

April 1, 2004

Mr. Bart Hewitt, Program Analyst  
Planning and Accountability  
Office of the Administrator  
Cooperative State Research, Education and Extension Service  
U.S. Department of Agriculture  
Washington, D. C. 20250

Dear Mr. Hewitt:

Please find enclosed the State of Alabama Research Plan of Work Update as required by the Agricultural Research, Extension, and Education Reform Act of 1998. This is an update to the Plan of Work that was submitted and approved for the fiscal years 1999-2004. This Plan of Work Update is a comprehensive statement of the intended research activities for the agricultural research programs at Alabama A&M University (AAMU), Auburn University (AU), and Tuskegee University (TU) for the fiscal years 2005 and 2006. One of the changes during the next two years will be a greater emphasis on the problem of obesity among Alabama youths.

This plan update is jointly submitted by Drs. John Jensen (AU), Walter Hill (TU) and McArthur Floyd (AAMU). Questions and other comments regarding this document can be directed to any of the Directors; however, technical concerns should be addressed to me, as I am providing the leadership in this effort.

Respectfully submitted,

John W. Jensen  
Interim Dean and Director

Enclosure

# **PLAN OF WORK UPDATE**

**For**

## **Alabama Agricultural Research Programs (AARP)**

**at the**

**Alabama Agricultural Experiment Station  
(Auburn University)**

**and**

**The Winfred Thomas Agricultural Research Station  
(Alabama A&M University)**

**and**

**The George Washington Carver Agricultural Experiment Station  
(Tuskegee University)**

**for**

**Federal Fiscal Years  
2005-2006**

**April 1, 2004**

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## EXECUTIVE SUMMARY

Alabama is fortunate to have three land-grant universities - Alabama A&M University (AAMU), Auburn University (AU), and Tuskegee University (TU) - with distinct programs at each institution based on clientele needs. As administrators of the Alabama Agricultural Research Program (AARP), we are working cooperatively to enhance partnerships among our universities in all areas of research, education, and extension; with other universities in the region, nationally, and internationally; and with state and federal laboratories and agencies. The agricultural research programs of these universities have formed a partnership, via a memorandum of understanding, known as the Alabama Agricultural Land-Grant Alliance (AALGA) to better address critical issues in food, agriculture, and natural resources in the state, region, and nation through multidisciplinary, multi-institutional, science-based teams that focus on opportunities and challenges facing farmers, consumers and agribusinesses. AALGA also seeks to provide quality education that prepares professionals for career opportunities in food, agriculture, and natural resources. AALGA received state funding in support of this partnership in FY 2002, 2003 and 2004.

In recognition of the importance of international agriculture programs in promoting the competitiveness of U.S. agriculture in the global market place, Alabama's agricultural research programs support and participate in the efforts of international program offices at the three institutions.

The Plan of Work for FY 1999-2004 was a comprehensive statement of intended research activities for these three institutions as required by the Agricultural Research, Extension and Education Reform Act (AREERA) of 1998. This is a Plan of Work Update for the fiscal years 2005 and 2006. This Update is substantially the same as the Plan of Work submitted in 1999 with some program revisions and projections for the new two year period.

Five state programs will continue as reported in the Five-Year Plan of Work under the various REE goals. These state programs are:

- State Program 1:** Attain Globally Competitive Alabama Agricultural and Forestry Production Systems
- State Program 2:** Enhance Food Safety, Quality and Processing Technologies
- State Program 3:** Improve Human Nutrition and Health
- State Program 4:** Develop and Enhance Sustainable Ecosystems to Protect Natural Resources and Bio-diversity
- State Program 5:** Ensure Socioeconomic and Self-Empowerment of Families and Communities

Several multi-disciplinary research projects are grouped under the Key Program Components associated with each state program.

