

**COMPARISON OF FCR 4545, BAYTHROID 2EC,  
KARATE 1EC AND KARATE 2.09 SC  
TO OTHER COMMONLY USED  
INSECTICIDES FOR THE CONTROL  
OF BOLL WEEVIL (ANTHONOMUS GRANDIS)**

**Harry B. Meyers, Donald R. Johnson and**

**Larry M. Page**

**University of Arkansas Cooperative Extension Service  
Lonoke, AR**

**Abstract**

Commonly used insecticides and numbered compounds were tested for efficacy against the boll weevil in two complete tests. Baythroid at a rate of 0.028-lb AI and FCR4545 at a rate of 0.016-lb AI performed the best in the first test. Additionally in the first test Karate and Karate SC both at a rate of 0.025-lb AI had similar control but lagged slightly behind that of Baythroid and FCR4545. In the second test Baythroid at a rate of 0.028-lb AI and EXP61096 at the low and high rate performed the best.

**Introduction**

Although Arkansas has voted to implement a boll weevil eradication program, at the very least a program is still several years away from implementation. Until eradication is implemented insecticides will be the primary control method for boll weevil during the growing season.

Efficacy tests for the control of the boll weevil at the University of Arkansas Cooperative Extension Service have been conducted for over nine years. Many companies still show great interest in submitting protocols. Fifteen plus treatments were submitted this year for evaluation. To keep the boll weevil efficacy tests to a manageable size the treatment lists were split into two efficacy tests.

In both efficacy tests there are a number of experimental compounds not yet on the commercial market. EXP61096 is a numbered compound from Rhone-Poulenc. FCR4545 is a numbered compound from Bayer and is an isomer of Baythroid. Karate CSV is micro-encapsulated formulation of Karate 1EC. Naturalis-L is a Bt formulation (*Beauveria bassiana*)

**Materials and Methods**

Two efficacy tests were conducted in Lonoke County, Arkansas in 1997. Plots were 8 rows by 50 feet long on 38" centers. Each test had four replications. Bollgard cotton was planted on May 10. Treatments were applied on a 3-5 day schedule. Plots were evaluated 3 days after treatment. Twenty-five squares in each plot were inspected for feeding

and oviposition damage. Insecticides were applied using a John Deere Hi-Cycle 6000 equipped with a CO<sub>2</sub> mounted spay system. TSX-6 hollowcone nozzles were used at a pressure 60 PSI producing a volume of 10 GPA.

**Results and Discussion**

The following discussion will account the results in the boll weevil test number 1 (Table 1). After the first application none of the treatments were significantly different from the untreated check. The untreated check had the least amount of boll weevil damage with only 2.8 damage squares out of twenty-five. By the second evaluation date, 27 Aug, the amount of boll weevil damage in the untreated check swelled to 15.3 damage squares. All treatments except Decis had significantly less damage than the untreated check. On the third evaluation on 2 September the boll weevil damage increased only slightly to 17.0 damaged squares. All treatments were significantly different from the untreated check. Baythroid and FCR4545 both tied for the least amount of boll weevil damage with only 3.5 damaged squares. Baythroid and FCR4545 treatments were closely followed by the treatments Fury, Karate and Karate CSV. On fourth evaluation date on the 5 September Baythroid had the least amount of boll weevil damage. Although Guthion and Bidrin significantly reduced the amount of boll damaged when compared to the untreated check they were the least best in doing so.

In the second test boll weevil damage in the untreated check was nearly three times greater than in the first test (Table 2). At the first evaluation none of the treatments were significantly different from the untreated check. At the second evaluation none of the treatments were significantly different from the untreated check but Baythroid and EXP61096 at .2-lb AI rate had the least amount of boll weevil damage. On the fourth evaluation date the untreated checked increased to 23.5 damaged squares out of 25. Baythroid had the least amount of boll weevil damage with only 4 damaged squares. Baythroid was followed closely by EXP61096 at both rates. Phaser and Naturalis-L were the least effective in reducing the amount of boll weevil damage. Phaser in combination with Naturalis-L afforded only slightly better results. Although Phaser and Naturalis-L treatments were significantly different from the check they had nearly 2.5 times more damaged squares that Baythroid.

Table 1. Test #1: 1997 Efficacy trial for the control of the boll weevil

Treatment	Form	Rate/ Acre lb AI	Damaged Squares /25 Examined				
			22 Aug	27 Aug	2 Sept	5 Sept	9 Sept
Baythroid	2 EC	0.028	4.5 a	6.5 b	3.5 d	4.5 d	9.8 de
FCR 4545	1.04 SC	0.016	5.5 a	6.0 b	3.5 d	6.3 cd	8.8 e
Karate	1.0 EC	0.025	5.3 a	6.3 b	6.8 bcd	9.5 bcd	12.8 cde
Karate	2.09 SC	0.025	5.5 a	7.3 b	6.8 bcd	6.5 cd	14.0 b-e
Regent	2.5 EC	0.038	3.0 a	9.5 b	10.0 bc	7.8 bcd	15.0 a-d
Guthion	2.0 EC	0.38	5.0 a	7.0 b	12.3 ab	13.3 b	19.5 a
Decis	1.5 EC	0.02	6.5 a	11.0 ab	7.3 bcd	8.3 bcd	15.5 abc
Fury	1.5 EC	0.0375	3.0 a	8.5 b	5.7 cd	6.1 cd	12.9 b-e
Bidrin	8.0 EC	0.5	4.0 a	7.0 b	9.0 bcd	11.0 bc	18.3 ab
UNT			2.8 a	15.3 a	17.0 a	19.5 a	18.3 ab

Means followed by same letter do not significantly differ.  
(P=.05, Duncan's New MRT)

Table 2. Test #2: 1997 Efficacy trial for the control of the boll weevil

Treatment	Form	Rate/ Acre lb AI	Damaged Squares /25 Examined				
			22 Aug	27 Aug	2 Sept	5 Sept	9 Sept
EXP61096	0.83 EC	0.1	5.3 b	8.5 bc	4.5 d	5.0 de	8.8 cd
EXP61096	0.83 EC	0.2	6.3 b	6.8 bc	7.0 cd	4.0 e	8.0 cd
Phaser	3.0 EC	0.5	11.8 a	12.5 ab	14.5 b	14.0 bc	16.5 ab
Phaser	3.0 EC	0.375	5.8 b	8.8 bc	10.0 c	15.0 b	16.0 ab
Regent	2.5 EC	0.05	5.0 b	9.0 bc	7.5 cd	8.0 cde	12.0 bcd
Naturalis-L	100 SC	10	7.5 ab	15.5 a	15.8 ab	15.8 b	17.3 ab
Naturalis-L	100 SC	5	5.5 b	10.0 abc	10.3 c	11.3 bcd	13.8 abc
Phaser	3.0 EC	0.5					
Phaser	3.0 EC	1.0	5.3 b	7.3 bc	5.8 d	7.8 cde	14.0 abc
Baythroid	2.0 EC	0.028	6.5 b	4.5 c	4.0 d	4.0 e	5.5 d
UNT			10.0 ab	10.8 abc	18.3 a	23.5 a	19.3 a

Means followed by same letter do not significantly differ.  
(P=.05, Duncan's New MRT)