

ARKANSAS BOLL WEEVIL ERADICATION PROGRAM PRESENTATION TO THE ANNUAL COTTON RESEARCH MEETING

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INTRODUCTION

The Beltwide Boll Weevil Eradication Program officially began in 1983, in Virginia and North Carolina. At that time, North Carolina had approximately 40,000 acres of land in cotton production. In 1999, without the boll weevil, North Carolina had 880,000 acres of land in cotton production. Within the USDA, the Animal and Plant Health Inspection Service and the Agricultural Research Service provided financial and technical support to the program. Since 1983, the amount of financial support per acre has been reduced as a result of the increased acreage now in the active eradication program.

Currently, every State in the Beltwide Eradication Program, with the exception of Missouri, is either boll weevil-free or in an active eradication program. Arkansas began its involvement in the program in 1987, with the establishment of an Arkansas Technical Advisory Committee. At the 78th General Assembly of the State of Arkansas in 1991, a bill was passed and became ACT 710. This ACT was the beginning of the eradication movement in Arkansas.

OBJECTIVES

The first year of the program is the Fall Diapause phase. This phase substantially reduces the boll weevil population by as much as 90%. The second year is the first full season, which begins with placing and monitoring pheromone traps that will indicate when to apply treatments for the spring and in-season suppression and fall diapause to continue weevil reduction. The third year is conducted much like the second year, but participants start to see major weevil reductions. The fourth year begins the “mop up” of the last hot spots. The fifth year consists of preparing for the maintenance program.

WHICH INSECTS ARE CONTROLLED?

The Boll Weevil Eradication Program is designed specifically for the treatment of the boll weevil. All other cotton insect pests are the responsibility of the grower, but the Extension Service and program personnel will work with the growers on treatments

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and treatment scheduling. The use of malathion ULV prevents the piggyback of other insecticides.

EQUIPMENT

The mist blower mounted on the back of a three-fourths ton truck is used to spray the borders of the cotton fields along high-risk over-wintering sites. The mist blower can deliver a spray up to 50 feet into the field and is very important in killing weevils as they start to emerge in the spring and return to the over-wintering sites in the fall. The hi-boy sprayer is used to spray small fields where aerial application is difficult and also for spraying sensitive and environmental sites. The airplane is the key to our treatment program. Aerial applicators are contracted to apply treatments on a specific schedule the first year of the program and as a field is triggered for treatment the second through the fifth years.

PROGRAM ZONES

In 1997, the Southwest Zone of Arkansas (Miller, Lafayette, Little River, and Clark counties) joined the Louisiana's Red River Eradication Program. With only 6,500 acres, it was not economically feasible for Arkansas to run such a small program. With the Southeast Zone coming into the program in 1999, we are now able to manage the Southwest Zone for 2000. This Zone, now in its fourth year, will utilize trap data to eliminate the last of the weevils in this area. We expect very little in the way of treatments in 2001, when we will prepare for the maintenance program.

In August 1999, the fall diapause phase of the eradication program began in the Southeast Zone, which includes the counties of Ashley, Chicot, Desha, Drew, Lincoln, Jefferson, Arkansas, Lonoke, and Pulaski (approximately 290,000 acres of cotton). Aerial treatments, using 10 ounces of malathion ULV per acre, began on August 16 and continued until the crop was not suitable for sustaining a population of boll weevils (usually just prior to harvesting). The applications were applied to all cotton fields on a 7-day interval until cooler weather allowed for an expanded interval of 10 days. The objective of the initial fall diapause phase of the program is to kill as many weevils as possible before they leave the fields and enter the over-wintering sites. This phase of the program can eliminate as many as 90 % of the weevil population.

In 1998, one field in each of the counties in the Southeast Zone was trapped. In 1999, those same fields were trapped if they were planted in cotton. The comparison of data shows that the diapause phase was a complete success (see Figs. 1 and 2).

In 2000, the Southeast Zone will begin its first full year of the program. We expect to place and monitor approximately 150,000 pheromone traps, which will be our indicators of when to apply treatments. During the spring and fall, the treatment trigger will be two weevils caught per 40-acre unit. During the in-season, the treatment trigger will be five weevils caught per 40-acre unit. There may be some modifications to these triggers where border treatments are advisable.

In August 2000, the fall diapause phase of the eradication program will begin in the Central Zone, which includes the counties of Phillips, Lee, Monroe, Prairie, St.

Francis, Cross, Woodruff, Jackson, Independence, and Crittenden (approximately 217,000 acres of cotton). Aerial applications will begin in early August. Application scheduling will be the same as in the Southeast Zone in 1999.

The Northeast Zone has been divided into two zones. In the Ridge Zone (including Clay and Greene counties, and Craighead County west of the St. Francis River) we are currently preparing for a referendum to be held in September 2000. If the referendum passes, we will begin the fall diapause phase in the fall of 2001. We will include Poinsett County west of the St. Francis River in this zone.

The other part of the Northeast Zone is the Delta Zone (including Mississippi County and Craighead County east of the St. Francis River), where we are anticipating a referendum in the spring or fall of 2001. If that referendum passes, we will begin the program in 2002. We will include Poinsett County east of the St. Francis River in this zone.

For the first year of the Southeast Zone program, the projected expense was more than the actual costs. The short growing season and the lack of rain were major contributing factors. The expense was divided into five major categories; Salaries and Benefits = 11%; Treatments = 71%; Overhead = 2%; Capital Equipment = 12%; and All Other = 4% (see Figs. 3 and 4).

