2000 - 2004
Plan of Work

The University of Georgia
College of Agricultural and Environmental Sciences
Cooperative Extension Service
Agricultural Experiment Stations

and

Fort Valley State University
College of Agriculture, Home Economics and Allied Programs
Cooperative Extension Program
Agricultural Research Station

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OVERVIEW STATEMENT

GEORGIA
State-wide Research and Extension Plan of Work
University of Georgia/Fort Valley State University

Georgia, one of the original thirteen colonies, has a land area of 57,919 square miles which makes it the largest state east of the Mississippi River (24th overall). The total area of the state's three largest counties - Ware, Burke, and Clinch (2,565 square miles) - is greater than the area of the entire state of Delaware (2,489 square miles). Georgia falls within five major physiographic regions: The Blue Ridge Mountains in the northeast, the Ridge and Valley Province and the Cumberland Plateau in the northwest, the Piedmont across Georgia's center, and the Coastal Plain in the south. Elevations range from sea level to 4,784 feet at Brasstown Bald in the Blue Ridge Mountains.

As the twenty-fourth largest state, Georgia's 1998 census population was 7,642,207. The 1990 census reported 30% of Georgians were age 19 or younger, below the 36% national average; 10% of the state's 1990 population were 65 or older compared with 8% nationally. Of the state's citizens, the 1990 census reported that 71% of Georgians were white, and 27% were black. These statistics and demographics provide a challenge to the extension and research programs of the state's land grant universities.

The Georgia Plan of Work encompasses a five-year period beginning October 1, 1999. The plan addresses major agricultural issues as well as many other problems facing rural and urban areas, the environment, families and youth. The plan represents a coordinated effort between the state's 1890 and 1862 institutions – Fort Valley State University (FVSU) and the University of Georgia (UGA), and includes joint planning between Experiment Stations and Extension units at both universities.

The joint POW was developed with the guidance of advisory committees at both county and state levels, as well as from input from the academic departments at FVSU's College of Agriculture, Home Economics and Allied Programs and UGA's College of Agricultural and Environmental Sciences, College of Family and Consumer Sciences and School of Forest Resources.

Additionally, USDA agencies including ERS (Food and Rural Economics Division), FSA, AMS, NASS, and Rural Cooperative Service provide important data and information to the input analysis process. Research and extension personnel from FVSU and UGA as well as Fruit and Vegetable Growers Association review research and extension publications. Producer input is provided through personal communications, Boggs Rural Life Center Advisory Council, and Georgia Organic Growers Association.

The Animal Science Program at FVSU also has a well established commodity advisory group composed of county extension agents and small ruminant producers. This group meets

regularly to advise on priority areas. The action will be further enhanced by adding consumer groups and marketing agencies. The United States Sheep Seedstock Alliance provides input in addition to the boards of the Dorper and Katahdin breed associations. Producer interact through personal communication while the Georgia Sheep and Wool Growers Association provide input at the board meetings. A home page which is under development will enhance communication between the Fort Valley State University personnel and the stakeholders.

Fort Valley State University has a well established crop commodity advisory group made up of county extension agents, crop producers and processors, and marketing agencies. This group meets regularly to advise on important research areas. This process will be further enhanced by including such groups as growers, processors, consumers and marketing specialists. A home page which is under development will enhance communication between the Fort Valley State University personnel and the stakeholders.

At FVSU, the regional research project (S-276), working groups, and their affiliated states and institutions will be interlinked to the initiative established at the Fort Valley State University. The production and reproduction of small ruminants is affected by environmental factors such as quality and type of foraging material, feed resources, and ambient conditions. To address these multi-faceted management issues, 1890 Land-Grant Universities including Fort Valley State, Langston, Virginia State, Prairie View A & M , Alabama A & M, Maryland at Eastern Shore, and Alcorn in collaboration with the USDA/CSREES, have already initiated multi-state goat project. Various agronomic and horticultural crop commodities requiring adaptation and production in different growing conditions will be subjected to multi-state and regional collaborative research efforts. This will include existing Regional Research projects (RR-7, SRIEG-62, NC-140 etc).The bioactive and medicinal plants Regional Research project recently initiated by the 1890 Land-Grant Universities will enhance the scope of multi-state collaboration..

Discussions are underway to define multi-state efforts in place and those that might be developed to better serve clientele. These programs range from multi-state meetings to shared faculty to regional "Virtual Centers". Specific plans will be submitted in an addendum to this POW when guidelines become available.

This POW is an overarching plan that encompasses far more of the research and extension activities that will be conducted during the next five years than is funded through federal formula funds. These issues are of critical importance to state and county partners as well as the private sector and producer organizations.

The matrix on the following page details research and extension activities developed in this plan:

	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5
1862 Extension	**Performance Goals 1-1, 1-2, 1-4, 1-6, 1-7, 1-8**	**Performance Goals 2-1, 2-2, 2-3, 2-4, 2-5, 2-6**	**Performance Goal 3-1**	**Performance Goals 4-1, 4-2, 4-6**	**Performance Goals 5-1, 5-4, 5-5, 5-6, 5-7, 5-8**
1890 Extension	**Performance Goals 1-3, 1-5**	**Performance Goal 2-4**	**Performance Goal 3-2**	**Performance Goals 4-3, 4-4, 4-5**	**Performance Goals 5-2, 5-3, 5-7, 5-8**
1862 Research	**Performance Goals 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17, 1-18**	**Performance Goals 2-7, 2-8**	**Performance Goal 3-3**	**Performance Goals 4-7, 4-8, 4-9, 4-10, 4-11, 4-12**	**Performance Goal 5-9**
1890 Research	**Performance Goals 1-19, 1-20, 1-21, 1-22, 1-23, 1-24, 1-25, 1-26, 1-27, 1-28, 1-29, 1-30, 1-31, 1-32, 1-33, 1-34, 1-35, 1-36, 1-37, 1-38, 1-39, 1-40**	**Performance Goals 2-9, 2-10**	**Performance Goal 3-4, 3-5**	**Performance Goals 4-13, 4-14, 4-15, 4-16**	**Performance Goals 5-10, 5-11**

UGA's Extension Service has 172 offices in 158 of Georgia's 159 counties. FVSU has 14 county agents, 13 of which are housed with UGA extension faculty. Extension programming is

delivered as both individual county effort and as multi-county programming through clusters of counties comprised of two to four counties per cluster.
The research programs of FVSU and UGA are conducted through the Agricultural Experiment Stations system. The UGA Agricultural Experiment Stations consist of three major campuses located in Athens, Tifton and Griffin, Georgia, as well as several research and education centers located strategically throughout the state.

UGA's College of Agricultural and Environmental Sciences (CAES) recently has conducted an extensive, comprehensive program review of its research and extension programs. This review included both internal and external input including faculty and staff, clientele, alumni and stakeholder groups. The results of this review have been used in the formulation this POW. Additional guidance has been provided by UGA's CAES Advisory Council through their critical review of programs and suggestions for improvements.

The POW is under review by the Program Development Team which is comprised Program Development Specialists and Coordinators from Agriculture and Natural Resources, Family and Consumer Sciences and 4-H and Youth, as well as faculty from both FVSU and UGA. This review is an on-going process, and future annual reviews and changes in the POW will be the responsibility of this team.

The research portion of the POW undergoes scientific peer review prior to each project being submitted. All scientists are required to have active projects for expenditures to be made. Each project is peer reviewed by both internal and external reviewers and must be approved by the Dean and Director prior to submission to the Cooperative State Research, Extension and Education Service.

At FVSU, proposals, plans of work, progress reports, and the research findings to be disseminated from Agricultural Economics, Animal and Plant Sciences, are peer reviewed by internal and external review committees and professional associations. Any modifications in these programs will be subjected to internal and external review and justification.

Multi-state and integrated research/extension activities at FVSU include:

- **Regional Research Projects.**
- **Publication in peer-reviewed journals.**
- **Presentation at professional conferences, symposia, and workshops.**
- **Newsletters, Pamphlets, Commodity Sheets, and other popular publications.**
- **County, State, and National fairs, Agricultural Exhibitions, Field Days, and Public meetings.**

Additional multi-state activities and integrated research/extension programs will be detailed in a forthcoming addendum to this POW.

For additional information about this plan of work, contact:

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Goal 1. An agricultural production system that is highly competitive in the global economy

1862 and 1890 Extension

Statement of Issue:

Today, agriculture remains the largest segment of Georgia's economy. Georgia agriculture is more than just growing food and fiber. It's processing, packaging and transporting farm products, too. Agriculture contributes more than $50 billion annually to Georgia's $180 billion economic output. One in six Georgians works in agriculture, forestry or ag-related fields. Almost half of the state's manufacturing jobs are in agribusiness.

New and developing technologies must be integrated into effective management strategies.
Rapid diagnostic and predictive tools are needed. If pest and disease problems in agriculture are anticipated in advance, there will be less need for crisis management.

In summary, agricultural supply and demand conditions continue to change. Markets develop, new markets emerge, and production pressures and opportunities continue to evolve. Even without these changes society gains from a more efficient agricultural production system. However, the major payoff of research and extension in agricultural production is to provide the ability to adapt to ever-changing circumstances. In fact, the adaptation and implementation of these new technologies is a major challenge facing agriculture in Georgia today.

Many Georgians believe that the state's historically profitable farming sector is not sustainable. Industry risks, environmental concerns, low prices, little or no farm equity, fewer institutions making loans to farm operations and a trend toward single-product operations have convinced some rural and urban residents that farming sustainability and profitability are mutually exclusive. Yet, the production, marketing, and selling of fruit, vegetables, agronomic, forestry crops and animal units provide the primary and secondary income for Georgia farmers. To remain competitive in our rapidly changing global economy, these farm operators must adopt new cultivars/rootstock that are more tolerant to abiotic and biotic stresses affecting plants and animals, cultural systems that improve production efficiency and promote sustainability, and post harvest handling practices/packaging that improve crop/animal utilization and product safety. Before new cultivars, production systems or pos harvest practices can be recommended, they must be thoroughly evaluated under Georgia environmental conditions. In keeping the industry competitive, we also need to understand the basic processes associated with these applied problems.

Performance Goal 1-1: To increase the quantity and quality of value added products produced by farmers for local or regional markets.

Output Indicators:

Number classes taught.
Number of media (TV shows, radio shows, articles, etc) spots used.
Number of exhibits, handouts, flyers, etc. distributed.
Number of refereed journal articles published.
Number of presentations made to professional, scientific and consumer groups.
Number of meetings/training/programs/workshops held.
Number of educational resources developed.
Number of demonstrations, field days, and research station open houses held.
Number of news articles written, radio and television news productions.
Number of companies represented at workshops.
Number of companies requesting technical assistance by telephone or on-site.
Number of companies reached by extension educational materials.
Number of companies that considered feasibility of incorporating value added pro ducts.
Number of meetings/training/programs/educational workshops held.
Number of industries participating in outreach programs that will adopt measures.

Outcome Indicators:

Number of new and value-added products
Number of producers adopting, producing and marketing new or value-added products
Number of companies utilizing new or value-added products
Dollar value of value-added products produced and marketed

Program Components:

The value-added potential of processed agricultural products provides job opportunities for all sectors of the population and enhances the value of food, fiber, and ornamental production. Profitability of agriculture and job availability may be increased by developing alternative uses and markets for conventional agricultural products. The use of biotechnology to create new materials from agricultural products (industrial chemicals, pharmaceuticals, plastics, oils, etc.) creates new opportunities for Georgia's agriculture.

There is a continuing opportunity to enhance value-added potential, and to provide additional employment, through new technologies and approaches for storing, processing and reformulation of food, fiber, and ornamental products. Changes in demographics and locations of food, fiber, and ornamental production at the local, state, national, and global levels, require improved means of storage and transportation of food, fiber, and ornamentals.

