

**A THREE YEAR EVALUATION
OF NON-REGISTERED LYGUS BUG MATERIALS**
Angela Gomes and Bill Weir
University of California Cooperative Extension

Abstract

Lygus bugs damage cotton crops in the San Joaquin Valley by feeding on developing squares. They are particularly difficult to manage since they move about freely and have unpredictable feeding habits. Four different materials and combinations were applied to cotton to evaluate their efficacy for lygus bug control. Monitoring was accomplished by sweeping and counting upper nodes. Both non-registered materials effectively controlled lygus bugs. A single application reduced pests numbers for 6 – 8 weeks and yet was gentle on beneficial and the environment.

Introduction

Lygus bugs are a serious cotton pest, which cause crop damage and economic losses annually. Their mobility allows them to move freely from other crops such as alfalfa and safflower, as these crops become less attractive, and feed on cotton squares. Damage to cotton is caused by the loss of small squares, which abort and die due to lygus feeding. Since adequate heat units are not available to allow plants to make up for the lost fruiting positions, reduced yields are experienced.

Lygus bugs are particularly difficult to manage since it is not always possible to predict the damage they will cause. In some cases large numbers may move through a cotton field and feed only minimally on squares. Other times, fewer lygus bugs, coming from drying weeds, can cause considerable damage.

New, non-registered materials were evaluated for lygus bug control in Merced County, California, during the past four years.

Methods and Materials

Field research tests all three years consisted of plot which were eight 30-inch row wide and 100 feet long. Tests were replicated four times and a complete randomized block statistical design was employed.

Materials were applied using a plot sprayer build on an International tractor. Spray volume was 20 gallons per acre through T4-8002 flat fan nozzles with 30 PSI.

Insect pressures were monitored weekly by use of sweep nets and inspection of the top five nodes.

All data were analyzed by ANOV and ranked by Duncan multiple range.

Results on Regent

In 1995, lygus bugs and missing squares data were collected for eight weeks following the first applications of materials. Although there were few lygus bugs in late June, there were also few squares, and therefore, low retention in the top of the plants. As the season progressed, retention improved in all treatments probably due to the improving ratio of squares to lygus. There was better square retention in all treatments than in the untreated control.

Lygus bugs per 50 sweeps increased during the eight weeks in the untreated control, reaching 6.0 on July 25. Both Regent treated plots had fewer lygus bugs all season. Treatments lowered lygus bug levels immediately and effectively controlled then throughout the fruiting season.

In 1996, although numbers of lygus were not high, there was a chronic level during the early part of the growing season. The various forms of Regent kept the retention of the top five squares to larger numbers than the untreated control until late July. The trial was treated for a second time 6 weeks later, at which time the test was terminated. Regent performed very well in keeping square retention high and in suppressing lygus bug numbers.

In 1997, all materials reduced lygus bug numbers almost immediately and held them for four or five weeks. There was a significant difference at only one sampling date when the high rate of Regent had 1.7 lygus bugs and the control had 6.2, per 50 sweeps.

Results on Decis

In 1996, all materials caused the lygus per 50 sweeps to decrease to less than one within four days after treatment, and decrease to virtually zero after eight days. Lygus bug counts began to increase again, but the treatments were lower than the untreated control at all monitoring dates.

There was a trend for better retention in the treated plots than in the untreated control, but not always significantly so.

In 1997, nine different treatments were applied on June 20 to assess their effectiveness on lygus bugs. Both lygus bugs per 50 sweeps and retention in the top five nodes were monitored for the following six weeks. All the tank mixed materials lowered the initial numbers of lygus bugs and held them down for about three weeks.

Summary

Regent (Fipronil) and Decis, effectively controlled lygus bugs in field trials conducted in the northern portion of the cotton growing area of the San Joaquin Valley, during 1995,

1996, and 1997. A single application, when economic thresholds were reached reduced, pests and maintained low numbers throughout the growing season. As lygus bug numbers decreased, boll retention in the top five nodes increased.

Since lygus bugs are one of the major insect problems in the cotton culture, effective new materials are needed for their control. Preferred are compounds, which are gentle on beneficials and to the environment.