

**California Department of Food & Agriculture  
Integrated Pest Control Branch  
Pink Bollworm Program**

**Monitoring Silverleaf Whitefly on Cotton in the San Joaquin Valley, 2007**

**BACKGROUND**

The silverleaf whitefly (SLWF), Bemisia argentifolii Bellows & Perring, has dramatically affected agricultural production in Arizona, Northwestern Mexico and in Southern California, primarily in the Imperial and Palo Verde Valleys. Surveys conducted during the past fourteen years have documented the establishment, distribution and spread of the silverleaf whitefly in San Joaquin Valley cotton fields. Over 500,000 acres of cotton were planted last year in the San Joaquin Valley with an estimated value of over \$700,000,000. The proposed study will continue to document the distribution of SLWF on cotton in the San Joaquin Valley, information critical to regional pest management efforts.

This protocol describes a whitefly survey to be done by personnel on the Pink Bollworm Program in the San Joaquin Valley

**OBJECTIVE**

To provide information on the general distribution and density of SLWF populations throughout the cotton growing regions of the San Joaquin Valley.

**PROCEDURES**

A. Survey Location

The California Department of Food and Agriculture's Pink Bollworm personnel conduct the survey for SLWF. This survey is carried out under the Pink Bollworm (PBW) trapping program. SLWF sample locations will be selected from existing PBW trap sites. Wherever possible, the same sample sites will be maintained from year to year. When this is not feasible, sites from previous years will be used in order to provide historical significance to the data. Leaf samples will be taken at approximately 5% of all PBW trap locations in Kern, Kings, Tulare, Fresno, Madera, and Merced Counties.

## B. Sample Collection

Leaf samples will be taken at the PBW trap locations described under Procedures. Sampling will begin after all PBW traps have been deployed. Sampling will commence Monday, July 16, 2007 in Fresno, Kern, Kings, Madera, Merced, and Tulare counties. Sampling will continue through mid-October, or when defoliation renders sampling ineffective. SLWF sampling will be done with selected personnel other than trappers. All sampling sites will be completed during a two-week period.

Each physical sample site will be marked with flagging tape either on a bamboo rod or attached to a standpipe or telephone pole. A plastic date calendar card will be used for recording date of survey. On the day the sample is taken, the correct date is to be marked on the plastic date card with an indelible marker. The backside of the date card is blank and is to be labeled with the Site #, Township, Range, Section, Zone #, and Trap # of the site.

Ten leaves will be collected at each sample site in the following manner: one leaf will be taken from each of ten randomly selected cotton plants within 20 feet of the PBW trap. Pick from the cotton plants along the margin of the field (DO NOT ENTER the cotton field). All leaves will be taken from the general region of the fifth mainstem node down from the terminal (count the first unfolded leaf as the first node). Avoid leaves that are dry or crumpled and take only the leaves (including the leaf stem), not the entire branch. Personnel are to wear disposable gloves when sampling leaves to prevent skin contact with any foliage that may have been treated with chemicals. If the collector suspects the foliage may be wet due to a recent pesticide application, return to the site well after the foliage has dried.

The ten leaves will be placed in a standard size paper bag. The SLWF Data Slip will be attached to the exterior of the paper bag using a paper clip. The data slip (see attached) will have the Township-Range-Section information, site number, trap number, date and collectors initials. The leaf sample bags will be placed in a box or larger paper bag for transporting to the Shafter Office. The leaf samples should be delivered to the Shafter ID Lab no later than mid-morning of the next day. If all samples cannot be identified the same day they arrive, they should be held over in a cooler or under refrigeration until processed. All leaf samples will be analyzed within seven days of collection.

## C. Sample Processing

The lab personnel will wear gloves while handling the leaf samples leaves to prevent skin contact with foliage that may have been treated with chemicals.

The SLWF Data Slips for each sampling area will be in different colors for easy recognition when analyzing the data. The Fresno, Madera, and Merced County data slips will be yellow, Kings and Tulare County will be blue, and Kern County data slips will be pink.

The ventral surface of the leaves will be scanned under binocular dissecting microscopes for the nymphal stage of SLWF. The numbers of SLWF nymphs on each leaf will be recorded using a ranking system of four categories. The categories are: 0; 1-5; 6-49; and 50 or more. Nymphal numbers will be based on counts made of the entire ventral leaf surface. When a count reaches 50, go to the next leaf. In addition, the numbers of any live aphids will be recorded using the same ranking system of four categories.

Besides whitefly and aphid, sampling, other pests are now being identified with the sample. Included are observations of mites, other whiteflies, and armyworms. No number value is assigned to these other pests, only presence or absence on the leaves. Honeydew and sooty mold found on leaves are noted only as an indicator of honeydew secreting pests (aphids, whitefly).

## **DATA ANALYSIS**

All pertinent data from the leaf surveys will be entered into the computer daily, or as it becomes available. Sample analysis data will be summarized in report form at the end of each survey (biweekly) period and sent to the Branch Chief, Integrated Pest Control. These reports will be summaries by County, sample sites, and number of positive finds. Maps, depicting location of the sample sites in each county will be included in each biweekly report, along with graphs and charts.

## **DATA SHARING**

As data reports are developed, the information will be shared with cooperators and interested parties.

## **COOPERATING ORGANIZATIONS OR INDIVIDUALS**

CDFA Pink Bollworm Program, USDA-APHIS-PPQ, San Joaquin Valley Agricultural Commissioners and University of California Extension Services.

# SAMPLE ID SLIP

**FIELD & LAB ID SLIP**

**SLWF-IPC**

COUNTY: \_\_\_\_\_ T: \_\_\_\_\_ R: \_\_\_\_\_ S: \_\_\_\_\_

Trap #: \_\_\_\_\_ Acres: \_\_\_\_\_ Zone #: \_\_\_\_\_

Collection Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ ID Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Number of leaves/range

PEST	0	1-5	6-49	>50	Total
SLWF					
APHIDS					
	NO	PRESENT OR ABSENT			YES
OTHERWF					
MITES					
ARMYWM					
HONEYD					
SOOTYM					

Comments: \_\_\_\_\_

\_\_\_\_\_

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