PROJECT SUMMARIES, FY2006

Title: **A National Agricultural Program to Clear Pest Control Agents for Minor Uses**

A number of herbicides continue to be tested for use on ornamental plants. Results from one herbicide, Gentry®, have been submitted to EPA for label registration. This is the first herbicide that may be labeled for use on liverwort in container production.

Title: **Growth Regulation of Woody and Herbaceous Landscape Plants**

In nursery production of woody ornamentals, labor costs can be substantial, particularly when pruning must be done to produce a marketable plant. However, pruning costs can be reduced with the use of appropriate plant growth regulators. This project is evaluating these products and finding some substitutes for physical pruning.

Title: **Cultural Practices and Cultivar Evaluations for Pecans**

In addition to continued evaluations of improved pecan cultivars, studies are also looking at herbicide and insecticide application with sprayers or with irrigation. Studies have also shown that wiper application of herbicide, on weeds taller than the clover groundcover, are effective and can reduce mowing.

Title: **Decision-making under Uncertainty and the Economics of Risk in Alabama Agriculture**

Increased predictability of climate changes associated with El Nino Southern Oscillation (ENSO) was shown to help reduce farm risk by timing the selection of crop insurance products to coincide with predictions of the severity of those events. The current state of the satsuma marketing effort in the Gulf States was summarized, and recommendations were made for development of a regional brand.

Title: **Epidemiology of Plant Diseases in Crop and Urban Landscape Ecosystems**

During research on crop rotation sequences and effects on diseases and yields, it was discovered that the cotton root knot nematode reproduces well on corn. Analyses are indicating that these nematodes do have detrimental effects on both corn and cotton, although a single year rotation to peanut will substantially reduce populations of this nematode.

Title: **Impacts of Trade and Domestic Policies on the Competitiveness and Performance of Southern Agriculture.**

Work as part of this project examined non-tariff trade barriers and has given policymakers a better tool to assess and improve agricultural trade policies for producers, consumers and the government. The quantitative analysis of trade barriers from this project provides researchers a new perspective to address these barriers in their research.

Title: **Developing Sustainable Production Practices for Cotton (*Gossypium hirsutum*)**

The common practice in cotton production in the southeastern U.S. is to allow weeds to grow along with seedling cotton until the four-leaf stage. This is the time when label restrictions would limit over-the-top applications of glyphosate. However, research indicates that negative yield impacts due to weed competition are irreversible at this point even if the crop is maintained weed-free for the remainder of the

season. Adjusting the timing on glyphosate applications can result in cotton yield increases, and provides cost benefits for the producer.

Title: **Management of Arthropod Pests on Peanuts**

Studies continued that contribute to the peanut spotted wilt risk (TSW) index, a multi-state tool that extension and research scientists in Georgia, Florida, and Alabama utilize to assist peanut growers in managing this disease. In particular, the evaluation of new and developing cultivars for their reaction to TSW is significant. Acreage of newly available cultivars such as AP-3, Ga-02C, Ga03L should continue to increase. Because these cultivars have lower TSW and increased yield than previously predominant cultivars, grower revenue is expected to increase by about $2.5 million dollars in Alabama alone.

Title: **Management of insect pests of forage and grain crops in Alabama**

A long-term study on spatial and temporal distribution of soil insects in pastures continued in 2006. In particular, data on soil characteristics (P, K, OM, texture) will be compared to insect abundance to see if soil insect pest occurrence can be predicted. Such a predictive system will help cattle producers in targeting scouting efforts and control efforts to prevent losses of pasture acreage to soil insect pests.

Title: **The Poultry Food System: A Farm to Table Model**

Detrimental microbes are facilitated in their infestation of poultry products in warmer conditions. For this reason, cool water washing was tested in two shell egg operations in Alabama. Research results indicate that cool water washing could enhance the cooling of shell eggs and potentially reduce pathogen growth. Federal approval of a cool water wash process would not only reduce energy costs but improve egg quality and safety.

Title: **The ecology of the Mobile-Tensaw Delta: an ecotone between marine and freshwater ecosystems**

Largemouth bass is an important species to the Mobile-Tensaw Delta, both ecologically and economically. In order to better manage this species for sustainability, fish and water are being sampled and analyzed from the delta. Results show that salinity is one of the most important factors influencing the dynamics of the Delta. Salinity peaked relatively earlier in 2006, generally beginning in mid summer and continuing into the fall.

Title: **Evaluation of Aquatic Species, Strains and Hybrids and their Production Methods to Improve Sustainability of Aquaculture in Alabama**

Research on this project has been evaluating differences in production of freshwater prawns when cultured in single sex or mixed populations. Data indicate that females, grown-out in mono-sex culture, are about 20% larger and have slightly improved survival than males only.

Title: **Systems for Controlling Air Pollutant Emissions and Indoor Environments of Poultry, Swine, and Dairy Facilities**

This project is evaluating the effect of litter amendments on ammonia volatilization and mitigation from poultry that will contribute to improving indoor air quality and reducing air pollution emissions from poultry buildings. It is known that high ammonia levels make birds more susceptible to respiratory

diseases, thus knowledge on litter amendments for mitigating these levels are critical in maintaining a healthy poultry production scenario for all stakeholders.

Title: **Termite Behavioral Ecology and Enhancement of Integrated Approach Toward Termite Management**

Previous research on this project has indicated that the most rapid spread of Formosan termite has been due to man's movement of infested materials. Associated research is elucidating how termites chemically communicate in colonies, and could contribute to the development of novel means of control by manipulating their communicating system.