

**Progress Report Prepared for the Wheat and Feed Grains Commodity Grants Program**  
January 2006

**Project Title: Monitoring for Insecticide Resistance in Key Pests of Stored Corn in Alabama**

**Investigators:** Henry Y. Fadamiro, Assistant Professor, and Kathy F. Flanders, Associate Professor, Department of Entomology & Plant Pathology

**Amount Funded:** \$4,000

**Project Objective:** Determine the susceptibility of Alabama field strains of maize weevil and red flour beetle to pirimiphos methyl (Actellic®).

**Project Progress:**

In summer/fall 2005, we visited several farms in Alabama to evaluate stored grain insect problems and to collect insect samples on stored corn for use in our experiments. Table 1 shows the various locations visited and the key insects found on stored corn. The following county extension agents participated in grain sample collection at the sites within their regions: Leonard Kuykendall, Russell (Rusty) Parish, and Warren Griffith. Farmers at the collection sites were interviewed with the aim of understanding their historical pest problems and pest management practices. The insects were collected using probe traps deposited overnight in wheat bins, and were later identified in the laboratory.

The two key insects collected on stored corn in most of the sites are maize weevil (*Sitophilus zeamais*) and red flour beetle (*Tribolium castaneum*). The insects at the various sites are now being reared separately (by site) on corn in Dr. Fadamiro's laboratory to establish a good supply of individuals of each strain for use in the insecticide resistance bioassays. Recently, we have started to collect some preliminary data on known susceptible strains of each species, which will be compared against our field-collected strains to determine level of insecticide resistance. Detailed insecticide resistance bioassays will commence this month.

<b>Farm (site)</b>	<b>County/Region</b>	<b>Key insects found in stored corn</b>
Larry Avaunt's Farm	Autauga County, Central, AL	<i>Sitophilus zeamais</i> , <i>Tribolium castaneum</i> , <i>Plodia interpunctella</i>
Moorer Seed Company	Autauga County, Central, AL	<i>Sitophilus zeamais</i> , <i>Tribolium castaneum</i>
Lester Farm	Crenshaw County, South AL	<i>Sitophilus zeamais</i> , <i>Tribolium castaneum</i>
Beagent's Farm	Crenshaw County, South AL	<i>Sitophilus zeamais</i> , <i>Tribolium castaneum</i>
Dee's Farm	Pickens County, NW AL	<i>Sitophilus zeamais</i> , <i>Tribolium castaneum</i>

**Table 1. Sites at which stored corn was sampled and the key insects collected.**

**Challenges and Proposed Changes:**

In the original proposal, we proposed to collect insect samples from 5 counties, 2 locations per county for a total of 10 locations. However, the grant panel approved \$4,000 for the project instead of our original budget of \$5,600. Because of this reduced funding, we have limited our sample collection to the above 5 sites located in three counties. Also, only Actellic® will be tested in the bioassays since malathion is no longer registered as a grain protectant.