1. To develop and/or evaluate new commodities that meet critical needs or niche markets adapted to local conditions.
2. Increase new crop cultivars, animal breeds and genetic improvements.
3. Evaluate viability of new further processed products.
4. Evaluate potential new products and processes developed from agricultural and natural-resource-based production residues and industrial by-products.
5. Help support and advise economic marketing opportunities for new products.
6. Assess impact of new and value added products on farm profits, sustainability and environmental quality.
7. To increase the total number of new and value-added Georgia natural- resource-based goods and services products introduced into state, regional, national and international markets.

Internal and External Linkages:

Linkages between discipline areas and program areas with the College of Agriculture are essential to addressing this goal. Stakeholder input in developing and addressing needs for and direction of research is a first step. This will rely on linkages with commodity groups and organizations which are both local and national in scope. Adaption and implementation of developed technology is dependent on the link between research and extension. Many other state and national agencies will be and are key members of the team (ie. Georgia Department of Agriculture, USDA- NRCS etc.)

Target Audiences:

Georgia farmers and consumers
Federation of Southern Cooperatives
Supermarket buyers/managers

Program Duration: Intermediate (five years), fiscal 2000-2004

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	24	25	26	28	30
Paraprofessional	15	16	17	19	20
Volunteer	0	0	0	0	0
Funds					
Formula	263,214	265,000	270,000	275,000	280,000
State	1,986.786	2,000,000	2,100,00	2,250,000	2,400,000
Matching	263,214	265,000	270,000	275,000	280,000

Existing Educational and Outreach Programs:

Currently programs exist for almost every commodity represented in Georgia to increase their value through value-added processes or the development of new products or crops. A few examples of current efforts would include:

Horticulture, Food Science and Agricultural Economics are cooperating with the development and production of sweet carrots in southeast Georgia as new crop. Agents in several counties are adapting and utilizing this as a new alternative crop for their farmers.

Cattlemen in Georgia currently have an opportunity to explore adding value to their calf crop by retaining ownership of their calves while on feed in other states. A cooperative program between cattlemen and the Extension Service in both Iowa and Georgia is allowing producers to gain experience and understanding of the process.

Commercial aquaculture is a new and expanding enterprise in Georgia. Through research and extension efforts between Florida, Georgia and Alabama a tri-state conference and coalition has evolved.

Performance Goal 1-2: To increase the efficiency of GA agricultural production, agribusiness and natural resource management

Output Indicators:

Number classes taught.
Number of media (TV shows, radio shows, articles, etc) spots used.
Number of exhibits, handouts, flyers, etc. distributed.
Number of refereed journal articles published.
Number of presentations made to professional, scientific and consumer groups.
Number of lesson plans and handouts developed.
Number of meetings/training/programs/workshops held.
Number of educational resources developed.
Number of demonstrations, field days, and research station open houses held.
Number of newsletter articles, publication articles dealing with ag production practices.
Number of news articles written, radio and television news productions.
Number of teachers trained.
Number of teachers using curricula on monthly basis.
Number of companies represented at workshops.
Number of companies requesting technical assistance by telephone or on-site.
Number of companies reached by extension educational materials.
Number of meetings/training/programs/educational workshops held.
Number of industries participating in outreach programs that will adopt measures.

Outcome Indicators:

Program participants will be able to economically and efficiently modify existing practices.

Program participants will adopt the use of proper practices and recommended methods.
Program participants will use improved technologies and methods.
Program participants will improve their understanding of how practices impact cost and profitability.

Program Components:

Ways to enhance management methods in agriculture are by developing management systems that integrate pest- and disease-resistant cultivars and breeds, developing plant and animal germplasm with resistance to pests and diseases, developing monitoring systems to detect pest and disease outbreaks, and developing improved methods for extending information on comprehensive management systems that focus on plant and animal health.

There are means to improve soil quality by developing improved agricultural systems through long -term multi disciplinary studies of rotational an d other management effects on soil quality. Genetically improved crops and livestock can be gotten by conducting regional trials to evaluate production potential, adaptability, and quality characteristics of plant cultivars and animal breeds and by developing and releasing, using traditional and molecular methods, advanced germplasm for use by breeders.

1. Evaluate the efficiency of new fertilizers, chemicals, application systems, etc.
2. Increase the efficiency of cultural and husbandry practices, pest control and post-harvest handling.
3. Develop, test and demonstrate new, more environmentally sound and energy efficient methods.
4. Increase reproductive efficiency.
5. Increase education efforts on econ. marketing options.
6. Improve health of plants and animals.
7. Evaluate environmental/economic impacts of increased efficiency.
8. Develop, test, and implement techniques for propagating rare and endangered plant species native to Georgia and the Southeastern U.S.
9. Enhance business management skill of ag ricultural producers and natural resource managers.
10. Provide information and technical assistance to mitigate impacts of natural and weather-related disasters or events that negatively impact agricultural production.

Internal and External Linkages:

Linkages between discipline areas and program areas within the College of Agriculture are essential to addressing this goal. Stakeholder input in developing and addressing needs for and program direction is a first step. This will rely on linkages with commodity groups and organizations which are both local and national in scope. Agribusiness and lending organizations can hasten the adaptation of practices with their support.Adaption and implementation of developed technology is dependent on the link between research and extension. Many other state and national agencies will be and are key members of the team (ie. Georgia Department of Agriculture, USDA - NRCS etc.

Target Audiences:

Georgia farmers and consumers
Agricultural cooperatives and corporations
Agribusiness firms
Food Service industry

Program Duration:

Intermediate (five years), fiscal 2000-2004

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	185	185	186	186	186
Paraprofessional	70	70	71	71	71
Volunteer	0	0	0	0	0
Funds					
Formula	1,868,821	1,950,000	2,000,000	2,050,000	2,100,000
State	14,106,179	14,500,000	15,000,000	15,500,000	15,750,000
Matching	1,868,821	1,950,000	1,000,000	1,050,000	1,200,000

Existing Educational and Outreach Programs:

Currently programs exist for every commodity represented in Georgia to increase their efficiency of production and profitability. A few examples of current efforts would include:

Poultry Science, Biological & Agricultural Engineering and the Georgia Poultry Federation are assisting poultry producers with efficient methods and management of poultry house ventilation. The program emphasizes the implementation of best management practices for reducing energy costs and maximizing bird performance.

Agronomy, Animal Science and Agricultural Economics from the University of Tennessee and the University of Georgia in addition to county extension agents from both states are cooperating on the development of new budget software to track profitability of beef cattle enterprises and how management decisions impact profitability.

Cooperative efforts with Milk Commodity and Farm Bureaus across the South has led to Georgia's participation in the proposed Southern Dairy Compact. Regional and national passage of the program will result in a more stable market for Georgia dairyman.

Biological & Agricultural Engineering and Crop and Soil science have cooperated in a program to

reduce irrigation costs while maintaining crop production. The program has emphasized the use of best management practices to reduce water needs and energy costs.

Performance Goal 1-3: Develop and evaluate meat and milk products; fruits and vegetables; agronomic and forestry products that protect the soil resources, improve environmental quality and enhance biological diversity through emerging plant and animal systems.

Output Indicators:

Number of farm plans that implemented Natural Resource Conservation Service guide to nitrate and suspended solid reductions due to runoff in ponds and streams
Number of persons attending producer meetings, field days and conferences where specialist are invited to speak
Number of publications, newsletters produced and distributed on emerging plant and animal management and protection
Exhibits at Sunbelt Agriculture Expositions, Agriculture Showcase and field days
Number of practical on farms demonstrations that are user friendly
Number of hits on home page

Outcome Indicators:

Number of farm operators with completed farm plans including financial records and profit lost statements
Number of producers adopting recommendations that improved profitability potential
Evidence of enterprise diversification and income enhancement
Expanded knowledge base to landowners on how to establish and manage field and stream side buffers, reduction of chemical and pesticide use, and increased animal and plant yields

Key Program Components:

Enhanced profitability of agriculture (animal, fruit, vegetable and agronomic) and forest production methods
Value-added technologies applied through processing and packaging
Niche-market identification through economic and consumer studies
Germplasm assessment through performance testing and breed evaluations under a system context

Internal and External linkages:

Fort Valley State University Research Faculty
University of Georgia Research/Extension Faculty
Natural Resource Conservation Service
Environmental Protection Agency
Farm Service Agency

Georgia Department of Agriculture
Federation of Southern Cooperatives
Allied Department at Cornell University, Florida A&M University, Tuskegee University, Alabama A&M University and Langston University
Georgia Meat Goat Association
Georgia Dairy Goat Association
Georgia Sheep and Wool Growers Association
Georgia National Fair
Georgia Forestry Commission
Georgia Farm Bureau
Georgia Department of Natural Resources

Target Audiences:

Landowners, farmers/ranchers, general public
People who want to expand their income and diversify their agricultural enterprises
People needing technical assistance with production and financial management
Research, teaching and extension faculty and support staff
Students

Program duration:

Five (5) years

Allocated Resources:

Fiscal - $105,000

	Year 2000	Year 2001	Year 2002	Year 2003	Year 2004
Professional	2.1	2.1	2.1	2.1	2.1
Paraprofessional	1.25	1.25	1.25	1.25	1.25

Statement of Issue:

Changes in Georgia's demographics, the opening of new markets, income growth globally, development of new production areas, the stress on agricultural production of pests and diseases, and regulatory issues dictate a continuing requirement for increased and more efficient production, and for development of new cultivars, strains, and breeds in animal and plant agriculture. Development of new

crop species and animal products at the state, national, and global levels will open new markets and enhance agricultural profitability. At the same time small and part-time farmers need technical assistance to improve farm management practices.

Evaluation and development of new crops, cultivars, and animal breeds are of particular importance. The development of plant cultivars and animal breeds for increased production efficiency, or enhanced resistance to pests and diseases, and their integration into comprehensive management systems could contribute substantially to increased profitability, environmental health and sustainability of agricultural systems. Changes in demographics and locations of food, fiber, and ornamental production at the local, state, national, and global levels, require improved means of storage and transportation of food, fiber, and ornamentals.

Performance Goal 1-4: To enhance the competitiveness of Georgia's agricultural products

Output Indicators:

Improve the shelf-life Georgia horticultural crops
Number of educational workshops on regulatory and legislative compliance.
Amount of electronic information dissemination on regulatory and public policy issues.
Number of workshops and educational materials on worker safety and health issues.
Number of educational efforts targeted at policy makers on impacts of regulations.
Amount of producer & consumer education on food safety and food quality issues.
Increase producer education in commodity related quality assurance programs

Outcome Indicators:

Dollars of Georgia Agricultural Exports
Number of Georgia crops and products exported
Number of commodities and producers participating in quality assurance programs

Program Components:

The economics of agricultural production are influenced by labor costs, trade and tariff agreements, environmental regulation, and quality and disinfestation requirements for national and international markets. Analysis of all these factors is necessary for sound policy decisions. Agricultural areas are becoming urbanized, thus increasing the interaction and conflict between agricultural and non-agricultural interests; agriculture is being displaced to less arable land requiring different levels of management and input. Among other consequences, disease transmission between wildlife, domesticated animals, and humans is associated with conflicts over land use. Existing systems for providing input to governmental policy makers need to continue to strive to effectively provide a scientific basis for policy decisions.

1. To develop and/or evaluate new commodities that meet critical needs or niche markets adapted to local conditions of production while competing in the global economy.
2. Increase new crop cultivars, animal breeds and genetic improvements to be exported.

3. Evaluate viability of new further processed products and fit for international markets.
4. Evaluate potential new products and processes developed from agricultural and natural-resource-based production residues and industrial by-products and their export potential.
5. Help support and advise economic marketing opportunities for new products.
6. To increase the total number of new and value-added Georgia natural- resource-based goods and services products introduced into state, regional, national and international markets.
7. Increase the efficiency of post-harvest handling storage and transportation of commodities and products.
8. Increase education efforts on commodity marketing options.
9. Improve health of plants and animals for exportation.
10. Expand the scope of commodity marketing groups.

Internal and External Linkages:

Linkages between discipline areas and program areas within the College of Agriculture are essential to addressing this goal. Stakeholder input in developing and addressing needs for and program direction is a first step. This will rely on linkages with commodity grou ps and organizations which are both local and national in scope. Agribusiness and lending organizations can hasten the adaptation of practices with their support. Adaption and implementation of developed technology is dependent on the link between research and extension. Many other state and national agencies will be and are key members of the team (ie. Georgia Department of Agriculture, USDA - NRCS etc.)

