



Cotton Field Check

Management Updates from UC Cooperative Extension
June 2007



Overview

1. Lygus has not been a problem during early fruiting but this doesn't assure a Lygus free season.
2. In any year, most Lygus problems are a result of neighboring crops rather than mass migration from external sources.
3. Growers and PCAs need to be aware of the degree of risk which surrounds them, especially seed alfalfa, large alfalfa hay fields harvested as single blocks, hay fields that might have insufficient irrigation, and safflower.
4. These are obvious Lygus sources but other crops can also serve as sources of Lygus, including onion, garlic, tomato and almonds.
5. Where possible, management of Lygus before the population moves is desirable over attempting to manage the population in the cotton field.
6. Safflower can be treated based on timing of population development, but synchrony in developmental stages between safflower and cotton is important to consider.
7. 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 preventing Lygus movement
8. Details for Lygus management can be found at www.ipm.ucdavis.edu, click agriculture & floriculture (Pest Management Guidelines) and then Cotton.

As the 2007 season unfolds, insect pests have been absent from the production scene. While Lygus has not been an early season problem, it is a pest always waiting in the wings. The dry and cold winter prevented the development of Lygus hosts and presumably the over winter Lygus population was forced into Valley before they could reproduce in the rangeland and western hills.

In most of the San Joaquin Valley, 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. Some of the changes might improve cotton pest management while others may increase the problem or have no impact. For example, the increase in alfalfa acres to support the dairy industry has generally been a benefit by providing preferred season long habitat. Corn acreage has increased also in support of the dairy industry but also acreage has increased due to the new biofuel demand. The impact of corn acreage has been primarily neutral on its impact on cotton pest management. Safflower acres have increased in 2007 also due to increased demand for biofuels and this crop has historically been a major source of Lygus into cotton.

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

Safflower is a well-known source of Lygus. 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. The control action is timed to coincide about 50-70% of the population has reached the 3rd to 5th instars in order to prevent the population from becoming adults and capable of flight. Treatment should be applied when 667 dd_{>52F°} are accumulated after planting or commonly, April 1. Using temperature data from West Side Research & Extension Center, 667 dd_{>52F°} were accumulated by May 23rd, 2007.

It has been many years since as many acres of safflower have been planted. While the approach to manage Lygus in safflower and prevent its movement into adjacent cotton has merit, there are several problems with program. First, it assumes the all safflower fields have Lygus populations. Since safflower is so difficult (and painful!) to sample, sampling with a sweep net or vacuum sampler is not very efficient. Thus, it is usually assumed that Lygus will come out of a safflower field. The second problem is that the products available for use against Lygus are not very efficacious or environmentally friendly. Finally, the few fields I have observed are only beginning to head and have several weeks before they would become unsuitable for Lygus habitat. It appears to this observer that a treatment on May 23rd would have been a little preemptive.

This is NOT to say that Lygus should NOT be managed in safflower in order to limit damage in cotton. I am hoping to do some observational studies this summer to take a look at the Sevacherian, Stern and Mueller model. Please contact Pete Goodell if you have these "situational opportunities" for some

quick experiments.

The next crop that plays a key role in Lygus management, both positive and potentially negative, is **alfalfa hay**. In situations 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. **Alfalfa seed** is another major source of Lygus even though the fields are closely monitored and Lygus managed very conservatively. Once dried in preparation for harvest, movement will occur rapidly.

In speaking with PCAs this past week, they suggested that in water short years like 2007, there is the potential for some alfalfa fields to be short of water. If a grower must make a choice in permanent crops or alfalfa, the alfalfa may be left to dry down in July or August, potentially releasing a large influx of Lygus. In order to avoid large migrations in these situations, the grower might be able to manage water for a check or two neighboring the cotton to prevent complete removal of alfalfa habitat.

When considering Lygus treatment in cotton, remember to incorporate square retention with Lygus numbers. The presence of nymphs is essential in triggering a treatment since adults are so mobile in moving in and out of a field. The reader interested in reviewing the Lygus management guidelines, including plant and bug based thresholds, is directed to www.ipm.ucdavis.edu, click on *Agriculture & Floriculture*, then click on *Cotton*, and finally click *Lygus Bug*.

Finally, Lygus is not the only insect that must be watched. Aphids, worms, mites and whiteflies also need to be considered when considering Lygus treatments. New products for many of these pests have become registered in recent years. Integrating some of the new products and their modes of action may offer opportunities in selectivity and later season efficacy we have not had in the past.

In summary:

- ✓ Watch the cotton crop development closely
- ✓ Adjust production practices to the growth and development of the crop and manage vegetative growth
- ✓ Watch Lygus populations in surrounding crops and weeds; be prepared for their migration
- ✓ Inspect the fields frequently; weekly or twice weekly
- ✓ If any doubt on the cause of square loss, split squares and look for evidence of Lygus damage
- ✓ Trigger insecticide applications based on population estimates and realistic fruit retention expectations
- ✓ Use the appropriate insecticide for the situation

As many of you know, I am juggling my Extension responsibilities with Administrative duties at UC Davis. However, if further information is required on any of these topics, please contact me directly (559/646-6515) or indirectly through your local Farm Advisor. I will do my best to provide the help and information you request. I will have a crew sampling cotton fields for Lygus from Corcoran to San Joaquin as part of the large interstate USDA grant and expect to be in the field with them on a frequent basis through June. Let me know what further assistance I can provide.

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