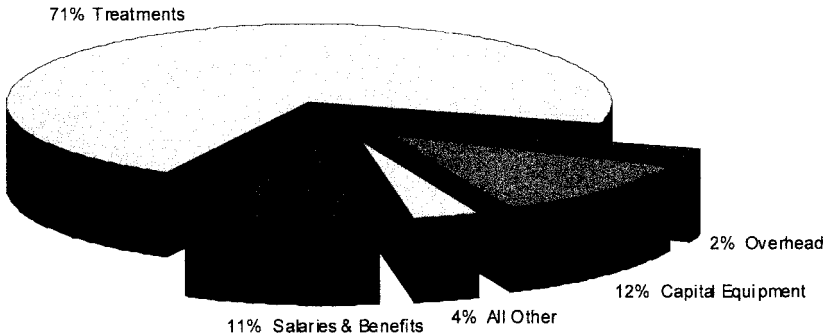


Figure 1. This pie chart provides the percentage of expenses by the five major categories. As normal, the cost for treatments outdistances all other categories.

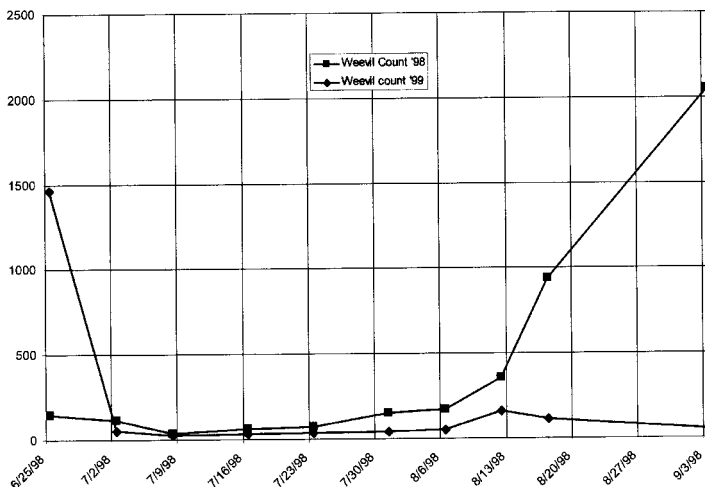


Figure 2. Jefferson County: Weevils trapped on the same cotton field in 1998 (the year before the program began) and in 1999 (the year the diapause phase of the program began). The diapause treatments began in mid-August, which is indicated by the sharp decline in weevil's trapped.

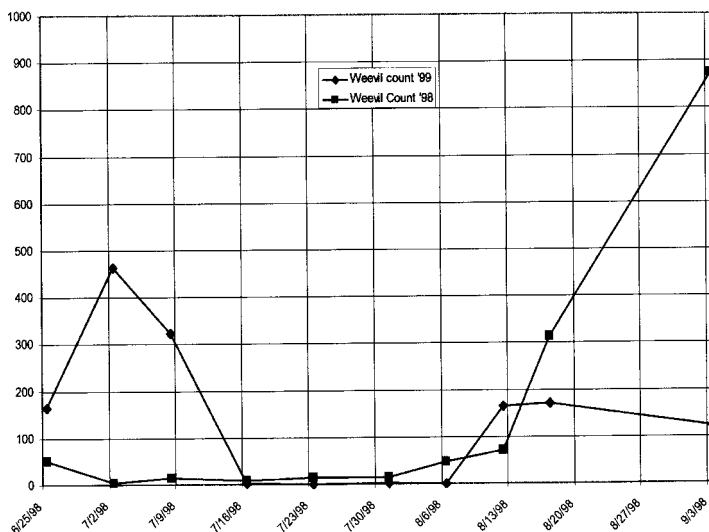


Figure 3. Lincoln County: This graph shows the same information as the Jefferson County graph. The same results are indicated on both graphs, which shows that the diapause phase of the program accomplished its objective of reducing the weevil population by at least 90%.

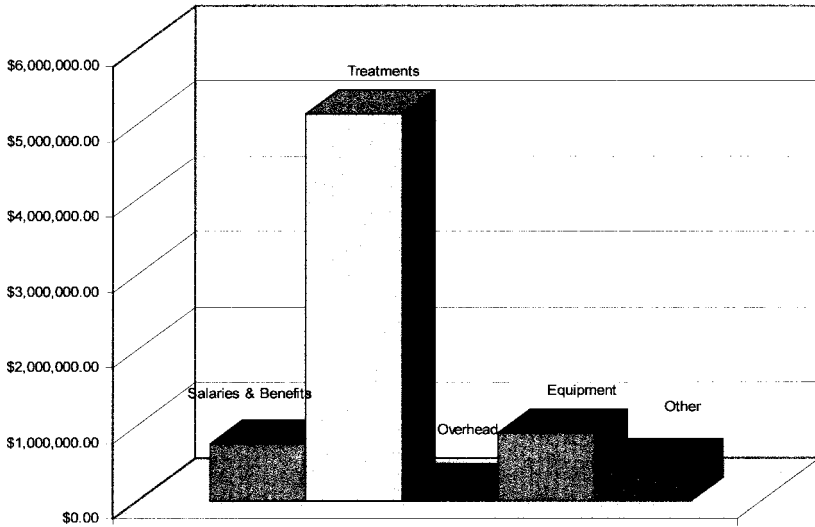


Figure 4. Arkansas Boll Weevil Expense for 1999: Approximate dollar amount spent in the five major categories.