Target Audiences:

Georgia farmers and consumers
Agricultural cooperatives and corporations
Agribusiness firms
Food Service industry

Program Duration: Intermediate (four years), fiscal 2000 - 2004

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	68	70	71	72	73
Paraprofessional	37	37	38	38	39
Volunteer	0	0	0	0	0
Funds					
Formula	726,471	750,000	775,000	800,000	825,000
State	5,483,529	5,500,000	5,750,000	6,000,000	6,000,000
Matching	726,471	750,000	775,000	800,000	825,000

Existing Educational and Outreach Programs: Commodity based programs are currently underway in most major commodities which rely on export marketing. Cooperative programs include Biological & Agricultural Engineering and Food Science with the base program of the commodity.

Performance Goal 1-5: To improve management practices of small and part-time farmers.

Output Indicators:

The number of cooperators receiving technical assistance
The number of farm/business plans developed
The number of publications, newsletters produced and distributed
The number of people attending educational meetings, trainings and workshops

Outcome Indicators:

The number of cooperators with complete farm/business plans including profit loss statements
Number of people adopting recommendations to improve operation
Community understanding of available economic opportunities

Key Program Components:

Create a better understanding of developing farm/business plans
Improve decision making skills of rural and urban communities

Internal and External Linkages:

Several linkages are needed if education is to be successful. Partnership will be continued with extension, federal agencies, and other universities
Fort Valley State University, University of Georgia Extension Faculty, Farm Service Agency, Federation of Southern Cooperatives, Natural Resource Conservation Service, Georgia Department of Agriculture, Florida A&M University, Alcorn State University, Tuskegee University and University of Arkansas at Pine Bluff

Target Audiences:

Disadvantaged small and part-time farmers.

Program Duration:

Five (5) years

Stakeholder Input:

Each year the Agriculture and Natural Resource unit of the Cooperative Extension Program at Fort Valley State University will provide a series of meetings. The purpose of these meetings are to bring together all stakeholders involved in Georgia Agriculture to comment on past and current activities, and proposed plans for future programs. All meetings will be publicly announced through local extension offices, regional newspapers and appropriate newsletters.

Statement of Issue:

Georgia currently has over 10,000 poultry houses in operation with more being built each year. To be competitive in the U. S. Poultry industry, poultry producers in Georgia must utilize the best available technologies and management programs to achieve energy efficiencies and to provide optimum environments for maximum bird growth and performance. The proper operation of ventilation, cooling, and brooding systems is particularly critical in Georgia due to the severe summer climates.

Each year over 1.2 billion broiler hatching eggs and 12 million commercial layer hatching eggs are required to support the broiler and table egg industries in Georgia. It is imperative that the breeder flocks and hatcheries achieve and exceed industry standards with regard to egg production, fertility, and hatchability. Development and application of new management programs for breeder flocks are necessary for maintaining production performances. Hatcheries are in need of improved sanitation and management programs to achieve maximum production of day-old chicks.

Georgia poultry producers spend over a billion dollars per year on feed. Availability of consistently high quality feed ingredients allows the producer to formulate feeds more efficiently. Since feed represents over 70 percent of the cost of producing poultry products at the farm level, producers can achieve substantial savings through effective ingredient analysis and utilization. In addition, poor quality feed ingredients are less digestible and contribute to the amount of manure that must be disposed of.

Performance Goal 1-6: To have Georgia poultry producers remain competitive by utilizing best management programs to minimize energy usage while achieving maximum bird performances.

Output Indicators:

Number of publications produced.
Number of presentations to producers.
Number of workshops conducted.
Number of field studies conducted.

Outcome Indicators:

Number of new poultry houses equipped with state-of-the-art technology and managed with best management practices.
Number of field trials completed and the number of new management applications genera ted for poultry growers.
Dollar value of adoption of new applications for growers.

Key Program Components:

Field studies related to evaluating new technologies and management programs for reducing energy costs and maximizing bird performances will be con ducted. New management programs and ventilation systems geared towards hot weather management will be emphasized. Educational programs, publications, and training materials will be developed as educational tools and methods for disseminating results to growers and integrators.

Internal and External Linkages:

Department of Poultry Science, The University of Georgia
Department of Biological & Agricultural Engineering, The University of Georgia
Georgia Poultry Federation

Target Audiences(s):

Poultry producers
Poultry integrators

Program Duration:

Fiscal years 2000-2004

Allocated Resources:

	2000	2001	2002	2003	2004
Professional FTE's	1.5	1.5	1.5	1.5	1.5
Formula Funds	$120,000	$123,000	$126,000	$130,000	$133,000
Matching Funds	$ 20,000	$ 20,000	$25,000	$25,000	$ 30,000

Existing Educational and Outreach Programs:

This is the continuation of a currently well-developed, on-going program.

Performance Goal 1-7: To improve breeder flock performances and hatchery operations.

Output Indicators:

Number of field studies conducted and completed.
Number of publications produced and distributed.
Number of educational programs conducted.
Number of presentations made.
Number of problem solving activities completed.

Outcome Indicators:

Number of hatcheries achieving or surpassing industry standards.
Number of new management programs adopted from field studies.
Number of breeder flocks achieving or surpassing industry standards.
Dollar value of increased performances for hatchability and fertility.

Key Program Components:

Field trials and applied research projects will be conducted annually relevant to improving breeder flock management and hatchery operation. Educational materials such as brochures, newsletters, videos, and journal articles will be developed for dissemination of results. Workshops, seminars, and short courses will be conducted for training flock managers and hatchery operators. In-house consultation and problem solving activities will be provided to hatching egg companies and hatcheries upon request and need.

Internal and External Linkages:

Department of Poultry Science, The University of Georgia
Georgia Poultry Federation
U. S. Department of Agriculture
U. S. Poultry & Egg Association

Target Audiences(s):

Breeder flock managers
Breeder flock growers
Hatchery managers

Program Duration:

Fiscal years 2000-2004

Allocated Resources:

	2000	2001	2002	2003	2004
Professional FTE's	2.5	2.5	2.5	2.5	2.5
Paraprofessionals	.5	.5	.5	.5	.5
Formula Funds	$175,000	$184,000	$191,000	$198,000	$207,000
Matching Funds	$ 75,000	$100,000	$100,000	$125,000	$125,000

Existing Educational and Outreach Programs:
This is the continuation of a well developed and on-going program.

Performance Goal 1-8: To increase the quality of feed ingredients used by poultry producers for maximum efficiency and least cost.

Output Indicators:

Number of feed ingredient evaluations conducted through the service lab.
Number of research projects conducted related to feed ingredients.
Number of publications and presentations.
Number of requests for feed formulation assistance.

Outcome Indicators:

Number of poultry companies utilizing service laboratory analysis.
Number of feed mills achieving or surpassing industry standards for feed efficiency.
The dollar value of the improved feeding performance.

Key Program Components:
The feed services laboratory at The University of Georgia has established the University as the leading center of nutritive energy determination for poultry in the western hemisphere. The laboratory will continue to make available a wide range of laboratory analyses to enable poultry producers to effectively determine the nutritive quality of their feed. The laboratory will continue to conduct feeding trails and research programs relevant to developing innovative feeding practices.

Internal and External Linkages:

Department of Poultry Science, The University of Georgia
Georgia Poultry Federation
U. S. Poultry & Egg Association

Target Audiences(s):

Poultry feed mill managers
Poultry nutritionists
Poultry growers

Program Duration:

Fiscal years 2000-2004

Allocated Resources:

	2000	2001	2002	2003	2004
Professional FTE's	1.0	1.0	1.0	1.0	1.0
Paraprofessionals	.5	.5	.5	.5	.5

Formula Funds	$ 80,000	$ 83,000	$ 86,000	$ 90,000	$ 90,000
Matching Funds	$ 50,000	$ 50,000	$ 60,000	$ 60,000	$ 70,000

Existing Educational and Outreach Programs:
This is the continuation of a well-developed program.

1862 and 1890 Research

Statement of Issue:
Competitiveness of Georgia's agricultural and forestry systems can be enhanced by adding value to commodities already produced in the state. This can be accomplished by improving product quality and utility, developing new applications for traditional products, improving processing technologies, and identifying opportunities for using by-products and wastes. Increased consumer demand for value-added products will raise prices for the value-added commodities. Thus, development and delivery of science-based information on added value will improve profitability for Georgia's producers and processors while increasing the potential of industrial growth that can impact rural development. Adding value to food and nonfood commodities is critical to the long-term competitiveness of Georgia's agricultural and forestry products in domestic and international markets.

Performance Goal 1-9: Enhance the competitiveness of Georgia's agricultural and forestry products in domestic and international markets by developing value-added products and processes and facilitating the transfer of these technologies from research to the marketplace to increase profitability, employment, and rural development.

Output indicators:

Measures of:
Improvement in quality and utility of value-added food and nonfood products and byproducts
Increased consumer acceptance of value-added products
Development and adoption of value-added processing technologies

Outcome indicators:

Increased value of agricultural and forestry commodities
Greater market share opportunities for commodities
Improved cooperation among university, governmental agencies, industries and communities to transfer value-added technologies.

Key Program Components:

Research to:

Improve the quality of food and nonfood products to add value to traditional agricultural and forestry commodities.

Identify value-added uses for agricultural and forestry products and byproducts.

Develop new or improved processes and technologies to enhance the quality and utility of traditional agricultural and forestry commodities.

Determine factors governing consumer acceptance of value-added foods and fibers.

Evaluate the economic impact of adding value to agricultural and forestry products on producers, processors and communities.

Assess the economic and technological feasibility of adopting value-added methodologies and processes for agricultural and forestry products.

Facilitate technology transfer from research to the marketplace.

Internal and External Linkages:

National and State Commodity Commissi ons and Associations

Private industry

Georgia Agribusiness Council

Professional organizations

Daniel B. Warnell School of Forest Resources

College of Family and Consumer Sciences

Regional research projects NC-183

Target Audiences:

Producers, processors, commodity groups, community development groups, governmental agencies, and industries with vested interests in adding value to Georgia's traditional agricultural and forestry commodities. Additionally, the citizenry of Georgia in that value added agriculture will equate to generating new industry and increasing employment opportunities in the state.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	10.3	10	11	11	11
Professional	6.5	6.5	7	7	7.5
Technical	15.7	16	16	16.5	17
Clerical, etc.	5.3	5.3	5	5	4.5
Research Funds	2000	2001	2002	2003	2004
Federal	439,557	425,000	425,000	425,000	425,000
Non-Federal	3,243,038	3,250,000	3,260,000	3,275,000	3,275,000
Other	124,726	125,000	130,000	135,000	140,000

Statement of Issue:
Georgia forests and woodlands provide a variety of benefits to Georgians including important wildlife habitats, critical watershed acreage, valuable recreational facilities, and traditional timber enterprises. Balancing these various needs, demands and uses presents multi-dimensional challenges for landowners, producers, industries and governmental agencies. To be competitive in domestic and international markets, Georgia timber producers and industries need improved plant materials as well as efficient and profitable systems of production, management and harvesting. However, in addition to these components, forest resource management involves forest hydrology, wildlife management, watershed management, and habitat management. In summary, timber production systems are required to be environmentally compatible yet economically rewarding to producers.

Performance Goal 1-10: Meet the growing consumer demand for wood-based products through improved systems of forest management and harvesting that provide for protection of natural resources and sustained environmental quality.

Output indicators:

Measures of:
Timber biomass production, tree performance, growth rates and patterns
Nutrient utilization, soil physical and chemical properties
Water quality parameters
Habitat and species diversity indices.

Outcome indicators:

Increased tree performance
Increased profitability of timber operations
Greater market share opportunities for forestry products
Improved soil and water quality in production forests.

Key Program Components:

Research to:
Evaluate the impacts of forest management practices on tree performance, biomass production, soil quality and water quality.

Assess tree performance in response to plant genotypes, physiological mechanisms, and morphological characters.