**RESEARCH PLAN OF WORK UPDATE FOR AGRICULTURAL RESEARCH  
PROGRAMS IN THE STATE OF ALABAMA**

**POINTS of CONTACT:** This plan is jointly submitted by: *Dr. John Jensen* (Auburn University), *Dr. Walter Hill* (Tuskegee University) and *Dr. McArthur Floyd* (Alabama A&M University). Although questions and other comments regarding the document can be directed to any of us, technical concerns should be addressed to John Jensen, who is providing leadership in this effort.

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**Adoptions by Reference:**

- Alabama Agricultural Research Plan for the 21<sup>st</sup> Century
- Programs School of Agricultural and Environmental Sciences
- Administrative Manual for Evans-Allen Cooperative Agricultural Research Project Approval
- Globalizing Agricultural Science and Education Programs for America (GASEPA)

## **PLANNED PROGRAMS**

Five statewide programs have been designed based on identified needs and stakeholder input.

### **State Program 1: *Attain Globally Competitive Alabama Agricultural and Forestry Production Systems***

#### **Key Program Components:**

1. Economics; Analyses and Policies
2. Improved Machinery and Engineering Systems
3. Value-Added Food and Fiber
4. Improved Crop, Animal and Poultry Systems
5. Integrated Pest Management
6. Development of Alternative Food, Animal & Specialty Crops
7. Fisheries and Aquaculture
8. Water Quality and Waste Management
9. Economics & Social Well-being of All Families and Farmers
10. Recruitment and Education of Individuals for Career Professions in the Food and Agricultural Sciences
11. International Collaborations

### **State Program 2: *Enhance Food Safety, Quality and Processing Technologies***

#### **Key Program Components:**

1. Food Safety and Risk Analysis
2. Genetic and Biochemical Modification of Foods
3. International Phyto-Sanitary Standards

### **State Program 3: *Improve Human Nutrition and Health***

#### **Key Program Components:**

1. Nutrient Composition of Foods
2. Nutrition Education including Obesity
3. Diet Modification for Targeted Populations
4. Promote Health, Safety & Access to Quality Health Care

### **State Program 4: *Develop and Enhance Sustainable Ecosystems to Protect Natural Resources and Bio-diversity***

#### **Key Program Components:**

1. Water Quality and Waste Management
2. Soil Conservation, Quality and Bio-indicators
3. Remote Sensing, Geographical Information Systems and Precision Agriculture
4. Urban/Rural Social Change Issues and the Environment
5. Wetland Restoration and Best Management Practices (BMP)
6. Policies Related to Agriculture and the Environment

**State Program 5: *Ensure Socioeconomic and Self-Empowerment of Families and Communities***

**Key Program Components:**

1. Rural Restructuring
2. Economic Viability and Sustainable Communities
3. Small and Family Farms
4. Families and Children
5. Information Delivery to Unserved Populations
6. Distance Learning to Unserved and Underserved Populations

**PARTICIPATION OF UNIVERSITIES BY GOALS:**

RESEARCH	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	
	Key Research Component	Key Research Component	Key Research Component	Key Research Component	Key Research Component	
1862 Research (ALA)*	1,2,3,4,5,6 7, 8,9,11	1,2,3, 4	1,2,3,4	1,2,3,4,5,6	1,2,4	
1890 Research (ALAX)*	1,3,4,6,8,9 10,11	1,2	1,2,3,4	1,2,3,4,5,6	2,3,4,5,6	
1890 Research (ALX)*	3,4,5,6,8,9, 10,11	1,2	1,2,3,4	1,2,3,4,6	2,3,4,5,6	

\* Auburn University, Alabama A&M University, and Tuskegee University, respectively

