Progress Report Prepared for the Wheat and Feed Grains Commodity Grants Program
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Project Title: Evaluation of Pesticide Resistance in Beetle Pests of Stored Wheat in Alabama

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Amount Funded: $4,000

Project Objective: To evaluate the susceptibility of key stored grain beetles collected in stored wheat from different parts of Alabama to labeled rates of Reldan®.

Project Progress:

In summer/fall 2005, we visited several farms in Alabama to evaluate stored grain insect problems and to collect insect samples for use in our experiments. Table 1 shows the various locations visited and the key insects found on stored wheat. 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 wheat in most of the sites are rice weevil (*Sitophilus oryzae*) and red flour beetle (*Tribolium castaneum*). The insects at the various sites are now being reared separately (by site) on wheat 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.

Farm (site)	**County/Region**	**Key insects found in stored wheat**
Larry Avaunt's Farm	Autauga County, Central, AL	*Sitophilus oryzae, Tribolium castaneum, Rhyzopertha dominica, Plodia interpunctella*
Moorer's Seed Company	Autauga County, Central, AL	*Sitophilus oryzae, Tribolium castaneum, Rhyzopertha dominica,*
Lester Farm	Crenshaw County, South AL	*Sitophilus oryzae, Tribolium castaneum, Rhyzopertha dominica*
Beagent's Farm	Crenshaw County, South AL	*Sitophilus oryzae, Tribolium castaneum, Tenebrio molitor*
Dee's Farm	Pickens County, NW AL	*Tribolium castaneum, Tenebrio molitor*

Table 1. Sites at which stored wheat 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 Reldan® will be tested in the bioassays since malathion is no longer registered as a grain protectant.