Develop harvesting processes that decrease harvest losses, reduce environmental impact, and provide a safer work environment.

Develop improved remote sensing and precision forestry technologies for management of timber production.

Assess the economic impacts of management and harvesting strategies on profitability, land values, and timber value.

Internal and External Linkages:

Natural Resource Conservation Service
U.S. Forest Service
Georgia Forestry Commission
Georgia Farm Bureau

Target Audiences:

Landowners, producers, processors, forestry groups, and forestry-based industries with vested interests in timber production and products. Additionally, the citizenry of Georgia in that forests and woodlands provide for wildlife habitat, water quality, and recreational activities.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	4.4	4.5	4.5	4.5	5
Professional	2.8	2.8	3	3	3.1
Technical	1.2	1.2	1.5	1.5	2
Clerical	3.3	3.2	3.	3.	2.5

Research Funds	2000	2001	2002	2003	2004
Federal	406,194	400,000	400,000	400,000	400,000
Non-Federal	1,888,833	200,000,000	2,000,000	2,100,000	2,200,000
Other	193,146	200,000	210,000	215,000	225,000

Statement of Issue:

High-quality plants are the foundation of all agricultural production. Over the past 50 years, cultivated plant species have been improved through traditional breeding programs. However, sophisticated biotechnology being developed in molecular and genetic biology will accelerate change in agriculture in the next few decades. Coupling traditional breeding with biotechnological methodologies will yield benefits that include crops with improved pest resistance, higher yields, ability to thrive on marginal lands, and other improved production properties; crops with longer shelf lives and value-added properties such as better flavor or nutrition; and plants that yield pharmaceuticals, oils and other nonfood products. Georgia growers are already using transgenic plants with improved pest resistance in

several cropping systems.

Performance Goal 1-11: Enhance specific genetic traits and germplasm resources through traditional breeding and transgenic research to improve crop resistance to pests and other environmental stresses, to increase plant performance, to provide public and private breeding programs a greater array of germplasm for cultivar development, and to insure increased profitability for Georgia growers.

Output indicators:

Measure of:

Complete or partial maps of plant genomes

Improved plant performance or crop resistance following biotechnolo gical or breeding research

Availability of genetically-produced germplasm for cultivar development or grower use

The development and release of new and improved crop cultivars adapted for growing conditions in Georgia.

Outcome indicators:

Increased performance of transgenic plants and new crop cultivars

Increased profitability of transgenic plants and new crop cultivars

Expanded uses and potential markets for transgenic plants and new crop cultivars

Improved cooperation among public and private breeding programs to produce new crop cultivars.

Key Program Components:

Develop improved peanut germplasm with resistance to disease, insects, and environmental stresses using classical and molecular breeding methodologies.

Genetically improve cotton germplasm source available for cultivar development using classical and molecular breeding methodologies.

Enhance soybean germplasm for development of cultivars adapted to southern U.S. growing conditions.

Develop and evaluate resistance of legume crops to disease and environmental stress through traditional breeding and biotechnological methods.

Improve the genetic germplasm of major vegetable crops that are or have the potential to be produced for profit in Georgia..

Identify plant characters for use in selection criteria for genetically improving the survival and performance of pine seedlings.

Enhance small grain yield, grain quality, and resistance to diseases, insects, and environmental stresses through traditional breeding integrated with molecular techniques.

Evaluate pecan cultivars and cultivar effect on nut quality and nutrient composition.

Improve turf grass cultivar adaptability, stability, and utility through genetics, traditional breeding,

molecular genetics, and germplasm enhancement.
Identify plant characters for use as selection criteria for genetically improving the stability, quality, productivity, and use of hay, silage, and pasture crops in crop-livestock production systems.
Breed ornamental plants for tolerance to environmental stress and to increase adaptability and utility in landscape systems.

Internal and External Linkages:

UGA College of Arts and Sciences
Agricultural Research Service
Georgia Research Alliance
Regional Projects S-225, W-150, S-9
Private Industry
Georgia Department of Agriculture

Target Audiences:

Producers, industries, public and private breeders, and commodity groups with vested interests in increasing the profitability of Georgia's plant crops through genetic improvement.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	17.7	19	20	20	21
Professional	18.8	19	20	20	20
Technical	27.1	28	18.5	29	29.5
Clerical 22.7	22	21	20	19	

Research Funds	2000	2001	2002	2003	2004
Federal	1,317,164	1,300,000	1,300,000	1,320,000	1,320,000
Non-Federal	6,114,604	6,200,000	6,300,000	6,400,000	6,500,000
Other	166,365	200,000	225,000	250,000	300,000

Statement of Issue:

High-quality plants are the foundation of all agricultural and forestry production, providing food, forage, fiber and timber. Horticultural plant varieties also add beauty to residential, commercial and recreational landscapes. Georgians grow more than 300 species of these plant commodities with an annual value of

approximately $4 billion. This production also creates a ripple effect for the state's economy through allied industries. To efficiently produce a diverse variety of crops in a state that includes mountain, peidmont, coastal and subtropical climates requires a broad base of agronomic and horticultural knowledge. Research at the molecular, cellular, organism, and system levels will provide continual improvement in plant production in agronomic, horticultural and forestry systems. To be competitive, Georgia producers rely on efficient production systems and profitable on-site management strategies that decrease input costs and reduce production risks.

Performance Goal 1-12: Develop plant management strategies that improve the efficiency of crop production, minimize production risks, and insure the sustainability of natural resources.

Output indicators:

Measures of:

Sustained and/or improved crop quality, yield, marketability when produced in new or improved plant production and management systems.

Outcome indicators:

Increased adoption of plant management strategies and systems that sustain crop production and reduce environmental impact, increased profitability of crop products, greater market share opportunities for crop products, and improved soil and water quality in production systems.

Key Program Components:

Understand fundamental plant processes to increase plant quality, production efficiency, and the sustainability of plant production systems.

Understand the impacts of abiotic and biotic environmental factors on plant performance and product quality.

Enhance cost-effective use of inputs in crop management systems and develop precision input and management systems for efficient use of nutrients and water.

Assess the technical and economical efficiencies of new and improved production systems and the impact of decision strategies in these processes.

Internal and External Linkages:

Agricultural Research Service
Georgia Department of Agriculture
State/National Commodity Organizations
Agricultural and Agribusiness Industries
Southern Agricultural Experiment Station
Regional Projects W-130, NC-208, S-103

Target Audiences:

Producers, landowners, crop consultants, commodity groups, governmental agencies, and industries with vested interests profitable, yet environmentally sustainable, production of agronomic, horticultural

and forestry products.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	15.5	15	16	16.5	17
Professional	16.1	16	15	14	13
Technical	30.7	30	29	28	27
Clerical	19.5	19	18	18	17

Research Funds	2000	2001	2002	2003	2004
Federal	370,455	350,000	350,000	350,000	350,000
Non-Federal	6,051,544	6,000,000	6,100,000	6,100,000	6,300,000
Other	49,942	50,000	60,000	70,000	80,000

Statement of Issue:

Genetic improvement is the key to long-term animal improvement. Research suggests that genetics accounts for up to 80 per cent of animal growth improvements. Recent advances in gene transfer, molecular biology, and biotechnology will continue to genetically improve and modify animal systems. To further enhance animal productivity and profitability, research is needed to understand genetic composition of Georgia's animal germplasm in order to enhance animal health and performance and the quality of animal products.

Performance Goal 1-13: Improve animal performance, composition, and products through the use of molecular genetics and biotechnology; optimize animal production by identifying and using genetic regulation of key behavioral, physiological, and regulatory processes; and, maintain genetic diversity in animal germplasm resources.

Output indicators:

Expanded genetic maps to identify loci and linkage groups for marker-assisted selection of genetic traits

Accelerated use of molecular genetics to modify performance and improve composition of animals and animal products

Enhanced methods of selection for improved performance and quality.

Outcome indicators:

Improved quality and consistency of foods produced by animals
New and improved methods for selecting breeding stock based on genetic markers and related selection indicators.

Key Program Components:

Identify and use genetic regulation of key physiological and behavioral processes that control growth and reproduction in poultry, performance and reproduction in beef cattle, and meat quality characters in swine.

Improve selection methods for improving performance, growth, reproduction, and product quality in poultry, beef cattle, dairy cattle, and swine.

Maintain genetic diversity in animal germplasm resources.

Internal and External Linkages:

UGA College of Arts and Sciences
Georgia Research Alliance
Georgia Poultry Federation
State and National Breed Associations
Regional Research Projects S-233, S-277, NC-220

Target Audience:

Livestock and poultry producers, commodity groups, industries, and processors with vested interest in improving the genetic quality of poultry, cattle, dairy, and swine products produced in Georgia.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	4.3	5	5	5.5	5.5
Professional	2.2	2.2	2	2	2
Technical	4.7	5	5.5	6	6.5
Clerical	18.6	18	17.5	17	17

Research Funds	2000	2001	2002	2003	2004
Federal	174,438	175,000	175,000	175,000	175,000
Non-Federal	1,538,079	1,500,000	1,750,000	2,000,000	2,000,00
Other	1,996	2000	2500	3000	3500

Statement of Issue:

In Georgia, animal industries account for approximately 60 percent of the total farm income. Poultry is the number one meat consumed in the United States; Georgia leads all other states in poultry production both in the value and number of broilers produced and in the value of all poultry production. While the poultry industry continues to expand in all areas of the state, there is also potential for beef and pork production increases as well. Improvement in animal agriculture has the potential to enhance both farm income and economic development in Georgia. The greatest potential for immediate impact lies in improving production efficiency.

Performance Goal 1-14: Develop comprehensive production management systems for poultry, cattle, swine, and fish with improved nutrient utilization, reproductive performance, and quality composition of food animals and products that optimizes a balance between profitability and environmental sustainability.

Output indicators:

Development and adoption of improved animal production systems that integrate comprehension of input costs/benefits, animal health, nutrition, genetics, reproduction, resource utilization, and marketing to produce high - quality food animals and products

Improved reproductive performance of animals based upon defined nutrient utilization that improves gonadal function, reproductive behavior, and embryo survival

Improved quality of food animals and products.

Outcome indicators:

Increased value of food animals and products in Georgia

Greater market share opportunities for food animals and products

Increased profitability of animal production systems.

Key Components:

Research to:

Develop improved grazing and feeding systems that optimize a balance between profitability and environmental sustainability.

Develop reproductive management of animals, including quantitative definitions of nutritional factors that improve gonadal function, reproductive behavior, and embryo survival.

Determine the genetic, cellular, and physiological basis for controlling nutrient composition of food animals and products.

Assess the technological and economic efficiencies of animal production management systems.

Internal and External Linkages:

Private Industry
Commodity Associations
Research Projects S-145, S-261, NC-119

Target Audiences:

Livestock and poultry producers, commodity groups, industries, and processors with vested interest in the improved performance of food animals and products.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	17	17	17.5	17.5	17.5
Professional	33.5	33	30	30	30
Technical	23.2	23	23	23.5	24
Clerical	32.7	32	31	30	29

Research Funds	2000	2001	2002	2003	2004
Federal	469,099	450,000	450,000	460,000	460,000
Non-Federal	5,621,551	5,500,000	5,700,000	5,750,000	5,800,000
Other	41,945	50,000	60,000	65,000	70,000

Statement of Issue:

Enhancing the health and well-being of animals will reduce production costs and maximize returns for animal production systems. Georgia possesses a warm and humid climate that leads to animal stress and provides for increased potential for parasitism/infection by parasites/diseases. Research must develop health management strategies that provide for detection, prevention, and cure of animal parasites/diseases as well as facilitating tactics to reduce animal stress in production systems.

Performance Goal 1-15: Enhance animal production by improving animal health and well-being in the production environment.

Output indicators:

Measures of:
Animal performance
Parasite/disease incidence
Impacts of immunological and physiological factors on parasite/disease occurrence

The prophylactic and remedial activities of pharmaceuticals on parasite/disease occurrence.

