LYGUS (*HESPERUS*) AND APHID (*APHIS GOSSYPII*) CONTROL IN COTTON

Steven D. Wright, Gerardo Banuelos and Brett Allen
University of California Cooperative Extension- Visalia

Abstract

Several insecticides were evaluated over a two-year period for control of lygus bugs (*hesperus*). The studies were conducted near Visalia and Earlimart, California. Prior to the insecticide application, there were 10 lygus (adults and nymphs combined) per 50 sweeps in 1997 and 14 lygus (adults and nymphs combined) per 50 sweeps in 1998 in trials.

Pyrethroid treatments and Vydate gave the most effect control of lygus bugs in 1997 and 1998. A trace amount of aphids were present at the time of applications. In both years cotton aphid population increased the most following pyrethroid applications and were lowest following Provado applications. Most treatments reduced beneficial insects for 7 days but came back in 14 days.

Introduction

Lygus bugs and cotton aphids continue to be serious pests in California cotton. In some years growers spend $50 to $100 per acre controlling lygus bugs and cotton aphids. Pyrethroids were commonly used as part of a lygus control program because of effective and long lasting (14 – 21 days) control. With increase Pyrethroid usage on alfalfa lower control has been observed in cotton the last couple of years. Growers can also use other classes of insecticide obtaining less control but also less impact on beneficials and aphid flairups. Researchers in Texas have shown cotton aphids increasing following applications of Pyrethroids.

Material and Methods

In 1997, a cotton field near Earlimart, California was divided into a randomized complete block design with twelve row plots by 100 feet and four replications. Acala Maxxa cotton was 27 inches tall with 14 nodes. Insecticides were applied in 15 gpa with a Hagie high cycle sprayer at 40 psi using TXVS 6 (3 per row) nozzles at 4 mph. Treatments were applied on July 1, 1997. Air temperature and wind speed for the applications were at 90°F and 0-3 mph. Ratings were taken at 7, 14, and 18 days after treatment (DAT).

In 1998, a cotton field near Visalia, California was divided into a randomized complete block design with twelve row plots by 100 feet and three replications. Acala Maxxa cotton was 24 inches tall with 11 nodes. Insecticides were applied in 15 gpa with a Hagie high cycle sprayer at 40 psi using TXVS 6 (3 per row) nozzles at 4 mph. Treatments were applied on July 23, 1998. Air temperature and wind speed for the applications were at 93°F and 3-5 mph. Ratings were taken at 11, 14, 18, and 21 days after treatment (DAT).

Results and Discussions- 1997

In 1997 most treatments gave excellent knock down of Lygus bugs at 2 DAT and 7 DAT including Baythroid, Capture, MSR, Decis, Ovasyn + Provado, Provado + Mycotrol, Phaser 3 tank mixes, TD-2344, Vydate, Capture + Zephyr, Mustang + Zephyr, and Monitor. All treatments gave better lygus control than the untreated control for 18 DAT. It appeared that most treatments broke between 14 DAT and 18 DAT. Treatments with lowest counts at 18 DAT included Decis, Baythroid, Orthene + Phaser, TD-2344, and Mustang + Zephyr. The trial was terminated at 18 DAT in order to control cotton aphids that were flaring (Table 1).

All treatments gave good control of cucumber beetles (*Diabrotica undecimpunctata*) for 7 DAT. At 14 DAT Baythroid, Capture, Decis, Orthene + Phaser, and TD-2344 still gave good control. The Orthene + Phaser and TD-2344 gave the longest control of cucumber beetle (Figure 3 & 4).

There were very few cotton aphids present at the time of application. At 14 DAT the cotton aphid population was similar among most treatments however Baythroid and the high rate of Decis had the highest aphid population. Provado, Provado + Mycotrol, and Metasystox-R had the lowest aphid counts. By 18 DAT aphids had increased to greater than 100 per leaf in all treatments (Figure 1 & 2).

All treatments reduced populations of big-eyed bugs (*Geocoris pallen s*), collops beetles (*Collops vittatus*), assassin bugs (*Zeulus and Sinea spp*), and damsel bugs (*Nabis spp*). Lady beetle population were low in all treatments until 14 DAT when they increased in all treatments except Baythroid, Capture, Decis, Orthene + Phaser, Provado, Provado + Mycotrol, and Mustang + Zephyr. The Lacewing (*Chrysopa carnea*) counts were variable. All treatments except the untreated check reduced the population at 2 DAT. Lacewings came back in most treatments by the 7 or 14 DAT except Baythroid. Minute Pirate bugs (*Orius tristicolor*) were reduced in all treatments except the untreated at 2 DAT however the population evened out by the 7 DAT or 14 DAT depending on the treatment (Figure 3 & 4).