**STAKEHOLDER INPUT PROCESS:**

Stakeholder input into the planning and priority setting of Alabama’s Agricultural Research programs (AARP) is continuous and includes formal and informal processes. The formal process includes conducting a statewide survey of citizens, commodity and advisory groups, farmers, urban and rural families, faculty and students, and policymakers to develop the Alabama Agricultural Research Plan for the 21<sup>st</sup> Century. Additionally, input is sought through the Annual Farmers’ Conference, the Professional Agricultural Workers Conference, the Annual Agriculture Week, Advisory Councils, and the six Research and Extension Centers throughout the state in conjunction with the Alabama Cooperative Extension System (ACES) including the Tuskegee University Extension Program. Farmers and other key constituent groups have input via their respective associations and commodity groups. The Associate Directors of the AAES (the Deans of the associated academic school and colleges at Auburn University), and the Research Directors at Alabama A&M University, and Tuskegee University, have their own Advisory Councils who provide counsel on research program directions.

## **PROGRAM DESCRIPTIONS:**

The Alabama five-year Plan of Work was based on the five national goals within the Research, Education and Economics (REE) Mission Area of USDA. This Plan of Work Update continues these goals and programs.

*Goal 1 – An Agricultural System that is Highly Competitive in the Global Economy*

Planned State Program 1 –Attain Globally Competitive Alabama Agricultural and Forestry Production Systems

### Statement of Issues:

Effective functioning of America’s agricultural system in a highly competitive global economy is a major contributor to the national economic growth and well-being of the American people. To keep the agricultural industry in Alabama competitive, we need to understand the basic processes associated with the production and marketing systems.

Our research will focus on the areas of: international market evaluation; farm level economics; improved machinery systems; improved crop and animal health; improved textiles and apparel; fisheries and aquaculture; food safety development of alternative food and specialty vegetable crops; poultry science; water quality; waste management; and rural/family restructuring. The three universities will also place high emphasis on providing experiential learning and graduate education opportunities for undergraduate and graduate students enrolled in their academic programs.

### Performance Goals:

- Increased market shares for Alabama agricultural products
- Increased human capacity in agriculture and related fields

### Output Indicators

- Increased opportunities for Alabama’s agribusiness concerns and farmers
- Increase in value-added agricultural and forestry products

### Outcome Indicators

- Increase in gross revenue from Alabama agricultural products
- Database for key markets for Alabama agricultural and forestry products developed
- Sustainable and environmentally sound crop and animal production systems developed

### Key Program Components:

1. Economics
2. Improved Machinery and Engineering Systems
3. Value-Added Food and Fiber
4. Improved Crop, Animal and Poultry Systems
5. Integrated Pest Management
6. Development of Alternative Food, Animal & Specialty Crops
7. Fisheries and Aquaculture
8. Water Quality and Waste Management
9. Economics & Social Well-being of All Families and Farmers

- 10. Recruitment and Education of Individuals for Career Professions in the Food and Agricultural Sciences
- 11. International Collaborations

**Internal and External Linkages:**

Collaborations have been established and will continue within and among various departments and schools at each university and among the three land-grant institutions, key international institutions, and with Extension, federal and state laboratories, and non-government organizations (i.e., agribusinesses, private food and community-based organizations) to fulfill this goal.

**Target Audiences:**

We will continue to target the needs of the farmer and the consumer in meeting this goal. Our research will benefit the small, medium and large, including minority, farmers and the underserved populations of Alabama and the region.

**Program Duration:**

This program, of approximately 93 total projects (AU – 79, TU – 4, AAMU – 10); will continue for the 2-year life of this plan update, and beyond.

**Allocated Resources (\$) and Scientists Years (SY) for Planned State Program 1**

	<b>FY 2003</b>		<b>FY 2004</b>		<b>FY 2005</b>		<b>FY 2006</b>	
<b>Institution</b>	<b>Expenses</b>	<b>SY</b>	<b>Expenses</b>	<b>SY</b>	<b>Expenses</b>	<b>SY</b>	<b>Expenses</b>	<b>SY</b>
1862 (AL)	\$17,328,386	42	\$18,194,806	42	\$18,376,754	42	\$18,560,521	42
1890 (ALAX)	\$1,593,700	14	\$1,590,000	14	\$1,591,176	14	\$1,592,716	14
1890 (ALX)	\$1,248,991	8	\$1,312,800	8	\$1,312,700	8	\$1,312,700	8
<b>Total</b>	<b>\$20,171,077</b>	<b>64</b>	<b>\$21,097,606</b>	<b>64</b>	<b>\$21,280,630</b>	<b>64</b>	<b>\$21,465,937</b>	<b>64</b>

