORN:

The biggest issue in corn this year is the poor kernel set that is likely due to excessive soil moisture, poor pollen production, and nutrient deficiencies. Things we need to keep an eye on and is likely already in the area is Southern rust. Grasshoppers are starting to move into area corn fields, as well as sorghum and cotton. I have found a few corn leaf hoppers in Hill County, but no to the levels they are reporting along the Upper Gulf Coast and other regions to our south.

There are a few fields in the area that have been severely defoliated by grasshoppers (**Figure 1**). It is not common to see corn significantly damaged by grasshoppers in our area, despite their presence in fields every year. Significant yield losses from grasshopper damage can occur up to 50% starch line. This is because even though the ear may be at dent, that kernel still has about 40% of its final weight to add. Control of grasshoppers is easier when they are smaller, and treatment is justified when there is 10 or more grasshoppers per square yard in field margins. If populations are caught early enough, spraying just the field margins may be effective. There are several insecticides available for grasshopper management including multiple pyrethroids, organophosphates like malathion and dimethoate, and chlorantraniliprole (Vantacor). Vantacor is one of the more effective products against grasshoppers, but when making a pesticide decision we really need to focus on the pre-harvest interval of all the labels.



Figure 1. Corn field severely defoliated by grasshoppers.

Southern rust is an occasional disease of corn in our area, showing up typically during wetter years. The pustules of Southern rust are densely located across the leaf surface and are circular with bright orange color. This disease requires extended periods of leaf wetness and temperatures between 57-94°F for infection and disease development. The closest report of Southern rust to Hill and McLennan County was eastern Williamson County. It is likely that there may be some low-level infections that have not been found yet, so we need to check our fields for this disease in the next couple of weeks. Hybrids vary in their level of susceptibility to Southern rust, and this information is important when deciding if treatment is justified. Dr. Tom Isakeit has put together a very good bulletin on Southern rust in corn and has a table in there to help you decide if treatment is justified. In summary of the bulletin, once the crop reaches the dough stage, the likelihood of need to treat the field for Southern rust is greatly reduced.

GRAIN SORGHUM:

Sorghum has fared the excessive moisture well and most fields are currently flowering or are just past finishing flowering. I have looked at a few fields the last couple of weeks and have yet to find midge or evidence of a midge infestation. The heads that have not emerged yet will likely see some midge pressure, as a colleague has reported finding midge last week in some sorghum in the Milam/Williamson County area. If we planted any sorghum late, it is at risk for severe midge issues, and should be scouted closely to avoid significant yield loss. Pyrethroids are the primary insecticide used for controlling midge, and this could lead to potential issues with other pests like sorghum aphids and headworms. Sorghum midge should be treated based on a threshold that is based on the yield potential, market value, and cost of control (Table 1).

Crop Yield Potential (lb./Acre)	Value (\$/100 lb.)	Control Cost (\$/Acre)			
		\$6	\$8	\$10	\$15
2,000	6	0.67	0.89	1.12	1.68
	7	0.57	0.77	0.96	1.44
	8	0.50	0.67	0.84	1.26
	9	0.45	0.60	0.75	1.12
	10	0.40	0.54	0.67	1.01
4,000	6	0.34	0.45	0.56	0.84
	7	0.29	0.38	0.48	0.72
	8	0.25	0.34	0.42	0.63
	9	0.22	0.30	0.37	0.56
	10	0.20	0.27	0.34	0.50
6,000	6	0.22	0.30	0.37	0.56
	7	0.19	0.26	0.32	0.48
	8	0.17	0.22	0.28	0.42
	9	0.15	0.20	0.25	0.37
	10	0.13	0.18	0.22	0.34
8,000	6	0.17	0.22	0.28	0.42
	7	0.14	0.19	0.24	0.36
	8	0.13	0.17	0.21	0.31
	9	0.11	0.15	0.19	0.28
	10	0.10	0.13	0.17	0.25

These economic thresholds are 30 percent below the economic injury level.

Table 1. Economic threshold for sorghum midge.

Sorghum aphids (formerly sugarcane aphid) are present in area sorghum fields and are currently at low populations (**Figure 2**). This warm and dry weather pattern that is setting in, is favorable for these populations to grow. Since we now have sorghum aphids present in some fields, it is time to start checking fields 1-2 times a week for sorghum aphids. Treatment should be made in a timely manner once the economic threshold is reached to avoid economic yield loss. Sorghum aphid populations should be treated once the field reaches 30% of the plants sampled have established colonies. Insecticide options include Sefina, Sivanto Prime, and Transform. However, the 4-7 fl oz. rate of Sivanto Prime remains the most effective product.



Figure 2. Sorghum aphid colony with lady beetle larvae. Photo credit: Pat Porter.

