



# Cotton Field Check

Management Updates from UC Cooperative Extension  
July 2008 - Lygus Update



## Overview

1. Lygus has become a major issue particularly in areas of Westside Fresno Co
2. In any year, most Lygus problems are a result of neighboring crops rather than mass migration from external sources.
3. Cotton no longer dominates the landscape of the SJV.
4. Safflower occupies a substantial area of the landscape and is the major source of Lygus. In past years, the Lygus movement was more restricted in space and time. In 2008, Lygus movement can be expected to be extended over time. Timing treatments will be tricky.
5. Lygus in alfalfa hay can be managed by leaving habitat strips for the bugs to remain. Managing alfalfa hay can be one of the best defenses in limiting Lygus movement.
6. Details for Lygus management can be found at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu), click agriculture & floriculture (Pest Management Guidelines) and then Cotton.
7. It is critical to measure Lygus population density and fruit retention at least weekly.
8. Crop maps of Westside Fresno County can be viewed on the web.
9. Communicate and provide updates to your peers and attend Extension meetings to improve our IPM network.

## Background

As the 2008 season unfolds, Lygus has emerged as the critical pest management problem in some areas of the San Joaquin Valley (SJV). In most of the SJV, the most common source of Lygus is not rangeland or native areas but local crops surrounding the field. In recent years, the familiar landscape of the San Joaquin Valley has changed dramatically. Cotton no longer dominates the landscape but appears as a patchwork among other annual and permanent crops. Safflower has substantially increased in the past 2 years and safflower provides the necessary bridge between spring and summer for Lygus populations to build to high levels.

The degree of severity of Lygus in any particular cotton field during July is related to its proximity to fields with migrating populations. The grower and PCA should be well aware of potential threats from surrounding crops.

Many PCAS have experience with cotton fields adjacent to safflower in which Lygus populations increased dramatically within a few days. As the crop matures, fields that border the safflower source become the sink for the migrating population. In the 1970's, UC suggested treating safflower to prevent Lygus movement to reduce suppress population development. The control action is timed to coincide about 50-70% of the population has reached the 3<sup>rd</sup> to 5<sup>th</sup> instars in order to prevent the population from becoming adults and capable of flight. In the West Side of Fresno county, treatments should have been applied about May 27<sup>th</sup>, based on temperature data accumulated since April 1, 2008 from West Side Research & Extension Center.

This past experience that you share with most other people should be regarded carefully. The landscape has changed so dramatically, the experience we have of Lygus moving a single, relatively short pulse may NOT be true. In the area that we have mapped from San Joaquin south to Stratford we estimate 30,722 acres of cotton and 30,586 acres of safflower.

Here are some questions I have had in recent days:

*Question: How long can we expect this migration to last?*

The answer lies in how many sources surround the field but not just bordering the cotton. Our preliminary analysis indicates safflower at least one mile away can influence Lygus population in a cotton field. If your landscape consists of mostly quarter section fields, that can be 2 fields away in all directions or about 6.25 square miles around a cotton field could influence Lygus in that field. If you are located adjacent to safflower, the pressure can be sudden and intense. However, if there are other crops between you and the safflower, such as tomatoes, almonds, or alfalfa, it might take longer for the insects to move through and enter cotton. Depending on your surroundings, this could take weeks to move all the Lygus between crops.

*Question: How much damage is occurring? What are some populations being found?*

Our sampling of 40 fields around Five Points have populations ranging from 2-30/50 sweeps as of last week (see website:

<http://arcims.gis.uckac.edu/imf/imf.jsp?site=LygusFresnoKings>). Dan Munk and Larry Godfrey report treatable populations at WSREC as high as 30/50 sweeps and retention in the top around 30% and bottom five fruiting branches at around 50%. Our plots at Kearney have seen an average of 30/50 sweeps and overall fruit retention around 20%. These are plots we have purposely let Lygus take over and I have seen many fruiting branches nipped back so second and third positions are eliminated before they can develop.

*Question: How do I time my treatments? What is working best?*

First be sure you have a problem. On a weekly basis, be sure to estimate fruit retention on the top and bottom five fruiting branches. Sample the field twice weekly with a sweep net using 50 sweeps as the standard measure. Be aware of natural enemies. Do you treat immediately and run the risk of treating again within a week? What if you wait and more squares are lost? Some people report already treating some fields 4 times already and treatable populations continue to roll in. Balancing damage and budget will be very tricky. The best timing is when some damage occurs but you extend the residual (including “bio-residual” of natural enemies) benefits from the treatment to cover the remaining migration period.

As far as what’s working, I have heard most compounds are working but being overwhelmed with continual movement. It is this continued and sustained pressure that most people will be experiencing for the first time in a long time.

*Question: How did we get in this position?*

It’s all about the landscape. When cotton dominates the landscape only those few fields that border a source experience Lygus pressure. With fewer fields of cotton, it is more likely to have a source or sources nearby to provide Lygus over a longer period of time. This year there was a wide difference in planting dates and safflower fields are not uniform in age. While some are drying now, others are still blooming. This leads to higher Lygus populations moving through the landscape over a period of time.

*Question: What can we do?*

1. Keep a close watch on cotton development, fruit retention and Lygus . Refer to *IPM in Cotton, Cotton Production Manual* or cotton pest management guidelines at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu). If any doubt on the cause of square loss, split squares and look for evidence of Lygus damage
2. Balance resources, crop development and damage. Adjust production practices to the growth and development of the crop and manage vegetative growth.
3. At much as possible, work with your neighbors. July is key month to preserve alfalfa habitat. In locations where alfalfa fields are isolated from other alfalfa fields, preservation of habitat is essential. Leaving a few strips of uncut alfalfa as a dike against Lygus flow into cotton is a very effective practice. Published work has illustrated that impact on hay quality by mixing older and younger hay is minimal. Providing habitat in an alfalfa field, mitigates mass movement of Lygus out of harvest hay and into cotton. In areas where alfalfa hay is abundant, uncut neighboring fields provide the same function in providing alternative habitat to cotton fields.
4. Lygus is not the only insect that must be watched. Multiple applications could disrupt natural enemies and allow other pests to build mid and late season.
5. Finally, stay in touch with your peers, share information, and attend Extension meetings. Don’t hesitate to call me at 559/646-6515 if you have a question or suggestions.

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