Outcome indicators:

Improved animal performance
Improved quality of food animals and products
Reduced incidence of parasitism and disease
Decreased economic cost of animal parasitism and disease.

Key Program Components:

Design humane production systems that insure the well-being and welfare of food animals.
Study the epidemiology of animal parasitism and disease.
Develop new and improved parasite/disease detection methods.
Determine the molecular basis for parasite/disease prevention and cure.
Assess the economic cost and importance of animal parasitism/disease and other maladies.

Internal and External Linkages:

UGA College of Veterinary Medicine
Georgia Department of Agriculture
Private Pharmaceutical Companies
Agricultural Research Service

Target Audiences:

Livestock and poultry producers and processors, commodity groups, and industries with vested interest in improving animal performance, animal welfare, and profitability of animal production systems.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	4.3	4.3	4.	4	4
Professional	3.1	3	3	2.5	2.5
Technical	3.9	3.8	3.7	3.5	3
Clerical	2.5	2.5	2	2	2

Research Funds	2000	2001	2002	2003	2004
Federal	132,296	130,000	130,000	130,000	130,000
Non-Federal	1,037,866	100,000	100,000	950,000	950,000
Other	627	5000	5000	6000	7000

Statement of Issue:

Georgia possesses a long frost-free growing season each year, diverse soils, and variable rainfall that result in pest populations that are unique, intense, diverse, and numerous. These pests limit crop growth, reduce crop yields, damage stored products, destroy aesthetic beauty, and threaten our homes and structures as well as human health and the health of livestock. Many pests are at sufficient levels to require control actions to suppress or avoid negative impacts. Historically, these control options have largely been restricted to the use of chemical pesticides. Pests, therefore, impact profitability by direct damage of the commodity and by the actual cost of the pesticides and their application. These economic concerns coupled with the intensity of the pest pressure, the development of resistance to chemical pesticides, concerns of worker safety and environmental impacts, and consumer demands for a safe and a readily available food supply have focused on a need to develop integrated strategies for pest management.

Performance Goal 1-16: Develop enhanced pest management systems that are efficacious, environmentally compatible, and economically rewarding for Georgia producers.

Output indicators:

Measures of:
Increased pest resistance in crop plants
Improved control of pest populations
Reduced chemical inputs in control strategies
Increased profitability of animal and plant production systems.

Outcome indicators:

Decreased losses due to pests and their control
Decreased chemical inputs in production systems for controlling pests
Improved worker safety in production environments
Improved safety and quality of plant and animal foods and products
Improved environmental quality.

Key Program Components:

Use of transgenics and traditional breeding to develop genetic resistance of plants to insects, diseases and weeds and animals to insects, diseases and parasites.

Use of transgenics to develop more efficacious microbes and microbial products to control insects, diseases and weeds.

Development of more biologically-based pest management technologies to control insects, diseases and weeds.

Development of effective cultural management strategies, including crop rotation, multi-cropping,

tillage, sanitation, and similar methods, to control insect, diseases and weeds.

Evaluation of the utility of safer chemically-based pesticides for management of insects, diseases and weeds.

Development and evaluation of improved application methods for biologically-based and chemically-based pesticides to improve efficacy, minimize residues and off-target effects, and maximize worker safety.

Development of improved monitoring and predictive tools and decision criteria for use in management decisions to control pests while assuring environmental quality and profitability.

Internal and External Linkages:

Commodity Groups
Green Industry Organizations and Personnel
Georgia Department of Agriculture
Regional Research Projects S-281, S-220, S-282, NC-129, W-186, S-183, S-274, S-269, S-267
Agricultural Consultants
Private Industry

Target Audiences:

Producers, processors, consultants, scouts, pest control operators, commodity groups, and industries with vested interests in improving pest management, environmental quality, worker and consumer safety, and profitability.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	38.6	39	39	38.5	38
Professional	17.3	17	17	16.5	16
Technical	45.3	45.3	46	46	47
Clerical	26.6	26	26	25	24

Research Funds	2000	2001	2002	2003	2004
Federal	1,462,226	1,500,000	1,500,000	1,500,000	1,500,000
Non-Federal	9,716,901	9,500,000	9,500,000	9,600,000	9,600,000
Other	461,938	460,000	470,000	480,000	500,000

Statement of Issue:

Agricultural and environmental enterprises are increasingly dependent on sensors, monitors and control devices to increase profitability and effectiveness. Intelligent monitoring and control systems determine product quality and moisture levels in food and fiber products, measure crop yield, sense plant health, provide variable-rate control of irrigation and other inputs in precision farming, control environmental conditions in greenhouses, storage bins, poultry houses, and other production and storage facilities. Continued advances in sensing, monitoring, and control systems will yield increased profitability, more effective processing systems, and improved sustainability of natural resources.

Performance Goal 1-17: Develop improved machines, processes, diagnostic devices, and decision support tools to enhance production, economic value, and profitability of Georgia's agricultural products.

Output indicators:

Measures of:

Improved sensing, monitoring, and control devices.

Outcome indicators:

Improved efficiency and profitability of production and processing systems that are based upon sensing, monitoring and control technologies.

Key Program Components:

Development of automated monitoring and control systems for production, processing and storage systems.

Development of artificial intelligence tools for decision support systems.

Assessment of the economic and environmental impacts of precision farming, automated production, processing and post-harvest systems, and decision-support systems.

Internal and External Linkages:

Georgia Institute of Technology
U.S. Environmental Protection Agency
Georgia Department of Agriculture
State and National Commodity Organizations
Agricultural Consultants
Regional Research Projects @-283, S-266

Target Audiences:

Producers, processors, consultants, engineers, programmers, commodity groups, and industries with vested interest in efficient and profitable production, processing and post-harvest handling of agricultural commodities.

Program Duration:

Long range

Allocated Resources:

Eft	2000	2001	2002	2003	2004
Scientist	7.3	7.5	8	8	8.5
Professional	1.3	1.8	1.5	1.5	1.5
Technical	7	7	7.5	7.5	7.5
Clerical	8.8	8.5	8	8	8

Research Funds	2000	2001	2002	2003	2004
Federal	83,894	85,000	85,000	88,000	90,000
Non-Federal	1,570,306	1,550,000	1,600,000	1,650,000	1,700,000
Other	22,425	25,000	25,000	30,000	35,000

Statement of Issue:

Agriculture is Georgia's largest industry, but it currently faces many economic, social and policy concer ns including low farm income, production adversities from drought and pests, and depressed foreign export markets. Furthermore, societal pressures and government policies are bringing issues such as farming rights, migrant employment practices, environmental protection, local land use planning, and taxation policies to the forefront of concerns. In order to be competitive, Georgia producers and processors must improve business efficiency, employ effective risk management strategies, and select appropriate marketing strategies.

Performance Goal 1-18: Enhance the efficiency, profitability and competitiveness of agricultural enterprises by reducing risks, selecting profitable investments and enterprises, adopting improved or alternative production and manage ment techniques, selecting appropriate marketing strategies, and identifying economic development opportunities for rural communities.

Output indicators:

Measures of increased effectiveness in assessing benefits and risks associated with agribusiness investment, management and marketing

Improved databases for development of risk management, marketing and investment strategies

Assessments of impacts of technology and management systems on profitability and environmental quality.

Outcome indicators:

Increased profitability of agricultural enterprises

Greater market share opportunities for commodities

Improved economic development of rural communities.

Key Program Components:

Determine factors affecting consumer demands for agricultural commodities and products.

Analyze factors that influence competitiveness in global markets and assess alternative policies to modify these factors to the advantage of Georgia agriculture.

Analyze the economic and social impacts of alternative farm policies and regulations on prices, net farm income, environmental quality, and viability of rural communities.

Determine barriers to adoption of improved or alternative agricultural technologies that will increase efficiency and profitability.

Develop profitable technologies and systems of production, processing and distribution that are environmentally sound and socially acceptable; determine the economic, social and environmental impacts of these technologies.

Analyze public policy impacts on agribusiness enterprise and rural community development.

Internal and External Linkages:

Private Sector Firms
Banking Community
Georgia Department of Agriculture
Agricultural Businesses
Commodity Groups
Regional Research Projects NC-165, S-256

Target Audiences:

Producers, processors, commodity groups, agribusinesses, investors, governmental agencies, policymakers, industries, and community development groups with vested interests in improving the competitiveness of Georgia commodities and products in global markets and in the economic development of rural communities.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	5.6	6	6	6	6.5
Professional	2.2	2.2	2	2	2
Technical	4.5	4.5	4.5	4	4
Clerical	6	6	5.5	5.5	5
Research Funds					
Federal	179,900	180,000	180,000	185,000	185,000
Non-Federal	1,379,920	1,400,000	1,400,000	1,500,000	1,500,000

Other	10,891	10,000	15,000	15,000	15,000

Statement of Issue:

The principle of competitive advantage in economics supports a global marketplace for the enhancement of efficient resource use. Nationalistic policies have limited the attainment of this principle. Recent trade policies, treaties and alliances, and advances in technology have moved the production and marketing of agricultural commodities beyond geographic boundaries. Competitive advantage is a dynamic concept and is influenced by numerous factors, including technology and the value placed on resources such as labor within countries.

Performance Goal 1-19: Conduct research on Georgia and US producers and products competitiveness, perceptions of product safety, availability and price competitiveness of products, and perceptions of desired structural attributes of US agriculture.

Output Indicators:

1. Enhance understanding of the competitiveness of domestic agriculture and related products.
1. Greater appreciation of how globalization of markets is affected by perceptions.

Outcome Indicators:

Enhanced competitiveness of Georgia and U.S. products and producers.

Key Program Components:

1. Evaluate domestic consumer's perception of the desired structure of U.S. agriculture and the influence of global markets on desired structure.
2. Assess the perception of global markets on the availability and variety of food products.
3. Analyze consumer's perception of quality, health, and environmental attributes of food resulting from globalization of markets.
4. Analyze the long term effects of globalization on US agriculture and food security.
5. Assess consumer perceptions of enhanced output and efficiency resulting from the adoption of technology, including biotechnology.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities, includin g universities associated with Regional Research project S -276.
3. The Farm Foundation.
4. USDA.
5. Professional societies.
6. Small farmers.

Target Audience(s):

Federal and state public policy makers, facilitating organizations for production agriculture in finance, marketing, and other agribusiness entities, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The forces impacting the production and demand of nontraditional agricultural enterprises, such as goats, in the South are not well known. The factors influencing production are not well defined because these enterprises have not been considered economically important to the economy of the region, and census statistics at the various traditional levels have not been consistently undertaken and maintained. Factors influencing demand for traditional and nontraditional food products must be evaluated taking into account changing and projected population demographics in the Southeast. Before nontraditional enterprises, production management systems, and efficient marketing channels can be recommended, they must be evaluated and analyzed in relationship to consumer demand. An understanding of the interaction of demand and supply determinants for these products must be assessed to promote the development and competitiveness of these industries.

Performance Goal: 1-20:

1. Identify segments of the market that demand small ruminant products.
2. Determine the type of product demanded by the segmented market.
3. Study the efficiency of various marketing channels for producers and consumers.
4. Improve the alignment between supply and demand for small ruminant products.
5. Assess and increase the availability of a competitively priced and safe product.
6. Enhance knowledge of producer perceptions of major impediments to production.

Output Indicators:

1. Greater understanding of socio-demographic factors that influence demand.
2. Improved alignment between supply and demand for small ruminant products.
3. A greater understanding of the level of demand and potential demand.
4. A greater understanding of other factors on demand to include price and quality assurance.

Outcome Indicators:

1. Greater profitability for producers.
2. More efficient allocation of producer resources and reduced search time for consumers.
3. Greater understanding of small ruminant products desired by consumers.

Key Program Components:

1. Enhance marketing efficiency of small ruminant products.
2. Improve coordination of production and demand to enhance resource use.
3. Increase production and enhance the quality and reliability of product.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities including The University of Georgia.
3. Georgia Meat Goat Association.
4. Entities associated with Kellogg Foundation and Regional S-276 project.
5. Federation of Southern Cooperatives.