Results and Discussions- 1998

In 1998 most treatments gave excellent knock down of Lygus bugs at 4 DAT and 11 DAT including TD-2344, Penncap-M

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:1250-1252 (2000)
National Cotton Council, Memphis TN

+ TD-2344, Mustang, Orthene + Decis, Regent, Baythroid, Capture, Decis, Vydate, Monitor, Metasystox-R, Warrior, and Orthene. Treatments with lowest counts at 18 DAT included TD-2344, Mustang, Baythroid, Capture, Vydate, Warrior, and Orthene. The trial was terminated at 21 DAT in order to control cotton aphids in the grower's field (Table 2).

Provado gave the best control of cotton aphid for 21 DAT. Bidrin, Metasystox-R, and Penncap-M had low aphid counts. Aphid counts were highest with Warrior, Baythroid, Mustang, Capture, and Vydate (Figure 5 & 6). Most treatments gave good control of cucumber beetle for 14 DAT. Mustang and Warrior had the lowest cucumber beetle counts. Beet Armyworm (*Spodoptera exigua*) was a low on all treatments for 18 DAT. At 21 DAT worms were highest in the Regent .05 lb ai/A treatments and Warrior at .025 lb ai/A. There were minor differences between treatments for beneficial insects (Figure 7 & 8).

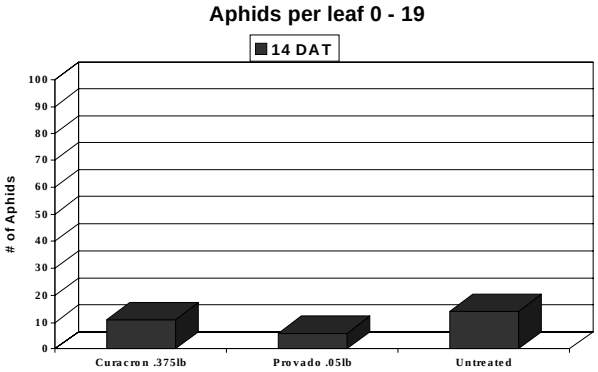

Figure 1. Lygus Control Study - Tulare Co. 1997

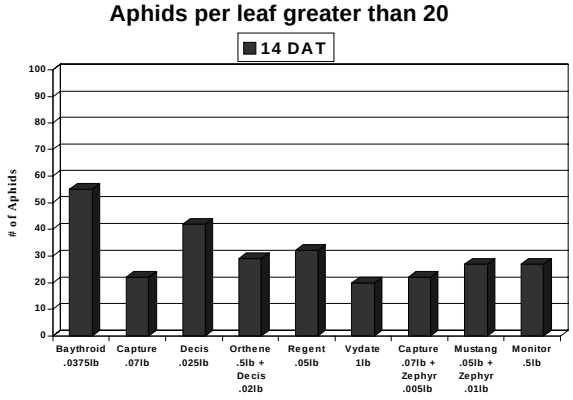

Figure 2. Lygus Control Study - Tulare Co. 1997.

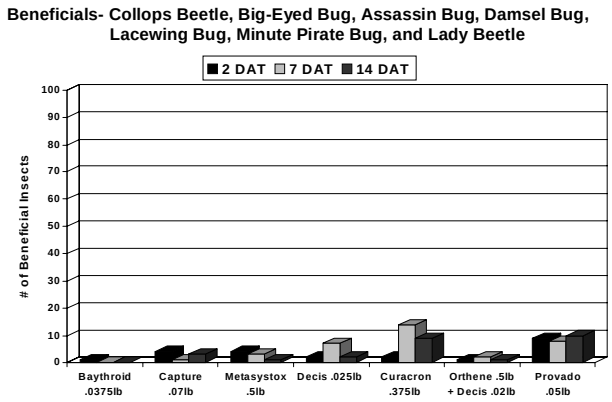

Figure 3. Lygus Control Study - Tulare Co. 1997.