COTTON:

Cotton across the Blacklands is all over the place. Some of the earliest planted cotton in McLennan County and further South is starting to bloom, North of Waco most of the early planted cotton is moving into either 3rd or 4th week of squaring and blooms should start showing up within the next 10 days. The late planted cotton is growing quickly, and has outgrown thrips pressure, and will start squaring within the next week. We have finally started drying out across the regions, and with the warmer weather and clearer skies cotton is finally starting to grow at a more normal rate. With the favorable growing conditions there are some of the more aggressive growing cultivars that were planted early that have needed or could benefit from an application of a growth regulator. This season continues to be a heavy pest year, but thankfully most of the cotton acres in the Blacklands are no longer susceptible to thrips. Cotton fleahopper numbers continue to be an issue and will likely become a big issue for the late planted cotton. Cotton aphid numbers have increased in a handful of fields in the area, and with the warm and humid weather could become a major issue in some area fields. Bollworms and stink bugs are a concern in the early planted cotton that is starting to bloom or are close to blooming.

Cotton fleahopper is the number one pest of cotton production in the Texas Blackland Prairie and has been a major issue for the early planted cotton this year. Our early planted cotton has battled cotton fleahopper for three weeks now, and some fields have been at or above the economic threshold all three weeks of squaring. With all the rain this spring we built up a large cotton fleahopper population on alternative host plants like ragweed parthenium, silver leaf nightshade, and others in our rangelands and roadside ditches. This has led to a constant influx of adults into these cotton fields and combined with fewer acres of cotton across the region, the fleahopper populations have been relentless. It does appear that we have slowed down the influx of cotton fleahopper into the early planted cotton fields. For cotton that is just now starting to square, or will be squaring soon fleahopper populations need to be watched closely as these early square positions will be important to retain on the plant to produce a profitable crop. We are in the process of update the economic threshold for cotton fleahopper that will be based on the market price, and the cost of control (Table 2) Historically, our economic threshold had been 10-15 fleahopper per 100 plants, but recent research that was conducted in Hill County, Brazos River Bottoms, and the Coastal Bend indicate that the threshold in water deficit/dryland production should be closer to 3-6 fleahoppers per 100 plants. This is because in out dryland production system we do not have conditions favorable to compensate for early season square loss after we reach peak bloom.; Looking at treatment options, the mix of 4 oz of acephate and 2 fl oz imidacloprid remains the most cost-effective treatment for fleahoppers. Other insecticides include Centric at 1.25-2.0 oz, Sivanto Prime at 5 fl oz, Transform at 1 oz, Sefina, PQZ, and Bidrin at 3.2 fl oz. While acephate plus imidacloprid, or Bidrin may be cheaper options they will also eliminate any beneficial insects present in the field. Centric remains a very effective insecticide for cotton fleahopper, and the application rate used can greatly impact its residual activity, as the closer the rate gets to 2 oz the longer activity. Sivanto Prime is also a good product for fleahopper management, but this insecticide kills the fleahoppers slowly. Sivanto Prime can provide good residual activity, but this residual activity is dependent on the coverage and growth stage of the crop at the time of application. Sivanto Prime and even Centric perform better when applied during the second or third week of squaring, as there are more squares on the plant that need to be protected and will be exposed to the insecticide. With Sivanto Prime it is not uncommon to need to add an additional insecticide like 4 oz of acephate when the fleahopper population is high, to quickly control the fleahopper population that would otherwise die slowly.

Contr ol Cost (\$/ac)	Marke t value (\$/lb)	Economic threshold (70% EIL)		Contr ol Cost (\$/ac)	Marke t value (\$/lb)	Economic threshold (70% EIL)		Contr ol Cost (\$/ac)	Marke t value (\$/lb)	Economic threshold (70% EIL)	
		Water deficit	Non- deficit			Water deficit	Non- deficit			Water deficit	Non- deficit
\$10.00	0.50	4.06	10.22	\$15.00	0.50	6.09	15.33	\$20.00	0.50	8.12	20.44
	0.60	3.38	8.52		0.60	5.08	12.77		0.60	6.77	17.03
	0.70	2.90	7.30		0.70	4.35	10.95		0.70	5.80	14.60
	0.80	2.54	6.39		0.80	3.81	9.58		0.80	5.08	12.77
	0.90	2.26	5.68		0.90	3.83	8.52		0.90	4.51	11.35
	1.00	2.03	5.11		1.00	3.05	7.66		1.00	4.06	10.22

Table 2. Updated cotton fleahopper economic threshold based on market value and cost of control.

Cotton aphids are an occasional pest of cotton in the Blacklands and are favored by warm and humid weather conditions (**Figure 3 & 4**). They can be a significant pest of cotton, but under favorable growing conditions early in the season cotton can withstand heavy populations. However, late in the growing season after bolls start opening the population size that can be tolerated is much lower due to the potential contamination of the lint with honeydew causing sticky cotton. Prior to open bolls the threshold for aphids in cotton is 40-50 aphids per leaf, and it is not uncommon to find small pockets of fields where there are 40 or more aphids per leaf. When deciding to spray or not spray for aphids when they are spotty populations at or above the economic threshold, it is best to assess the percent of the field with pockets of aphids at or above the economic threshold. There are several products labeled for aphids in cotton, however, products like Centric and imidacloprid are not very strong against cotton aphids especially when the colonies are large and/or the plant canopy is dense. Early in the season during squaring, Centric and imidacloprid can provide some suppression of aphid populations but will not likely completely control the aphid population. Products like Sivanto Prime, Sefina, PQZ, Transform, and Intruder can provide control of aphid populations.



Figure 3. Cotton aphid colony.



Figure 4. Cotton plant with leaves cupping down due to cotton aphid infestation.