*Goal 2 – A Safe and Secure Food and Fiber System*

**Planned State Program 2 – Enhance Food Safety, Quality and Processing Technologies**

**Statement of Issues:**

The safety of the food supply is a major concern to policymakers, consumers, distributors, processors, producers, and suppliers. Enhancing the quality and safety of our food supply requires continuous innovation in production, processing, packaging, and distribution practices. All of Alabama’s land-grant universities are striving to meet these demands and address current and emerging food safety, food quality, nutrition, and health issues, particularly as they relate to consumers, society, industry and regulatory concerns.

Our planned research will focus on: food safety issues such as irradiation of meats; diet analysis; and the study of food-borne pathogens. The latter will include developing technologies for the control of pathogens in both meat and food crop (fruits and vegetables) products. We will also be manipulating and supplementing animal diets to extend the shelf-life of poultry products; examining how irradiation affects the shelf-life, bacteria content, and nutritional quality of processed beef. Producers will use genetic selection and other improved management practices to reduce production cost and provide higher quality pork products. We will seek to improve the production and quality of aquaculture products.

Performance Goals:

- Increase number of agricultural products that are safer, less costly, with improved shelf-life.

Output Indicators:

- Better detection methods for food-borne illnesses and organisms
- Improved farming technology
- Better detection of pollutants and micro-organisms in rivers and streams
- Improved food processing and handling techniques

Outcome Indicators:

- A safer food supply
- Fewer food-borne illnesses
- A safer water supply
- A well-nourished Alabama population

Key Program Components:

1. Food Safety and Risk Analysis
2. Genetic and Biochemical Modification of Foods
3. International Phyto-Sanitary Standards

Internal and External Linkages:

Collaborations have been established and will continue within and among various departments and schools at each University and among the three land-grant institutions, key international institutions, and with Extension, federal and state laboratories, and non-government organizations (i.e., agribusinesses, private food and community-based organizations) to fulfill this goal.

Target Audiences:

We will continue to target the needs of farmers and consumers in meeting this goal. Our research will benefit the small, medium and large, including minority, farmers, and the underserved populations of Alabama.

Program Duration:

This program, of approximately 13 total projects (AU – 8, TU – 2, AAMU – 3); will continue for the 2-year life of this plan update, and beyond.

Allocated Resources (\$) and Scientists Years (SY) for Planned State Program 2

	FY 2003		FY 2004		FY 2005		FY 2006	
Institution	Expenses	SY	Expenses	SY	Expenses	S Y	Expenses	SY
1862 (AL)	\$4,877,680	13	\$5,121,563	13	\$5,172,778	13	\$5,224,506	13
1890 (ALAX)	\$424,291	4	\$422,000	4	\$423,314	4	\$427,290	4
1890 (ALX)	\$408,110	3	\$402,341	3	\$407,500	3	\$407,500	3
Total	\$5,710,081	20	\$5,945,904	20	\$6,003,592	20	\$6,059,296	20

*Goal 3 – A Healthy, Well-Nourished Population*

Planned State Program 3 – Improve Human Nutrition and Health

Statement of the Issues:

The socioeconomic status of some Alabama residents restricts their ability to practice healthy dietary habits, including choosing healthy foods and handling food safely. Our research efforts will aim at protecting and enhancing the health of Alabama citizens through understanding both societal issues affecting consumers' overall diet-related health and the relationship between diet and specific body function.

