PLANT GROWTH AND YIELD RESPONSE TO TRIMAX INSECTICIDE IN TEXAS AND OKLAHOMA Drew Palrang and John Cagle Bayer CropScience Research Triangle Park, NC

Abstract

Field trials were conducted in Texas and Oklahoma in 2002 to introduce Trimax insecticide, a new imidacloprid based insecticide from Bayer CropScience. The objectives were to evaluate Trimax efficacy, to measure the cotton yield enhancement properties of Trimax and to investigate the plant health benefits that Trimax seems to induce in cotton. A series of consultant and replicated research trials were conducted to evaluate Trimax efficacy against cotton fleahopper and cotton aphid. In addition, plant-mapping data was collected to measure square retention, boll load and location, maturation timing, and lint yield following the application of Trimax.

Fleahopper infestations averaged 32.6% in untreated plots. Trimax averaged 7% infestation and a Trimax+Bidrin combination averaged 3.9%. Trimax control of aphids averaged 84%, Furadan averaged 92%, Trimax+Bidrin averaged 75%, and Bidrin alone averaged 59% control.

In a summary of trials with square retention data, Trimax averaged 92.2% retention. Bidrin averaged 92.2% and Orthene averaged 86.8%.

In a trial in Southeast Texas, Dr. S. Hopkins evaluated square retention by branch number and by position on the branch. On untreated cotton, 41% of squares were retained in the lower third of the plant. Trimax and Trimax+Bidrin both resulted in a much higher level of square retention. In the middle third of the plant the effects were very similar. Trimax increased square set substantially in the lower two thirds of the plant, on fruiting branches one through ten. In the same trial, Dr. Hopkins looked at square retention by position on the branch. Trimax and Trimax+Bidrin resulted in better square retention in the important first and second position locations.

In a trial conducted near Georgetown, Texas, white blooms were counted over a 3-week period to measure square set and earliness. Plots treated with Trimax had significantly more blooms than untreated plots. The addition of an organo-silicone surfactant to Trimax produced similar results. Bidrin also had higher bloom counts than the untreated.

A trial was conducted near Hutto, Texas to evaluate the effect of multiple applications of Trimax on boll load and location. Plots receiving one, three or four applications of Trimax were compared to untreated plots. The Trimax treatments were repeated with and without the addition of Kinetic. Untreated cotton averaged 21% retention in the lower third of the canopy, while all 3 timing sequences of Trimax resulted in much higher retention. In the middle third of the plant, boll retention was much higher with the Trimax treatments, although the rate-timing effect was flatter. Results in the upper third of the canopy were mixed. In the same trial fruit retention at positions one, two and three was measured. Untreated plots averaged 22% retention at the first position and 17% at the second position. The three Trimax treatments all had a higher percentage of bolls at both positions. Boll retention at the third position was comparable among the four treatments.

Trimax resulted in an average yield increase of 15.2% over untreated cotton. Bidrin produced 7.4% more and Orthene 2.4% more yield. In a relative comparison among competitive standards, Trimax yielded 10% more than Bidrin, and 7% more than Orthene.

Trimax resulted in greater retention of earlier bolls, as well as more first and second position bolls. Cotton treated with Trimax tends to have larger bolls, earlier maturation and greater yield than untreated cotton.