Target Audiences:

Small ruminant producers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The nutritional requirements of goats have not been studied adequately, so most of the recommendations currently in use have been extrapolated from other ruminant species. This limits the usefulness of feeding guides for goats that are currently in use.

There is currently little information on performance of goats grazing traditional and nontraditional forages despite the abundance of forage resources in the United States. This information is critical for the development of economical, year-round grazing systems.

Although infection from gastrointestinal parasites is the major constraint to small ruminant production throughout the world, there is currently little information available on epidemiology of major goat parasites in the southeastern USA. There is also a paucity of information on non-chemical parasite control methods for small ruminants in the US. This information is critical because of increasing resistance of gastrointestinal parasites to chemical anthelmintics and consumer concerns about the effects of chemical residues on the environment and their presence in animal products.

Goat meat (chevon) is very lean, containing 30% less fat than other red meats. Goat milk is easy to digest and is an excellent substitute for individuals allergic to cow milk protein. Despite these advantages, there

are a limited number of acceptable value-added goat products available and a lack of detailed analyses of goat milk and meat products composition. Therefore, the benefits derived from consumption of chevon and goat milk have not been fully realized by the general public in the United States.

Performance Goal 1-21:

1. Define nutritional requirements for various physiological pro cesses of goats.
2. Develop year-round grazing systems for goats with appropriate combinations of forages.
3. Minimize goat parasite burdens through a combination of biological and chemical controls.
4. Define chemical composition of goat milk and chevon from different classes of goats.
5. Develop and evaluate acceptability of value-added chevon and goat milk products.

Output Indicators:

1. Improved performance of different classes of goats.
2. Economical pasture management systems for efficient performance of goats.
3. Decreased use of chemical dewormers in small ruminant production systems.
4. Enhanced understanding of the nutritional value of chevon and goat milk products.
5. Development of value-added chevon and goat milk products.

Outcome Indicators:

1. Improved nutrient requirement recommendations for goats.
2. Adoption of year-round grazing systems by goat producers in the Southeast.
3. Enhanced use of biological control methods for parasites and reduced chemical residues.
4. Increased use and acceptability of value-added chevon and goat milk products by the public.

Key Program Components:

- Evaluate performance of different classes of goats fed various feeds in intensive and extensive management systems.
- Determine nutritional adequacy of combinations of grasses, legumes, and legume trees for different classes of goats in year-round grazing studies.
- Assess efficacy of biological control agents against the major gastrointestinal parasites of goats managed under various systems.
- Analyze goat milk and chevon for organic and inorganic n utrients.
- Assess goat meat and milk products for quality parameters and acceptability using organoleptic evaluation techniques.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other university including in Louisiana, Georgia, Utah, and Oklahoma in the US, and in Denmark and the United Kingdom.
3. USDA-CSREES scientists in Maryland, Idaho, and Georgia.

Target Audiences:

Producers, food processors and distributers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

One of the major factors limiting successful production of small ruminants, such as sheep and goats, is their seasonal reproductive pattern. Small ruminants in temperate region are restricted to one conception per year even though they are capable of multiple ovulations, and have a short gestation period and precocious breeding. The key to improving productivity in these animals is by increasing the number and total weight of their offspring per year. This could be achieved by breeding does/ewes out-of-season, within 60 days postpartum, to ensure a twice-yearly kidding program. Successful induction of off-season breeding has been achieved using photoperiod manipulation, seasonally-controlled contact of males and females, and exogenous hormone administration. However, these procedures are costly and labor-intensive. It is therefore imperative to investigate the neuroendocrine basis of the seasonal breeding pattern of these small ruminants. This will facilitate a thorough understanding, provide a more cost-effective control and use of the various methods recognized as important modulators, of the breeding cyc le of these small ruminants.

Performance Goal 1-22:

1. Improve reproductive efficiency by controlling the neuroendocrine system.
2. Develop and refine techniques of increasing sheep and goat products.

Output Indicators:

1. Enhance knowledge of the neuroendocrine control of breeding.
2. Improve methods of controlling breeding, kidding/lambing of small ruminants.
3. Sustain year-round supply of products.

Outcome Indicators:

- Improved technology for controlling reproduction.
- Increased reproductive efficiency and productivity.
- Enhanced quality and quantity of goat/sheep products.
- Year-round production of meat, milk, and fiber.

Key Program Components:

1. Assess the productivity of small ruminants through neuroendocrine technology.
2. Evaluate the control of reproduction for year-round small ruminant production.
3. Assess reproductive efficiency through kid/lamb crop and profitability.

Internal and External Linkages:

1. FVSU teaching, research and extension personnel.
2. Other universities including The Univeristy of Georgia, Iowa State University, and University of Maryland, Eastern Shore, MD.
3. USDA-CSREES Russell Agricultural Research Center, Athens, GA, US Sheep Experiment Station, Dubois, ID.

Target Audience:

Producers, small ruminant enthusiasts, scientific community, students, and the public.

Program Duration:

Long term

Statement of Issue:

The advances made recently in procedures for genetic engineering, gene mapping and transfer in farm animals, have enhanced opportunities for mass production of livestock with specific economic traits. Gene transfer serves as a potentially useful supplementary tool to classical breeding methods for animal improvement. It can also be useful for importing unique germplasm that produce high yields of quality productivity traits, and preserve rare germplasm resources that are at risk of elimination. These advances will have tremendous implications on goat products like cashmere, mohair, morocco skins, lean meat, and less allergenic dairy products.

Performance Goal 1-23:

1. Develop technology to improve reproductive efficiency.
2. Produce transgenic small ruminants to enhance product quality and quantity.
3. Increase value-added products to enhance farmers' competitiveness.
4. Develop methods to secure and preserve germplasm.

Output Indicators:

- Develop and refine technology for reproductive efficiency.
- Formulate year-round breeding program.
- Enhance product value.

Outcome Indicators:

1. Increased kid/lamb crop.
2. Enhanced marketability of products.

3. Greater profitability and competitiveness.

Key Program Components:

1. Assess reproductive efficiency through genetic engineering and transfer technology.
2. Determine the marketability of products.
3. Enhance production management systems.

Internal and External Linkages:

- FVSU teaching, research, and extension personnel.
- Other universities including Universities of Georgia and Missouri, Medical College of Georgia, and Emory University.
- USDA and other federal agencies.
- Monsanto and other private companies.

Target audiences:

Livestock producers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Success in production systems for goat is limited by reproductive inefficiency. The major reproductive constraint in goats is their breeding seasonality limiting transmission of desirable genetic traits. Photoperiodism influences the seasonality of breeding in both male and female goats. In dairy goat does, photoperiod causes anovulation while in bucks it results in inactive period of sperm production, and hence, minimal fertility. Unlike large ruminants and sheep, there is limited information on the goat as a research model for reproduction at the cellular level. Overcoming these constraints is critical for optimizing production and enhancing the competitiveness of the goat industry.

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Performance Goal 1-24:

1. Evaluate photoperiodic effects on goat reproduction.
2. Develop, refine, and apply molecular protocols to improve reproductive efficiency in goats.
3. Develop techniques and procedures to preserve genetic material of both genders.
4. Implement year-round breeding system utilizing preserved materials.

Output Indicators:

1. Enhance understanding of gamete physiology.
2. Improve reproductive performance.

Outcome Indicators:

1. Enhanced reproductive efficiency.

2. Increased use of year-round breeding system.
3. Improved kid crop and lactation.

Key Program Components:

1. Evaluate the reproductive performance of does and bucks.
2. Assess effectiveness of application of technology in year -round breeding program.

Internal and External Linkages:

- FVSU teaching, research, and extension personnel.
- Other universities including The Universities of Georgia.
- USDA-CSREES including sheep experiment station, Dubois, ID, and Gamete Evaluation and Manipulation laboratory, Beltsville, MD.
- Monsanto and other private companies.

Target Audiences:

Livestock producers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Over the last twenty years, the goat industry has experienced unprecedented growth in the United States. Growth was initially confined to the dairy goat sector but there has been a recent surge of interests in the meat goat industry. This has increased the need for scientific information and recommendations for herd health management.

Performance Goal 1-25:

1. Improve herd health management requirements for goats.
2. Develop herd vaccination and disease prevention protocols for goats.
3. Procure disease surveillance data, perform disease investigation, and compile results.
4. Minimize production loss through herd health recommendations.

Output Indicators:

1. Produce and disseminate herd health management information.
2. Exhibit significant findings in print and electronic media.
3. Participate in state and national fairs.
4. Organize workshops and field days.
5. Technical assistance to producers and extension agents.

Outcome Indicators:

1. Management recommendations adopted by producers.
2. Reduction in herd production losses as a result of training.
3. Clientele attendance at exhibits, demonstrations, and requested information.

Key Program Components:

1. Develop herd health management program for goats.
2. Compile surveillance data on goat diseases.
3. Perform disease investigation and recommend appropriate control, treatment, and prevention.
4. Develop parasite control measures, evaluate dewormers, and formulate strategies for goats.
5. Design a home page to disseminate information.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities including UGA - Veterinary Diagnostic and Investigations Laboratories. Cornell University, Florida A&M University, Tuskegee University, Alabama A&M University, and Langston University.
3. USDA-APHIS-VS, Georgia Department of Agriculture, and private entities.

Target Audiences:

Goat producers, extension personnel, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Breeders and seedstock producers must assess and use information on the genetic merit of proven and potential herd sires for the goat meat industry to become competitive. In meat animals, this is done through a centralized performance evaluation. Such evaluations provide information on the participating animals providing progeny information on their sires. By equalizing environmental factors during the evaluation, it is possible to determine genetic potential for growth and development, feed efficiency, and animal disposition. Data obtained during a relatively short period of assessment can be used by breeders to determine which bucks should be used to produce the next generation. To accomplish this objective, FVSU has initiated a goat performance evaluation program. The generated information would provide germplasm comparisons among various breeds and genotypes goats.

Performance Goal 1-26:

1. Determine progeny differences to confirm heritability values of potential half -sibs.
2. Study performance of various breeds, strains, and genotypes.
3. Generate information for sire selection and culling decisions.

Output indicators:

- Produce and disseminate information on genetic capacity of tested bucks in print and electronic media.
- Number and frequency of reports and data on tests.
- Conduct performance tests on bucks.
- Organize workshops and provide technical assistance.

Outcome indicators:

1. Increased understanding of the process and status of genetic change in breeder and commercial herds.
2. Enhanced interest in informational materials and participation in performance testing.
3. Increased clientele attendance at exhibitions, demonstrations, and workshops.
4. Reduced use of inferior breeding stock.

Key program components:

- Performance testing of meat goats.
- Develop other protocols for genetic improvement.

Internal and external linkages:

1. FVSU teaching, research, and extension personnel.
2. Universities including Texas A&M University at San Angelo and Langston University.
3. Producers from Georgia and neighboring states.

Target audiences:

Producers, breeders, scientific community, students and the public.

Program duration:

Long term.

Statement of Issue:

Recently, the American lamb industry has expended substantial time and resources to improve its competitiveness against imports. The industry plan involves improving efficiency, product quality, cost-effectiveness, and demand for the product. Genetic improvement is one of the ways to enhance meat production efficiency and reduce cost of lamb production. American sheep flocks currently have relatively high requirements for labor and management than cattle. However, easy-care sheep can be genetically designed to reduce the management cost.

Genetic selection can improve resistance against internal parasites and lamb vigor, and reduce shepherding and shearing requirements. Southeastern USA climate with abundant feed supply is conducive for commercial hair-sheep production. Improved germplasm would produce high-quality meat and would be

marketable as breeding stock, particularly in tropical and subtropical climates.

Performance Goal 1-27:

1. Assess the productivity and profitability of selected hair sheep genetic resources.
2. Develop production systems which combine appropriate animal germplasm, lambing schedules, marketing strategies, and forage resource utilization.

Output indicators:

1. Generate data on the performance level and production efficiency of various breeds.
2. Produce and disseminate information through print and electronic media.
3. Organize workshops and provide technical assistance.
4. Establish cooperative marketing mechanisms.

