

2025 Cotton Seed Bug Survey Annual Accomplishment Report

A. Purpose

The cotton seed bug (CSB), *Oxycarenus hyalinipennis*, is a pest of cotton and other members of the Malvaceae plant family, such as okra. It causes damage to cotton plants by feeding on the oils of the seeds which decreases seed quality and germination. Furthermore, increased economic losses occur when CSB is crushed during ginning, as they lower its quality and stain the cotton lint. This funding supports a survey that is conducted in cotton and okra growing counties throughout California for detection of CSB.

This project utilizes the survey methods developed by the California Department of Food and Agriculture's (CDFA) Integrated Pest Control Branch, based off the United States Department of Agriculture's (USDA) New Pest Response Guidelines (2010) for the CSB.

There are three major objectives for accomplishing this goal:

1. Conduct cotton boll sampling in cotton plants in all cotton growing counties throughout the State of California.
2. Conduct visual inspection of cotton and okra plants in all cotton and okra growing counties throughout the State of California.
3. Provide a detection method and monitoring plan for CSB.

B. Activities

1. Monthly activities:

- **August 2025:** Order supplies, conduct site selection, and plan survey timing.
- **September - October 2025:** Conduct commercial cotton and okra survey including mapping field sites and collection of field data.
- **November - December 2025:** Send samples to laboratory to process and analyze bolls for CSB.

2. Survey methodology

The CSB survey began in mid-September 2025 and was completed by mid-October 2025. Throughout the survey period, 155 field surveys were completed. The following counties were surveyed: Yolo, Glenn, Madera, Merced, Fresno, Kings, Tulare, Kern, Riverside, and Imperial (Figure 1). As shown in Table 1, 145 cotton fields and 2 okra fields were surveyed throughout the State. For the okra survey, 10 fields were registered as containing okra, however, after conducting site visits it was found that only 2 of the fields identified were growing okra.

The survey of cotton fields included a visual inspection of the field site and a sampling of cotton bolls from plants on each side of the field site. Visual inspection included walking the perimeter of the field site. Sampling of bolls included the sampling of cotton bolls from plants on each side of the field site (north, south, east, and west). For each sample field, five cotton bolls were removed from up to 20 cotton plants depending on the acreage of the sample site for a total of 100 cotton bolls collected per sample field.

The cotton bolls were bagged according to sample site orientation for a total of four bags per field site. The cotton bolls in the sample bags were sprayed with ethanol, then sample bags were double bagged, labelled and stored in the freezer for 24 hours prior to processing.

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The survey of okra field sites included the visual inspection of 100 percent of okra acreage in each okra growing county in California. Visual inspection included walking the perimeter of the field site and collecting any suspect target pest or plant material at stages increasing the likelihood of target pest presence, such as open okra pods.

All specimens were placed in vials with ethanol and sent to be identified.

Table 1. Surveyed Areas

County	Cotton Fields Surveyed	Cotton Acreage Surveyed	Cotton Boll Samples Collected	Okra Fields Surveyed	Okra Acreage Surveyed*	Total Acreage (Cotton+Okra) Surveyed
Yolo**	0	0	0	0	0	0
Glenn	3	205	220	0	0	205
Madera	2	29	40	0	0	29
Fresno	28	2179	1800	0	0	2179
Merced	43	2161	2060	0	0	2161
Kings	32	4794	2460	0	0	4794
Tulare	4	205	240	0	0	205
Kern	16	660	720	0	0	660
Riverside**	13	517	520	0	0	517
Imperial**	4	91	120	2	117	208
Total	145	10,841	8,180	2	117	10,958

*100% percent of County Agricultural Commissioner's recorded okra was surveyed. Not all recorded okra field sites contained okra. Total Acreage Surveyed only includes acreage from okra field sites that contained okra.

