

INTEGRATED PEST MANAGEMENT
May 22, 2009 VOLUME 5 ISSUE 3
CALHOUN VICTORIA REFUGIO

Soybeans

The two main pests we have to deal with in soybeans are stink bugs and soybean rust. We are scouting soybeans but have yet to find stink bugs at treatable levels. Most that are blooming have 0-4 stink bugs per 100 sweeps and the dry conditions are not conducive to the spread of soybean rust. The current risk for soybean rust is very low. There is no reason that I have found to apply any pesticides to soybeans other than for weed control.

Grain sorghum

As the sorghum is beginning to head we need to be looking for **Sorghum Midge** in the heads. The sorghum midge is one of the most damaging insects to sorghum in Texas, especially in the southern half of the state. The adult sorghum midge is a small (1/16 inch long) fragile-looking, orange-red fly with a yellow head, brown antennae and legs and gray, membranous wings.



Sorghum Midge

During the single day of adult life, each female lays about 50 yellowish white eggs in flowering spikelets of sorghum. Eggs hatch in 2 to 3 days. Larvae are colorless at first, but when fully grown, are dark orange. Larvae complete development in 9 to 11 days and pupate between the spikelet glumes. Shortly before adult emergence, the pupa works its way toward the upper tip of the spikelet. After the adult emerges, the clear or white pupal skin remains at the tip of the spikelet.

A generation is completed in 14-16 days under favorable conditions. Sorghum midge numbers increase rapidly because of multiple generations during a season and when sorghum flowering times are extended by a range of planting dates or sorghum maturities.

Effective control of sorghum midge requires the integration of several practices that reduce sorghum midge abundance and their potential to cause crop damage. The most effective cultural management method for avoiding damage is early, uniform planting of sorghum in an area so flowering occurs before sorghum midges reach damaging levels. Planting hybrids of uniform maturity early enough to avoid late flowering of grain heads is extremely important. This practice allows sorghum to complete flowering before sorghum midges increase to damaging levels.

Cultural practices that promote uniform heading and flowering in a field are also important in deciding on treatment and in achieving acceptable levels of insecticidal control. To reduce sorghum midge abundance, use cultivation and/or herbicides to eliminate Johnson grass inside and outside the field. Where practical, disk and deep plow the previous year's sorghum crop to destroy overwintering sorghum midges.

Multiple insecticide applications are used to kill adults before they lay eggs. Sorghum planted and flowering late is especially vulnerable to sorghum midge. To determine whether insecticides are needed, evaluate crop development, yield potential and sorghum midge abundance daily during sorghum flowering. Because sorghum midges lay eggs in flowering sorghum grain heads (yellow anthers exposed on individual spikelets), they can cause damage until the entire grain head or field of sorghum has flowered. The period of susceptibility to sorghum midge may last from 7 to 9 days (individual grain head) to 2 to 3 weeks (individual field), depending on the uniformity of flowering.

To determine if adult sorghum midges are in a sorghum field, check at mid-morning when the temperature warms to approximately 85 degrees F. Sorghum midge adults are

most abundant then on flowering sorghum grain heads. Because adult sorghum midges live less than 1 day, each day a new brood of adults emerges. Sampling must be done almost daily during the time sorghum grain heads are flowering. Sorghum midge adults can be seen crawling on or flying about flowering sorghum grain heads. The simplest and most efficient way to detect and count sorghum midges is to inspect carefully and at close range all sides of randomly selected flowering grain heads. Handle grain heads carefully during inspection to avoid disturbing adult sorghum midges. Other sampling methods can be used, such as placing a clear plastic bag or jar over the sorghum grain head to trap adults.

Because they are relatively weak fliers and rely on wind currents to aid their dispersal, adult sorghum midges usually are most abundant along edges of sorghum fields. For this reason, inspect plants along field borders first, particularly those downwind of earlier flowering sorghum or Johnson Grass. If no or few sorghum midges are found on sorghum grain heads along field edges, there should be little need to sample the entire field.

However, if you find more than one sorghum midge per flowering grain head in border areas of a sorghum field, inspect the rest of the field. Sample at least 20 flowering grain heads for every 20 acres in a field. For fields smaller than 20 acres, sample 40 flowering grain heads. Flowering heads are those with yellow blooms. Avoid plants within 150 feet of field borders. Record the number of sorghum midges for each flowering head sampled and then calculate the average number of midges per flowering head. Almost all of the sorghum midges seen on flowering sorghum heads are female.

Insecticide residues should effectively suppress sorghum midge egg laying 1 to 2 days after treatment. However, if adults still are present 3 to 5 days after the first application of insecticide, immediately apply a second insecticide treatment. Several insecticide applications at 3-day intervals may be justified if yield potential is high and sorghum midges exceed the economic injury level.

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Table 14. Estimated economic injury levels for sorghum midge for a range of factors. (This table is only a guide. Use the equation in the text to estimate the economic injury level in your field.)

Control cost, \$/acre	Crop value, \$100 lbs	Economic injury level— mean number of midges/flowering head		
		Flowering heads = 18,000/acre	Flowering heads = 45,000/acre	Flowering heads = 67,500/acre
5	6	1.6	0.6	0.4
5	7	1.3	0.5	0.34
5	8	1.2	0.5	0.3
6	6	1.9	0.8	0.5
6	7	1.6	0.7	0.4
6	8	1.4	0.6	0.35
7	6	2.2	0.85	0.6
7	7	1.9	0.75	0.5
7	8	1.6	0.65	0.45

Table 15. Suggested insecticides for controlling sorghum midge.

Insecticide	Application rate	Days from last application to:	
		Harvest	Graze
Chlorpyrifos (Lorsban® 4E)	8 oz	30	30
Cyfluthrin (Baythroid® 2E)	1.0-1.3 oz	See remarks	14
Cyhalothrin (Karate® 1E) (Warrior® 1E)	1.92-2.56 oz	See remarks	
Esfenvalerate (Asana® XL)	2.9-5.8 fl oz	21	—
Malathion (Fyanon® ULV)	8-12 oz	7	7
Methomyl (Lannate®) (2.4LV) (90WSP)	12-24 oz 4-8 oz	14 14	14 14
Zeta-cypermethrin (Mustang Max®)	1.28-4.0 fl oz	14	45

Remarks

Cyfluthrin. If one or two applications are made, green forage may be fed or grazed on the day of treatment. If three applications are made, allow at least 14 days between last application and grazing.

Cyhalothrin. Do not graze livestock in treated area or harvest for fodder, silage or hay.



SOME OF YOUR SUPPORTERS FOR THE IPM PROGRAM

**Moreman Community Gin - South Texas Cotton & Grain
 Farmer's Coop of El Campo - Sorghum Partners
 Hlavinka Equipment Company - Helena Chemical Company
 Danevang Farmer's Coop, Inc. -**