Outcome indicators:

1. Increased number of commercial sheep producers.
2. Enhanced understanding of physiological differences in sheep breeds.
3. Improved parasite resistance and heat tolerance in sheep.
4. Increased availability of easy-care sheep.
5. Enhanced clientele attendance at exhibitions, demonstrations, and workshops.

Key program components:

1. Maintain a flock of ewes and identify producer cooperators for breeding and selection.
2. Determine merits of important hair-sheep breeds.
3. Evaluate marketing options and product utilization opportunities.
4. Examine the economics of different management and breeding systems.

Internal and external linkages:

1. FVSU teaching, research, and extension personnel.
2. Hair-sheep association and wool sheep Foundation.
3. USDA research stations at DuBois and Fort Reno.
4. Other universities including Virginia State University, University of Wyoming, and The University of Georgia.

Target audiences:

Producers, breeders, extension personnel, scientific community, students, and the public.

Program duration:

Long term.

Statement of Issue:

There is a developing market for chevon (goat meat) in the USA, particularly among ethnic populations. Goat carcass import in the USA has steadily increased indicating a potential for increasing domestic consumption. There is immense opportunity for the American goat processors to seize this existing market and benefit economically. However, the acceptability of chevon by the general public is lower than beef, lamb, or pork, primarily due to lesser tenderness. Information is limited on the postmortem factors that influence palatability of chevon. Characterization of postmortem behavior of goat muscle may help identify appropriate techniques that would improve palatability of fresh and processed chevon. This, in turn, will boost its public perception and increase demand for chevon in the USA.

Performance Goal 1-28:

1. Increase chevon consumption by improving its palatability traits.
2. Develop value-added chevon products of superior quality that would increase chevon consumption among US consumers.

Output Indicators:

1. Identify important factors responsible for toughness in goat meat.
2. Develop a better understanding of postmortem behavior of goat muscles.
3. Determine postmortem handling methods that result in superior fresh and processed che von.
4. Develop value-added chevon products.

Outcome Indicators:

1. Enhanced adoption of postmortem techniques by processors to improve palatability.
2. Increased number of chevon consumers.
3. Increased use of value-added chevon products by the US consumers

Key Program Components:

1. Characterize postmortem biochemical and physical changes in goat muscle and their relationship to meat quality in different breeds of goats.
2. Study the effects of different postmortem treatments like aging and hydrodyne processing on palatability characteristics of chevon.
3. Determine the physico-chemical, sensory, and nutritive qualities of processed chevon exposed to different postmortem handling and storage conditions.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities including Louisiana State University and The University of Georgia.
3. USDA-CSREES, Meat Science Laboratory at Beltsville Agricultural Research Center.

Target Audiences:

Goat producers, processing industry, scientific community, students, and the public.

Program Duration:

Long-term

Statement of Issue:

Global warming, due to increased carbon dioxide concentration in the atmosphere as a result of increased industrialization and burning of fossil fuels during the twentieth century, is a serious problem. Growing trees to sequester atmospheric carbon in the plant and soil is an effective method of reducing global warming. In the USA, little is known about the sustainable production of crops with trees and their impacts on soil and water quality. If trees can be grown with pastures and field crops, increased carbon sequestration in the plant and soil can be achieved. In addition, soil and water quality can be improved due to reduced soil erosion and nutrient loss.

Performance Goal 1-29:

1. Sustain crop and tree production with increased carbon sequestration in the plant and soil.
2. Improve soil and water quality to enable farmers to produce crops and trees that are profitable and environment friendly.

Output Indicators:

1. Production of selected crops and trees that will increase carbon sequestration and improve environmental quality.
2. Increase knowledge of sustainable agricultural systems that are globally competitive, economically attractive, and environmentally sound.

Outcome Indicators:

1. Sustained production of selected crops and trees.
2. Increase carbon sequestration in plant and soil.
3. Improve soil fertility and productivity.
4. Improve water quality.
5. Reduce fertilizer use.

Key Program Components:

1. Develop agroforestry systems using various combinations of crop and tree species.
2. Determine amount of carbon sequestered for each of the agroforestry systems identified.
3. Measure soil nutrient status and water quality for each system.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA agencies and other Land-Grant Universities.

Target Audiences:

Farmers, agribusiness professionals, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The soybean, grown on more than 70 million acres in the USA, is an important export crop. This crop contributed $58.1 million to Georgia's economy in 1997. Soybean is a major source of vegetable oil and protein in the world. Prices for conventionally grown soybean in both domestic and global markets have been decreasing due to over supply and pricing policies.

Specialty soybeans are currently gaining popularity around the globe as a source of vegetable protein in the human diet. Therefore, identification of soybeans with value-added traits and diversification of utilization may be pivotal to the future of the soybean industry, especially in the southeastern United States. Currently organic soybeans used for soyfoods fetch premium prices in the international market. To enhance demand for soyfoods and remain competitive in domestic and global markets, farmers must take advantage of opportunities in emerging niche markets and adopt new technologies. There is a need to develop cultivars with unique traits using selection and molecular marker procedures to enhance the nutritional quality, utilization, and value of soybean and soybean -based food products.

Performance Goal 1-30:

1. Develop vegetable soybean cultivars that are agronomically superior, adapted to the southeastern United States, and produce seed with value-added nutraceutical properties.
2. Increase farmers participation in specialty soybean production for soyfood markets.
3. Enhance the share of existing domestic and international markets for specialty soybeans.
4. Increase soybean acreage under organic production systems.

Output Indicators:

1. Availability of well adapted soybean cultivars with value - added quality traits.
2. Increased internal use and export potential
3. Increased acreage under specialty soybean.
4. Package of practices for sustainable production of soybeans that enhances the competitive edge for US farmers in global markets.

Outcome Indicators:

1. Enhance diversification of crop enterprise creating alternative avenues of earnings.
2. Increase in organic soybean production using effective microorganisms.
3. Greater choices of vegetable-based lipids and protein sources to consumers.
4. Georgia emerging as a major source of vegetable soybeans in the international markets.

Key program Components:

1. Evaluate and characterize selected exotic and domestic vegetable-type soybean genotypes for

agronomic and nutritional traits.

2. Improve and develop efficient, environment friendly, and sustainable production systems.
3. Develop superior soybean genotypes for soyfood industry via molecular marker techniques.
4. Promote export of organic soybeans by contracts between producers and buyers, particularly the Japanese.

Internal and External Linkages:

1. FVSU teachers, researchers, and extension personnel.
2. Land-Grant Universities and other institutions.
3. Center for Food Science and Safety, University of Georgia, Experiment, GA.
4. Georgia Land Grant Stewardship Association
5. Farmers in Georgia and the Southeast.
6. EM Technologies, Inc
7. Japanese and American Soybean Association
8. Bogs Rural Life Academy.

Target Audiences:

Farmers, processors, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Use of plants to cure ailments predates civilization. Knowledge of the medicinal properties of certain plants was traditionally passed on from generation to generation. A large number of folk medicines were developed from different plant species throughout the world. The Chinese, Indians, and Persians were among the first to systematize this knowledge into a distinct medical discipline. This knowledge was developed from observations, experiments, clinical trials, and the resulting theories. Modern medical practitioners of early twentieth century placed emphasis on fast remedies from synthetic chemical compounds, doubted the effectiveness of traditional medicines, and discouraged their use. In traditional medicine, the emphasis was on restoring the body to its original condition of health, while modern medicine focused on quick cures. However, many of the valuable modern drugs, such as digitalis, quinine and atropine, are derived from plants.

Recently, there has been dramatic reversal of attitude towards herbal medicine, especially in Germany. The realization of the ability of health plants to provide a wholesome cure without side effects, and maintain mental and physical fitness has increased demand for plant based medicines. As a result, a strong market has emerged for well known medicinal plants, and new species are being added to the existing inventory. The demand for these plants provides a niche market for farmers with small acreage. However, production of medicinal plants requires specialized cultural and postharvest handling techniques to optimize and preserve medicinal ingredients.

Performance Goal 1-31:

1. Develop methods to produce selected medicinal plant species in the southeastern USA.
2. Determine the relationship between production methods and active ingredient concentration.
3. Establish relationships between postharvest handling methods and active ingredients.

Output indicators:

1. Develop organic and inorganic agronomic packages.
2. Relate cultivation methods to the levels of active ingredients in medicinal plants.
3. Formulate handling methods to preserve active ingredients during postharvest.

Outcome indicators:

- Developed organic and inorganic agronomic packages.
- Potential farmers identified and trained in medicinal crop production.
- Packaged postharvest handling methods for distribution.

Key program components:

1. Collect germplasm for selected medicinal plants.
2. Evaluate germplasm adaptation to middle Georgia climate.
3. Develop organic and inorganic agronomic packages for production of medicinal plants.
4. Establish relationships between cultural methods and level of active ingredients.
5. Develop postharvest techniques to preserve active ingredients.

Internal and external linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA and National Institute of Health.
3. Other universities.
4. Drug manufacturers.
5. Medicinal plant producers.

Target audiences:

Producers, scientific community, drug industry, students, and the public.

Program duration:

Long term.

Statements of Issue:

A small portion of nearly 500,000 plant species has been investigated for their medicinal attributes. Plant-based medicines play a significant role in the primary health care of 80% population of the world.

Chemicals derived from plant sources account for 25% of today's prescription drugs. Most nations that manufacture plant-based prescription drugs, produce their own bioactive plants. Americans have not invested adequate resources into research investigating plants as a source of drugs. However, a sufficient supply of bioactive plants is crucial to conduct extensive clinical trials. There is a need to explore native wild plants and introduce exotic germplasm to meet an increasing demand for alternate medicine. This will require identification, introduction, and improvement of potential bioactive plant species..

Research at the Fort Valley State University will assist small farmers to produce bioactive plants for a niche market. Furthermore, opportunities exist for collaborative research with institutions that introduce, maintain, study biological activities, chemically analyze, clinically test, and market products from bioactive plant species. It is anticipated that this research will attract extramural funding, quality faculty, graduate and undergraduate students.

Performance Goal 1-32:

1. Identify, introduce, and evaluate plant germplasm for medicinal properties.
2. Develop protocols for *in vitro* regeneration of bioactive and medicinal plants.
3. Formulate protocols for *in vitro* testing of plant stresses.
4. Devise genetic transformation procedures to enhance tolerance to biotic and abiotic stresses.

Output Indicators:

- Identify boactive plant species with medicinal potential.
- Evaluate plant tolerance to biotic and abiotic stresses.
- Develop protocols for *in vitro* regeneration through organogenesis and embryogenesis.
- Enhance understanding of pharmaceutical and nutraceutical potential of bioactive plants.
- Devise environment friendly agronomic packages for bioactive plant species.

Outcome Indicators:

1. Increased understanding of bioactive and medicinal plant production.
2. Developed biotechnological protocols for plant regeneration and genetic improvement.
3. Enhanced availability of *in vitro* micropropagated bioactive plant germplasm.
4. Created database on bioactive plants.
5. Increased competitiveness of Georgia farmers in the medicinal plant market.
6. Established secondary industry for medicinal plants.

Key Program Components:

1. Introduce bioactive/medicinal plant germplasm.
2. Evaluate selected bioactive plants for their adaptability in Georgia.
3. Develop *in vitro* regeneration for bioactive plants using mature tissues.
4. Formulate *in vitro* screening techniques for biotic and abiotic plant stresses.
5. Devise genetic transformation protocols for stress tolerance and bioactivity of regenerants.

6. Develop protocols for *in vitro* preservation of bioactive plant germplasm.
7. Devise environment friendly plant cultivation and management system for these species.

Internal and External Linkages:

- FVSU teaching, research, and extension personnel.
- 1890 Land-Grant Universities participating in the Regional project on bioactive plants.
- Other universities including Louisiana State University Medical Center, University of Guelph, University of Connecticut, and international institutions.
- Growers interested in medicinal plants.

Target Audiences:

Producers, processors, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

American agriculture is capital intensive and technology based, consequently the tendency is towards larger farms. Farmers are deserting farm operations due to structural changes in agriculture and economic constraints. This change is causing great harm to the very fabric of agriculture and related service providers in rural communities. Thus, it is very important to revitalize rural communities by introducing potential new enterprises to create more avenues for employment and stability in the long run.