** Recorded okra growing counties

Boll samples were processed by pulling out the cotton fibers in every sampled boll and carefully inspecting the entire boll sample. Any specimens found were removed and inspected using the USDA CSB identification guide to separate them as target and non-target specimens. All specimens were stored in vials of ethanol that are labelled with field site information, and all the specimens were sent to the CDFA Plant Pest Diagnostic Center for further identification.

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C. Training

Staff were trained in survey sampling techniques, proper sample submission, and field identification.

D. Database submissions

The negative results from this survey were recorded in the National Agricultural Pest Information System (NAPIS) which is the database for Cooperative Agricultural Pest Surveys and related pest detection surveys. Table 2 summarizes the suspect insect samples submitted for analysis to CDFA's Plant Pest Diagnostic Center. All samples collected were negative for CSB.

Table 2: Summary of Insect Samples Collected by County via the 2025 Cotton Seed Bug Survey

FRESNO	GLENN	IMPERIAL	KERN	KINGS	MADERA	MERCED	RIVERSIDE	TULARE
Anthicidae	Anthicidae	Chloropidae	Anthicidae	Anthicidae	Elateridae	Anthicidae	Alleculidae	Latridiidae
Anthocoridae	Araneidae	Geocoridae	Aphididae	Anthocoridae		Anthocoridae	Anthicidae	Reduviidae
Aphididae	Chrysopidae		Araneidae	Apidae		Aphididae	Araneidae	Salticidae
Araneidae	Hemerobiidae		Araneidae	Araneidae		Araneidae	Bethylidae	
Argidae	Scelionidae		Argidae	Argidae		Araneidae	Carcinophoridae	
Bethylidae			Bethylidae	Bethylidae		Chrysomelidae	Crabronidae	
Carcinophoridae			Braconidae	Chironomidae		Chrysopidae	Elateridae	
Ceratopogonidae			Chloropidae	Chloropidae		Coccinellidae	Eulophidae	
Chrysomelidae			Chrysomelidae	Chironomidae		Drosophilidae	Formicidae	
Chrysopidae			Chrysopidae	Chrysomelidae		Formicidae	Geocoridae	
Clusiidae			Coccinellidae	Chrysopidae		Geocoridae	Gnaphosidae	
Culicidae			Drosophilidae	Cicadellidae		Halictidae	Halictidae	
Curculionidae			Geocoridae	Coccinellidae		Lathridiidae	Linyphiidae	
Delphacidae			Lygaeidae	Dolichopodidae		Linyphiidae	Lygaeidae	
Dolichopodidae			Melyridae	Drosophilidae		Lygaeidae	Melyridae	
Eulophidae			Muscidae	Ephydriidae		Melyridae	Miridae	
Formicidae			Pseudococcidae	Eulophidae		Miridae	Pompilidae	
Geocoridae			Reduviidae	Formicidae		Nitidulidae	Reduviidae	
Hemerobiidae			Rhopalidae	Geocoridae		Otitidae	Salticidae	
Lathridiidae			Salticidae	Halictidae		Oxycarinidae	Scaptiidae	
Linyphiidae			Sphaeroceridae	Lathridiidae		Pseudococcidae	Scytodidae	
Lygaeidae			Tenebrionidae	Linyphiidae		Pteromalidae	Tenebrionidae	
Melyridae			Thomisidae	Lygaeidae		Reduviidae	Thomisidae	
Milichiidae			Tortricidae	Melyridae		Salticidae		
Miridae				Miridae		Scatopsidae		
Nitidulidae				Muscidae		Syrphidae		
Otitidae				Mycetophagidae		Tenebrionidae		
Pentatomidae				Nabidae		Thomisidae		
Pompilidae				Nitidulidae		Tingidae		
Pteromalidae				Pentatomidae				
Pyridae				Phoridae				
Reduviidae				Reduviidae				
Rhopalidae				Rhopalidae				
Salticidae				Salticidae				
Scelionidae				Scelionidae				
Tenebrionidae				Sciaridae				
Thomisidae				Tachinidae				
				Tenebrionidae				
				Thomisidae				