



Lygus in Cotton – 2002 Population Projection
Be Aware but Take Care
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Background:

Lygus bug (western tarnish plant bug) is a key pest in San Joaquin Valley cotton production. The insect feeds on developing fruit buds that result in a loss of yield. If repeated treatments are required to keep the population below economically damaging levels, secondary pest outbreaks of spider mites, aphids, or leaf feeding worms can occur. Lygus populations begin the season at low densities and buildup in the surrounding foothills, riparian areas, and bordering fields, orchards, and vineyards. In most years, the main threat occurs during June and July when surrounding fields are being harvested and insects are forced to move into cotton. However, in some years, the rainfall pattern and plant host distribution provide conditions that allow an early season lygus population to develop and move into cotton during the period of critical early fruit development in early June.

Each year since 1979, the University of California has provided a projection of the early season lygus bug population. Beginning with Dr. Vern Stern's projections and continuing with Dr. Tom Leigh's estimates, these projections provide the cotton industry with a forecast for the potential pressure to be expected in cotton. For the past 15 years, Dr. Pete Goodell has provided the lygus projection for the cotton industry. The projections provide information to help farmers and pest control advisors plan and prepare for the season.

The population projections focus on several important components in the environment:

- ✓ Roadside surveys during April and May through the San Joaquin Valley;
- ✓ Evaluation of rainfall distribution and heat accumulation in the Valley;
- ✓ Assessment of possible plants that could provide suitable hosts for lygus population buildup.

These projections of the early season lygus threat to cotton are similar to weather forecasts. Local areas may or may not be affected to the same degree. The projections are general forecast intended as a warning and a reminder to be vigilant in the field, looking for lygus during the early fruiting period.

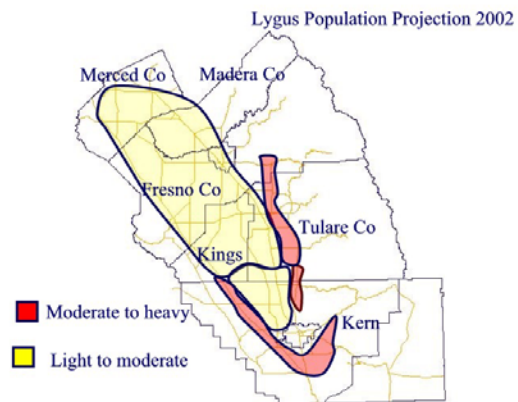
Weather and Lygus Host Conditions in 2002

Less than normal winter rainfall limited the development of lygus hosts in the foothills. Grass and other non-hosts dominated the landscape and the growing season was very short. By April most of the plants were unavailable for lygus reproduction. During April, there were very few plants to be sampled and lygus populations were very low.

In April (south of the Kern County line) and May (north of Kern County), abundant rainfall allowed for the germination and development of short-pod mustard. This yellow flower mustard is a good host for lygus and is very abundant along the roadsides and is widespread in uncultivated fields in southern Kern County. Lygus was found to be very abundant on this host no matter where it was sampled in May. These insects probably represent the second generation of lygus. The mustard host will provide habitat and shelter for lygus for the next few weeks. Populations as high 10 adults and 30 immatures were found in 50 sweeps of these plants. The immature population was several weeks from reaching adulthood but the mustard plants appear to be capable of supporting the population until adulthood.

Early Season Projection 2002:

The projection for 2002 calls for moderate to heavy lygus populations along the east and west rim of the San Joaquin Valley. The area from the Kern County line south should be especially alert to the movement of lygus into cotton fields through mid-June. Eastern Tulare County could see moderate to heavy populations move into cotton, depending on location and proximity to localized host plants. North of the Kern County line and interior to the western and eastern foothills, population pressure should be less. Lygus pressure in cotton in Merced and Madera Counties is expected to be light to moderate.



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Lygus Management Considerations for 2002

These projections are based on best information and estimates of current conditions and future forecast. **They are not to be taken as site-specific estimates.** Each field should have the surrounding hosts evaluated and assessed for the local lygus population. The crops surrounding a cotton field will have a major influence on the movement of lygus in an area. The following practices are recommended in any year:

- ✓ Assess the lygus population on roadside weeds and evaluate the threat to your fields;
 - Examine the population for immature insects and evaluate the development of the population – how close to becoming adults are these insects?
- ✓ Look around at the surrounding crops. Are they lygus hosts? Can they absorb the initial population movement from the weeds and limit the movement into cotton?
 - Alfalfa is a crop that acts as a good sink for lygus by absorbing lygus from surrounding areas;
 - Many other crops will shelter lygus and will allow population development but will release lygus as the crops are prepared for harvest;
- ✓ Sample the cotton field frequently. Follow the growth and development of cotton closely but do not become obsessed with each and every fruiting position. In

- many cases, lygus will move in and out of a cotton field before control can be initiated.
- In general, it is suggested that control should not be initiated until a resident population is confirmed to be present, usually by the presence of immature insects or the population remains above the treatment threshold over two or more inspection periods. Check a field twice within 3 days before treatment is applied to insure the population is still present.
 - In situations where lygus populations are moving from declining hosts, adults will cause severe damage in a short amount of time.
 - **Be aware of your surroundings** and follow the development and decline of weed and crop hosts carefully. Cotton is not a preferred host for homeless lygus, but will settle into it if they are in a starved condition or no other host is available or no other crop is available.
- ✓ Attend the summer cotton production meetings in June and July hosted by the local cotton Farm Advisors from Cooperative Extension, University of California.
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