We will focus on the development of: novel food products that will substantially reduce the serum cholesterol level; evaluation of the production of high quality and healthier small ruminant food-animal meat products; improved encapsulation and food fortification technologies to produce more available/digestible products with increased shelf-life; development of nutritional intervention and food choice programs to control cardiovascular diseases, obesity and better quality diets; increased utilization of food crops; and development of dietary guidelines based on ethnicity, age and consumption preferences.

Performance goals:

- Increase the health status of all Alabamians

Output indicators:

- Increase in awareness of food safety measures and nutrition needs
- Biochemical and bio-engineered modification of food produced in Alabama

Outcome indicators:

- Increase in well-balanced food products in Alabama markets
- Fewer food-borne illnesses in Alabama

- Reduced malnutrition in the rural and urban poor populations in Alabama
- Reduction in the level of obesity, especially among the youth of Alabama

Key Program Components:

1. Nutrient Composition of Foods
2. Nutrition Education
3. Diet Modification for Targeted Populations

Internal and External Linkages:

Collaborations have been established and will continue within and among various departments and schools at each University and among the three land-grant institutions and with Extension, federal and state laboratories, and non-government organizations (i.e., agribusinesses, private food and community-based organizations) to fulfill this goal.

Target Audiences:

The target audience for this goal is the entire citizenry of Alabama and the region.

Program Duration:

This program, of approximately 14 total projects (AU – 9, TU – 2, AAMU – 3); will continue for the 2-year life of this plan update, and beyond.

Allocated Resources (\$) and Scientists Years (SY) for Planned State Program 3

	FY 2003		FY 2004		FY 2005		FY 2006	
Institution	Expenses	SY	Expenses	SY	Expenses	SY	Expenses	SY
1862 (AL)	\$2,628,118	10	\$2,463,300	10	\$2,487,933	10	\$2,512,812	10
1890 (ALAX)	\$425,898	3	\$420,700	3	\$434,250	3	\$428,789	3
1890 (ALX)	\$326,941	2	\$328,900	2	\$326,875	2	\$326,875	2
<b>Total</b>	<b>\$3,380,957</b>	<b>15</b>	<b>\$3,212,900</b>	<b>15</b>	<b>\$3,249,058</b>	<b>15</b>	<b>\$3,268,476</b>	<b>15</b>

Goal 4 – *Greater Harmony between Agriculture and the Environment*

Planned State Program 4 – Develop and Enhance Sustainable Ecosystems to Protect Natural Resources and Bio-diversity

Statement of Issues:

Society demands that our quality of air, water, and soil be protected. Contamination of these resources and food threatens the continued existence of many plant and animal species. Sustained productivity of Alabama’s agricultural, silvicultural, and other natural resource-dependent industries will require immediate and long-term efforts to maintain quality.

Our research projects are designed to focus on: technology for managing wildlife; animal waste; improved soil management techniques to include the impact of animal waste and residues on water quality and soil health; reduction of soil erosion and increased sustainability through land-use planning and management; the reduction of chemical inputs for maximum production; and pest control of crops. Research projects will also focus on the areas of economic impact analysis of changes in agriculture legislation; development of ecosystem models; precision farming; and water quality.

Performance goals:

- Increase options available to farmers for sustainable natural resources development and bio-diversity

Output Indicators:

- Methods for planting and harvesting that protect the environment
- Methods for animal waste management that protect the environment
- More environmentally friendly methods of fisheries management
- Methods to ensure a safe water supply
- Minimize harm

Outcome Indicators:

- Improved soil health
- Reduced soil and water pollution
- Less reliance on chemicals in farming
- Reduced soil loss

Key Program Components:

1. Water Quality and Waste Management
2. Soil Conservation, Quality and Bio-indicators
3. Remote Sensing, Geographical Information Systems and Precision Agriculture
4. Urban/Rural Social Change Issues and the Environment
5. Wetland Restoration and Best Management Practices (BMP)
6. Integrated Pest Management (IPM)

Internal and External Linkages:

Collaborations have been established and will continue within and among various departments and schools at each university and among the three land-grant institutions and with Extension, federal and state laboratories, and non-government organizations (i.e., agribusinesses, private food and community-based organizations) to fulfill this goal.