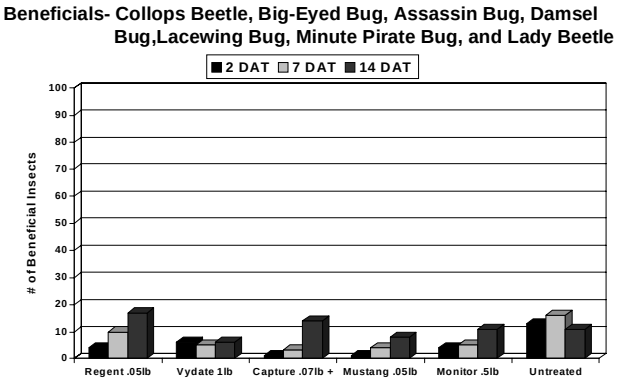

Figure 4. Lygus Control Study - Tulare Co. 1997.

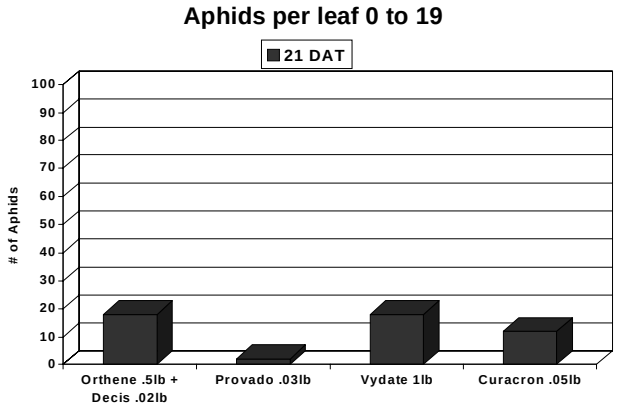

Figure 5. Lygus Control Study - Tulare Co. 1998.

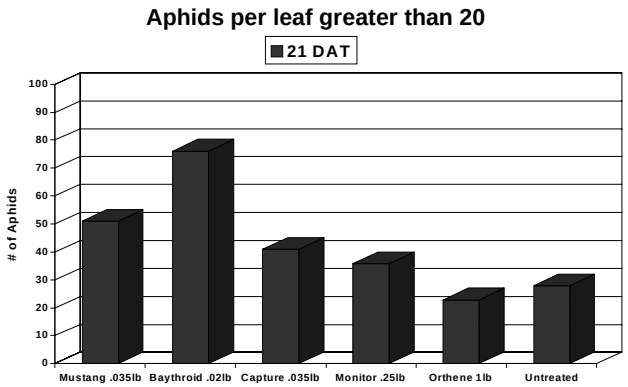

Figure 6. Lygus Control Study - Tulare Co. 1998.

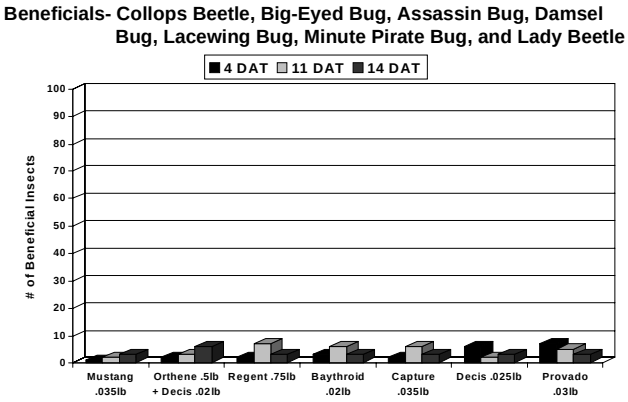

Figure 7. Lygus Control Study - Tulare Co. 1998.

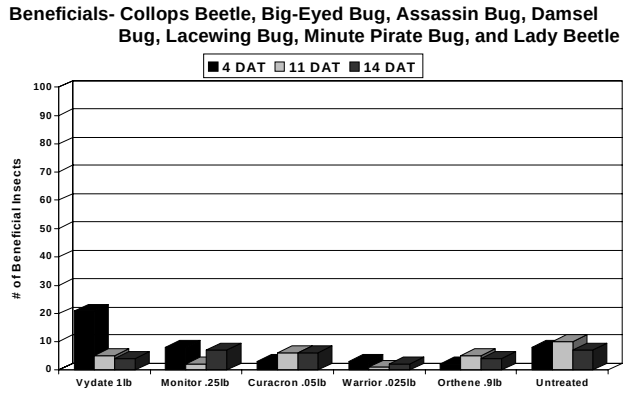

Figure 8. Lygus Control Study - Tulare Co. 1998.