



Cotton Field Check

Management Updates from UC Cooperative Extension
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Lygus and Cotton Insects in 2005 in the San Joaquin Valley

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Weather patterns can influence the occurrence and severity of insect outbreaks. Rainfall in particular can influence the Lygus populations indirectly through plant host development. For example, rainfall occurring in the fall favors the development of grasses on the rangeland in the Sierran foothills and Coast Range.

Rainfall commenced early in 2004-05 and was fairly evenly distributed through the winter. Comparing rainfall accumulation (Figure 1) to 1977-78 and 1994-95, two years in which Lygus were problematic, rainfall in 2004-05 was less (as of 4/28/05) than in the other two seasons but occurred early (October) and was very well distributed through the year. During April and May, rainfall has been scattered and uneven in its distribution.

The grass (and rain-fed grain) developed well and limited the establishment of other broadleaf weeds in the rangeland areas. However, on the Valley floor, broadleaf weeds are abundant and widespread. This is especially true in fields that are not actively being cultivated. Such weeds include London rocket, black mustard, wild radish, malva, and tumble weed. There is a large collection of weeds that is remaining green into early May.

Insect surveys conducted in March and April found very few Lygus in foothills but in the San Joaquin Valley, the population densities ranged from 0 to 15/50 sweeps with an average of 3.7/50 sweeps. These consisted of over wintering adults and 3rd- 4th instars of the first generation. If green weeds are available for an extended period of time, this generation can buildup and produce large populations of Lygus.

Weeds that are important for Lygus development include tarweed, small-pod mustard and London rocket. Tarweed is very abundant along I5 from Avenal to Kettleman City and along Maricopa Highway in Kern County. Small-pod mustard (*Hirshfeldia incana*) is generally found along the shoulders of highways and usually not in large patches. London rocket has mostly senesced and is not a very suitable host for Lygus. Lygus is more likely to be found on tarweed and small-pod mustard. In Kern County, tumbleweed was reported (J. Bancroft, USDA-ARS) to be a good host of Lygus this year. Illustrations of these weeds can be found at www.ipm.ucdavis.edu (click pest management guidelines, agriculture, the weed gallery near the bottom of the page), *Growers Weed Handbook* or *Weeds in the West*.

The key to early Lygus problems is the availability of weeds to support the population through May. If a second generation develops on these weeds, the earliest squares will be at risk in June. If the weeds dry out or are disced, the smaller adult population will be forced to relocate in surrounding crops. The problem is then transferred to July when these crops are prepared for harvest. This mid-season problem is more common in areas where alfalfa forage is not wide grown. In other areas, alfalfa

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will act as a sponge, collecting the Lygus from other sources. This would be a good year to leave uncut strips in alfalfa to preserve habitat for Lygus and mitigate movement into susceptible crops.

There is an abundance of weeds in the Valley this year. If these are managed with sheep and disking before the middle of May, Lygus probably will be negligible on the earliest squaring. However, if these weeds are allowed to persist, cotton fields could feel the impact if they are located near large concentrations of weedy fields.

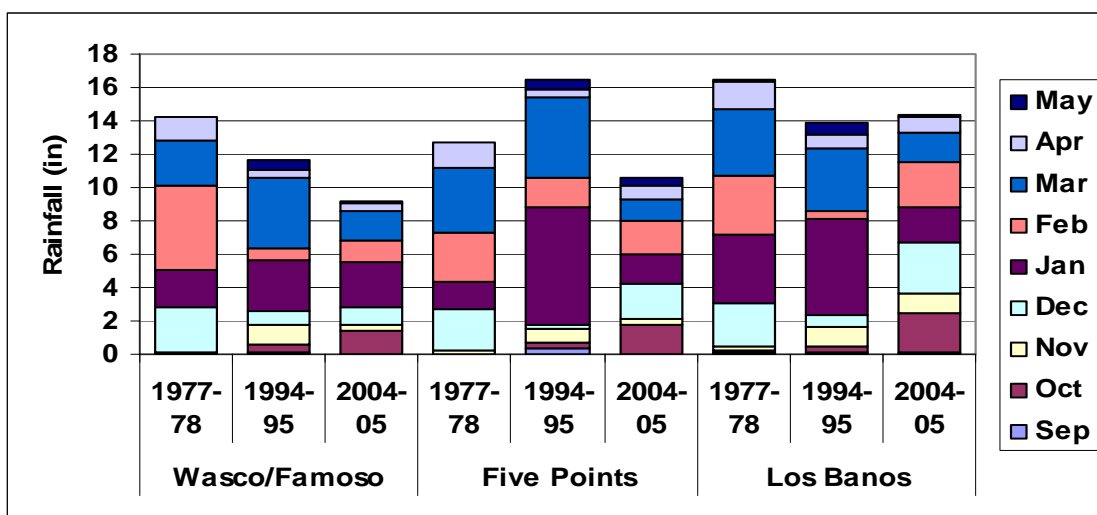
How severe and widespread the Lygus problem will be partly determined by how quickly the weedy fields are managed or dry out. In areas where substantial rainfall continues, the threat to early squaring will be greatest. If most weeds dry out and are not acting as suitable hosts, Lygus will move into the surrounding crops in a much more dispersed and at lower population levels.

I believe that 2005 will be a challenging insect year. Already we are seeing increased armyworm and looper populations. False chinch bug can pose a threat to neighboring crops when large fields or patches of weeds die. Thrips are common in grain, alfalfa and weedy fields but if cotton develops at a normal rate, these should not be major problems.

New products to manage worms, mites and aphids have become available since the last major outbreak of Lygus in 1995. Growers and PCAs should stay alert to the growth and development of the cotton and watch the development of any weeds in the area.

The amount of trouble a source might cause is dependent on continued rainfall in May, the host suitability to Lygus, the amount of area with the weeds and the proximity to cotton. We are suggesting that we have a series of informal meetings in the field where PCAs, consultants, Cooperative Extension Advisors can share situational updates and management approaches. I am coordinating with local Advisors and PCAs to identify locations and times of convenient, one-hour “tail gate” meetings. We will announce times and locations through *MiteFax* and future *Cotton Field Checks*.

Figure 1. Rainfall accumulation from September 1 through May 31 at three locations in the San Joaquin Valley. In 2005, data covers through May 5. Source: CIMIS climate stations through UCIPM.



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