2004 BELTWIDE COTTON CONFERENCES, SAN ANTONIO, TX – JANUARY 5-9

ECONOMIC EVALUATION OF EARLY SEASON INSECT CONTROL IN COTTON

Kelly J. Bryant
University of Arkansas
Monticello, AR
Gary L. Lentz and Nancy B. Van Tol
University of Tennessee
Jackson, TN

Abstract

Field experiments were conducted from 1994 to 2001 at two locations in west Tennessee comparing Temik and Gaucho treatments. First harvest and total harvest yields were collected. Means were calculated for each treatment at each location and separated using the SAS GLM LSD procedure. Treatment costs were calculated using current price information supplied by local distributors. No measurable difference in profit was found between the two treatments at either location. Based on these observations, either treatment is economical for early season insect control.

Introduction

Early season insect control is one of the first choices a producer must make in order to protect a young crop. The standard treatment, to which most others have been compared, is an at-planting treatment of aldicarb granules (Temik). Gaucho (imidacloprid) is another popular crop protection treatment. Other important in-furrow treatments are disulfoton (Di-Syston), acephate (Orthene) and imidacloprid (Admire). An economic analysis comparing treatments will help producers in making informed decisions about early season insect control. This study examined the expected change in profit associated with using Gaucho instead of Temik. Based on these observations, either treatment is economical for early season insect control.

Materials and Methods

Field experiments were conducted from 1994 to 2001 at two locations in west Tennessee. All of these experiments included Temik and Gaucho comparisons. Some included other treatments as well. The Temik plots received 0.5 lbs of aldicarb per acre while the Gaucho plots received 0.25 lb of imidacloprid per hundred-weight of seed. Experiments were established in a randomized complete block design and replicated five times. All plots were non-irrigated and have no history of nematode infestation. Seeding rates were approximately twelve pounds of seed per acre.

First harvest and total harvest yields were collected. Means were calculated for each treatment at each location and separated using the SAS GLM LSD procedure. Treatment costs were calculated using current price information supplied by local distributors. These prices averaged $3.28/lb of material for Temik and $9.96/oz of material for Gaucho.

Results

Mean cotton lint yields across all years at each location are displayed in Figures 1 through 4. Both treatments affected a statistically significant yield increase over the untreated check. Numerically, the Temik treatments had higher yields at both locations and at both harvests. However, the yield differences are small (Gaucho yields are approximately 3% less than the Temik yields) and are not significantly different at the alpha = 0.05 level.

Costs for the two treatments were very similar. At eight ounces of product per 100 pounds of seed, and assuming a 12 lb/acre seeding rate, the Gaucho treatment cost $9.55 per acre for the material plus the cost of treating the seed. The Temik treatment cost $10.92 per acre for the material plus the time and machinery to apply an in-furrow insecticide.

Discussion

No measurable difference in profit was found between the two treatments. Average yields between the treatments were not statistically different, and the cost difference between the two treatments was negligible. Based on these observations, either treatment is economical for early season insect control.

Using a seed treatment like Gaucho, instead of an in-furrow treatment like Temik, does have a convenience factor that was not considered in this study. This convenience might also translate into more timely planting on large acreages.

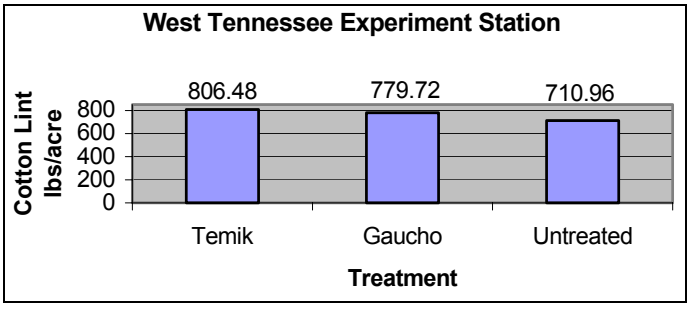

Figure 1. Average 1st harvest yield by treatment across years: 1995, 1996, 1997, 1998, and 2000.

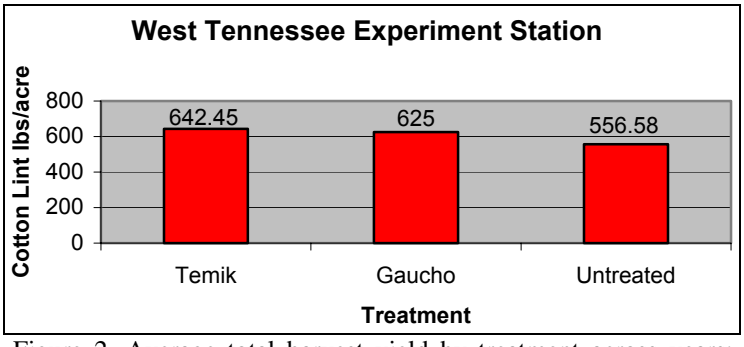

Figure 2. Average total harvest yield by treatment across years: 1995, 1996, 1997, 1998, and 2000.

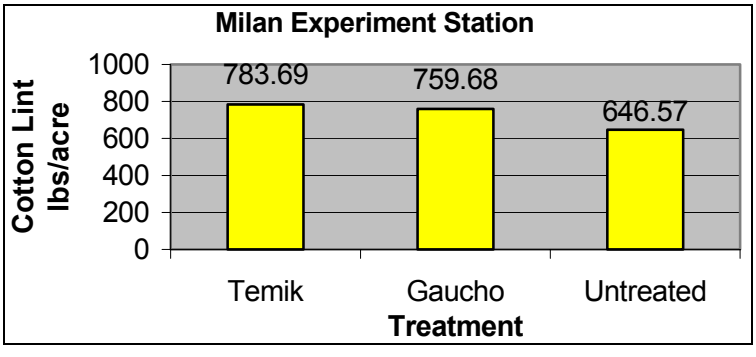

Figure 3. Average 1st harvest yield by treatment across years: 1995, 1996, 1997, 1998, 1999, 2000, and 2001.

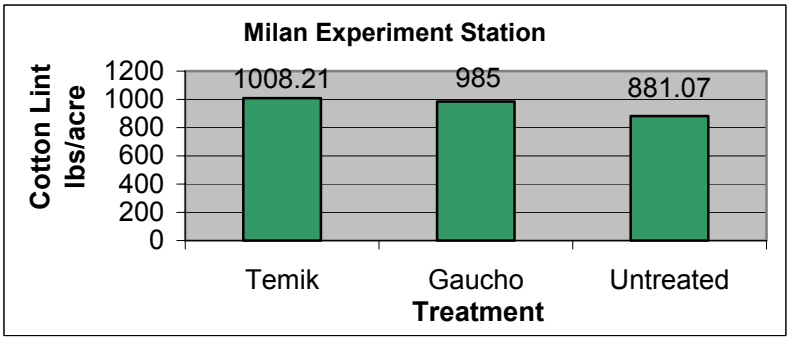

Figure 4. Average total harvest yield by treatment across years: 1995, 1996, 1997, 1998, 1999, 2000, and 2001.