Target Audiences:

The targeted audiences for this goal are the farmers; landowners and users; rural and urban dwellers; food, fiber and chemical industries and citizens of Alabama and the region.

Program Duration:

This program, of approximately 15 total projects (AU – 9, TU – 3, AAMU – 3); will continue for the 2-year life of this plan update, and beyond.

Allocated Resources (\$) and Scientists Years (SY) for Planned State Program 4

	FY 2003		FY 2004		FY 2005		FY 2006	
Institution	Expenses	SY	Expenses	SY	Expenses	SY	Expenses	SY
1862 (AL)	\$14,682,527	38	\$15,416,654	38	\$15,570,820	38	\$15,726,528	38
1890 (ALAX)	\$466,269	4	\$450,250	4	\$433,799	4	\$475,100	4
1890 (ALX)	\$366,552	3	\$368,490	3	\$367,600	3	\$367,600	3
Total	\$15,515,348	45	\$16,235,394	45	\$16,372,219	45	\$16,569,228	45

Goal 5 – Enhance Economic Opportunity and Quality of Life for Americans

Planned State Program 5 – Ensure Socioeconomic and Self-Empowerment of Families and Communities

Statement of the Issues:

One-fourth of the American population lives in rural areas. Alabama is 40% rural, based on 1990 census data. Further, the Black Belt Counties (BBCs) of South Central Alabama, which extend from the Georgia border to the east and to the Mississippi border to the west, pose a unique challenge for the land-grant system due to the demographic, social and economic distinction of the region. The well-being and societal contributions of this population hinge on having viable communities, businesses and economies. This viability becomes significantly important in rural communities where the majority of the residents are poor.

Our research will focus on: rural restructuring and social change issues; facilitating health care to low income families; families and adolescent problems and quality of family life; assessing factors, programs and policies that empower rural communities to enhance productivity and well-being and strengthen their viability; developing socio-economics for family farms; develop and provide information on small business opportunities and programs that positively impact communities; providing insight on ways that rural families can nurture one another and improve their own quality of life; and developing distance education technologies to provide information that empower rural and urban communities.

Performance Goals:

- To increase economic opportunity and quality of life for all Alabama citizens

Output Indicators:

- Methods to increase family incomes
- Quality of life improvement interventions
- Improve educational levels

Outcome Indicators:

- An increase in average family income
- Quality of life improvements
- Reduced unemployment in rural communities

Key Program Components:

1. Rural Restructuring
2. Economic Viability and Sustainable Communities
3. Small and Family Farms
4. Families and Children
5. Information Delivery to Unserved Populations
6. Distance Learning to Unserved and Underserved Populations

Internal and External Linkages:

Collaborations have been established and will continue within and among various departments and schools at each university and among the three land-grant institutions, and with Extension, federal and state laboratories, and non-government organizations (i.e., agribusinesses, private food and community-based organizations) to fulfill this goal.

Target Audiences:

We will continue to focus on the economically disadvantaged citizens of Alabama. However, all populations will benefit from a better quality of life for all of our citizens.

Program Duration:

This program, of approximately 14 total projects (AU – 10, TU – 2, AAMU – 2); will continue for the 2-year life of this plan update, and beyond.

Allocated Resources (\$) and Scientists Years (SY) for Planned State Program 5

	FY 2003		FY 2004		FY 2005		FY 2006	
Institutions	Expenses	SY	Expenses	SY	Expenses	SY	Expenses	SY
1862 (AL)	\$1,427,197	3	\$1,498,557	3	\$1,513,542	3	\$1,528,677	3
1890 (ALAX)	\$170,000	2	\$173,250	2	\$171,690	2	\$171,400	2
1890 (ALX)	\$421,049	4	\$418,100	4	\$420,450	4	\$420,450	4
Total	\$2,018,246	9	\$2,089,907	9	\$2,105,682	9	\$2,120,527	9

**SCIENTIFIC MERIT REVIEW PROCESS:**

The Research Directors ensure that the Merit Review process for 1890 Evans-Allen research proposals remain consistent with guidelines published in the Administrative Manual for

Evans-Allen Cooperative Agricultural Research (See C: Program Administration, Subsection 2b; Project Approval Procedures – Merit review – p.5).

The Director of the Experiment Station and other administrators ensure that projects/programs are merit reviewed and that they adhere to criteria listed in the Administrative Manual for the Hatch Act, as amended.

## **MULTI-INSTITUTIONAL, MULTI-DISCIPLINARY, MULTI-STATE AND INTEGRATED ACTIVITIES:**

### **Multi-State Research and Extension Activities:**

*Hatch Multi-State Research* - The Alabama Agricultural Experiment Station participated in 37 multi-state projects (i.e, Southern Region 20, North Central Region 5, Northeastern Region 7, and Western Region 4, and 1 NRSP ) displayed in the “Summary of Participation in Multi-State Projects” on the Southern Association of Agricultural Experiment Station Directors homepage:

<http://www.msstate.edu/org/saaesd/infobook/project/regproj.htm>.

*Southern Extension and Research Activities/Information Exchange Groups (SERAs/IEG)* - The Alabama Agricultural Experiment Station participates in several Southern Extension and Research Activities/Information Exchange Groups which relate to all five of the CSREES/REE mission goals.

<http://www.msstate.edu/org/saaesd/infobook/project/sera.htm>.

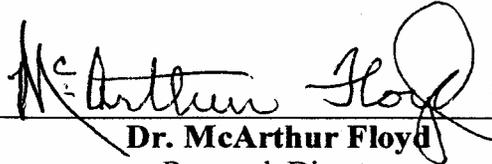
### **Integrated Research and Extension Activities:**

*Research and Extension Centers* – The Alabama Agricultural Experiment Station and the Alabama Cooperative Extension System have six Research and Extension Centers (RECs) located throughout the state. The primary purpose of these Centers is to support and augment the statewide network of county Extension offices in implementing comprehensive, research-based, interdisciplinary Extension educational programs which focus on the sustainability of agriculture, forestry and natural resources (AF&NR). These programs should seek not only to improve profitability of commercial agriculture, forestry and natural resources, but also should address the larger public issues of environmental compatibility, meeting consumer expectations, land use, agricultural policy, and a variety of other issues which impact upon the future sustainability of agriculture. In addition to the center-based faculty and staff, campus-based faculty conduct research projects at the Centers. The research and extension activities conducted at these centers relate to all REE goals.

*Campus-Based Research and Extension Activities* – Several integrated research and extension activities are planned and will be carried out jointly by research and extension faculty on the various campuses. These activities include: small and family farm programs, animal waste management and water quality, pest management, food safety and risk analysis, nutrition, and family and child development.

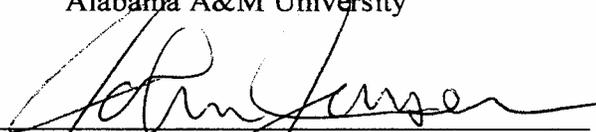
CERTIFICATION

Certification of the *Plan of Work Update for Fiscal Years 2005 and 2006 for Alabama Agricultural Research Programs*:

 04/01/04

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**Dr. McArthur Floyd**  
Research Director  
School of Agricultural and Environmental Sciences  
Alabama A&M University

 04/01/04

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**Dr. John Jensen**  
Interim Dean and Interim Director  
College of Agriculture, and  
Alabama Agricultural Experiment Station  
Auburn University

 04/01/04

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**Dr. Walter Hill**  
Dean and Research Director  
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