Agriculture provides food and fiber for humans, fodder for animals, and raw material for industry. Further, there is a growing demand for a wide range of plant metabolites like phytochemicals, pharmaceuticals, and food additives. For example, indole alkaloids, high value drugs in cancer therapy, are commercially produced from *Catharanthus roseus.* The FDA recent approval of medicinal herb extracts as dietary supplements, has resulted in a rapidly growing herbal medicinal products in the market. Lack of production technology and adapted genotypes are major factors limiting production of medicinal herbs in the USA. The plant based pharmaceutical industry is highly organized in other countries, but it is still in developmental stages in the United States. This area of research can provide important leads to help small farmers to develop niche markets in plant based pharmaceuticals.

Performance Goal 1-33:

1. Identify domestic and exotic sources of medicinal plant germplasm.
2. Develop production practices for selected medicinal plants.
3. Develop *in vitro* plant regeneration protocols and test cell culture potential.
4. Identify genes for important traits using bulk segregant analysis and molecular markers.
5. Increase concentrations of desired phytochemicals, pharmaceuticals, and productivity of

selected plant genotypes/species through transformation.

Output indicators:

1. Identify germplasm sources of medicinal plants.
2. Develop packages of agronomic practices.
3. Test medicinal plants and species for *in vitro* regeneration.
4. Devise techniques for genetic transformation.
5. Inform farmers about bioactive plants.

Outcome indicators:

1. Evaluated and identified species/genotypes for cultivation/cell culture.
2. Developed package of practices for optimum production.
3. Developed plant regeneration protocols and cell culture system.
4. Developed molecular markers for important QTL traits.
5. Initiated farmers into this new enterprise.

Key program Components:

1. Collect germplasm for medicinal plants like *Catharanthus, Digitalis*, and *Echinacea*.
2. Evaluate medicinal plants for growth, development, and yield in field and greenhouse.
3. Establish plants *in vitro* for cell culture and genetic transformation.
4. Elucidate genomic structure and organization of *C. roseus*.
5. Understand and develop metabolite extraction from plants and cell cultures.

Internal and External Linkages:

1. FVSU teachers, researchers, and extension personnel.
2. Other universities including UGA Center for Food Science and Safety, Experiment, GA.
3. Georgia Land Stewardship Association.
4. Bogs Rural Life Academy
1. National Institute of Health.
2. New York Botanical Gardens.
3. Herbal Guild of Georgia.
4. Potential growers of medicinal plants.

Target Audiences:

Medicinal plant growers, metabolite processing industry, scientists, students, and the public.

Program Duration:

Long term.

Statement of Issue:

An increasing ethnic population, consumer curiosity, and changing eating habits have generated demand for non-traditional and exotic fruits. These socio-demographic changes have created opportunities for American farmers to grow high value cash crops. Exotic fruits are nutritionally rich and are in demand by health-conscious Americans. Many imported exotic specialties are available in American supermarkets. Domestic production to meet consumer demands necessitates technology development for growing exotic fruits locally.

The papaya (*Carica papaya*) is high in vitamins and minerals, has no starch, and is low in sodium, fat and calories. Papain, an enzyme extracted from papaya latex, is extensively used as a meat tenderizer, and in beer, leather, wool, and rayon industries. The guava (*Psidium guajava*) is the richest source of ascorbic acid (vitamin C) and dietary fiber among all edible fruits. Similarly, phalsa (*Grewia asiatica*), aonla (*phyllanthus emblica*), carambola (*Averrhoa carambola*), and bael (Ae*gle marmelos*) are rich in vitamins and minerals. These fruits are consumed in various ways, including fresh fruit, vegetables, salad, processed products, and have many industrial uses.

Introduction, development of production technology, and marketing strategies are needed to be undertaken before cultivating exotic fruits on a commercial scale in southeastern USA. Since they are traditionally grown in warm climates, plant regeneration and crop improvement for tolerance to low temperature need to be addressed.

Performance Goal 1-34:

1. Evaluate selected germplasm of aonla, guava, papaya, and phalsa.
2. Enhance adaptation of exotic fruits in Georgia and the Southeast.
3. Formulate and refine technology for exotic fruit production in Georgia.
4. Develop *in vitro* protocols for regeneration of different exotic fruit species.
5. Devise environmentally agreeable cultural practices using cold tolerant genotypes.

Output Indicators:

- Develop production technology for selected exotic fruits.
- Evaluate exotic fruits for biotic and abiotic stresses.
- Determine yield potential and fruit quality of these commodities.
- Identify traits for value-added products from selected exotic fruits.
- Develop environment friendly production technology for selected exotic fruits.

Outcome Indicators:

1. Enhanced knowledge regarding botany, cultivation, and improvement of exotic fruits.
2. Increased profits for farmers thereby making them more market competitive.
3. Enhanced availability of nutritious value-added new items to the American consumer.
4. Motivated grower and consumer interest for new exotic commodities.
5. Diversified fruit cultivation and created new opportunities for fruit growers.

Key Program Components:

1. Introduce new germplasm of exotic fruits.
2. Develop exotic fruit technology for farmers.
3. Devise environmentally agreeable production and management systems for exotic fruits.
4. Select, develop, and release exotic fruit cultivars tolerant to biotic and abiotic stresses.
5. Employ *in vitro* technology for regeneration, genetic improvement, and preservation of promising germplasm.

Internal and External Linkages:

- FVSU teaching, research and extension personnel.
- Other universities including Universities of Florida, Virgin Islands, Alabama A&M.
- Overseas universities in India, Thailand, and the Dominican Republic.
- USDA-CSREES facilities, including Tropical Horticulture Research Laboratories, Miami, FL, and Subtropical Fruit Repository, Hilo, HI.
- Fruit growers.

Target Audiences:

Fruit growers, farmers, home gardeners, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The papaya is popular in tropical and subtropical countries because of its easy cultivation, rapid growth, high yield, multiple uses, quick returns, and adaptation to diverse conditions. However, it can not be grown in frost prone areas. The dioecious papaya reveals sex at bloom and only the female plants produce marketable fruit. These problems can be solved by using tissue culture for multiplication of desirable female plants and biotechnology for developing cold hardy papaya genotypes. This program will emphasize interspecific hybridization and embryo rescue, *in vitro* testing for cold hardiness and other plant stresses, plant regeneration, genetic transformation, and germplasm preservation.

Performance Goal 1-35:

1. Formulate and optimize *in vitro* technique to screen papaya germplasm for cold hardiness.
2. Produce and evaluate embryo-rescued papaya hybrids for cold tolerance and sex type.
3. Devise *in vitro* regeneration protocols for mature vegetative tissues of papaya.
4. Develop genetic transformation protocols for cold hardiness in papaya germplasm using *Agrobacterium tumefaciens.*
5. Produce and establish cold hardy transgenic papaya plants.

6. Develop environment friendly practices for stress tolerant papaya lines.

Output Indicators:

- Develop procedures for *in vitro* regeneration and preservation of desirable papaya germplasm.
- Optimize *in vitro* techniques to screen papaya for cold hardiness and sex type.
- Develop genetic transformation for papaya using regenerants from mature tissues.
- Enhance understanding of cold hardiness mechanism in papaya.
- Devise environment friendly orchard management practices for transgenic papaya.

Outcome Indicators:

1. Developed protocols for papaya regeneration and transformation.
2. Produced transgenic papaya plants.
3. Enhanced economic opportunities for growers to produce papaya in temperate zone.
4. Increased availability of domestically produced papayas.
5. Enhanced crop diversity.

Key Program Components:

1. Develop and evaluate protocols for interspecific hybridization, embryo rescue, plant sex identification, and cold hardiness.
2. Develop cold tolerant papaya lines adaptable to temperate zone.
3. Regenerate papaya via organogenesis and somatic embryogenesis.
4. Introduce Cold-Regulated (COR) and Antifreeze Protein (AFP) genes into papaya using *Agrobacterium tumefaciens* technique.
5. Develop protocols for *in vitro* preservation of papaya germplasm.
6. Devise environment friendly orchard management for genetically modified papaya.

Internal and External Linkages:

- FVSU teaching, research and extension personnel.
- Other universities including Universities of Florida, Virgin Islands, and Alabama A&M.
- Overseas universities in India, Thailand, and Dominican Republic.
- USDA-CSREES, Horticulture Res Lab, Miami, and Subtropical Fruit Repository, Hilo, HI.
- Interested fruit growers.

Target Audiences:

Fruit growers, small farmers, home gardeners, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The peach is traditionally grown in Georgia and is one of the leading cash crops in Middle Georgia. Lately, it has become less profitable due to declining tree survival resulting from several factors, including peach tree short life (PTSL) syndrome. The freeze injury and/or *Pseudomonas* canker, the two primary factors of PTSL, kill trees prematurely before the orchard reaches full productivity. Consequently, peach orchards require frequent replanting, become unprofitable, and make frustrated growers forsake this enterprise.

Incorporation of cold hardiness and canker resistance into the existing peach cultivars is a viable app roach to control tree losses and improve peach production. However, the efficiency of conventional peach improvement has been impeded by the narrow germplasm base, and time consuming, more expensive, and cumbersome procedures. Now, plant biotechnology is opening up new avenues for more efficient improvement of perennial plants. Plant molecular approaches have been used to improve many tree fruit species; however, success in peach transformation has been limited. Genetic transformation of peach will be attempted using plant regeneration from mature tissues, like shoot tips and cotyledons, along with somatic embryogenesis from nucellus and other tissues. *Agrobacterium*-mediated transformation with genes for cold or freeze hardiness of peach explants will be initiated using different reporter genes and promoters. Our primary goal is to employ plant biotechnology to develop peach cultivars resistant to PTSL stresses and to improve tree survival and orchard longevity.

Performance Goal 1-30:

1. Devise biotechnological procedures to understand mechanisms of biotic and abiotic stresses.
2. Develop protocols for *in vitro* regeneration and genetic transformation of peach.
3. Engage biotechnology to improve plant survival and orchard longevity.
4. Develop environment friendly orchard management practices f or PTSL tolerant cultivars.

Output Indicators:

- Develop peach trees tolerant to biotic and abiotic stresses.
- Enhance understanding of PTSL stresses *in vitro* using explants and field samples.
- Develop environmentally agreeable orchard management practices.

Outcome Indicators:

1. Refined *in vitro* protocols for PTSL investigations.
2. Improved tree health and orchard survival with substantial reduction in crop losses.
3. Increased productivity, profitability, and competitiveness of Georgia peaches.

Key Program Components:

1. Formulate *in vitro* protocols for peach regeneration via morphogenesis and embryogenesis.
2. Regenerate peach via mature tissue, and embryogenesis from nucellus and embryonic axis.
3. Genetically transform peach somatic embryos and mature explants utilizing *Agrobacterium*-mediated transfer of COR, AFP, and other available genes.
4. Develop peach cultivars with traits to resist PTSL and improve tree survival.
5. Formulate protocols for *in vitro* preservation of peach germplasm.

6. Devise environment friendly orchard management for genetically modified peach lines.

Internal and External Linkages:

- FVSU teaching, research and extension personnel.
- Other universities including Alabama A&M University, N. C. State University, and universities of California, Florida, and Georgia.
- USDA-CSREES facilities including Tropical Horticulture Research Laboratories, Miami, FL, and Fruit Laboratories at Beltsville, MD, and Byron, GA.
- Peach growers in the Southeast.
- Georgia Peach Council.
- Sun World International, Inc., Bakersfield, CA.

Target Audiences:

Peach growers, small farmers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Amaryllis and daylilies (*Hemerocallis* spp.) are popular perennials grown throughout the world as flowering landscape plants, greenhouse cut flowers, and pot plants. Both amaryllis and daylily are high value cash crops. Amateur growers, limited resource farmers, and plant breeders hybridize these crops to produce tetraploid cultivars with flowers of spectacular form and color that are not readily available. Amaryllis and daylilies are slow to multiply using conventional vegetative propagation by crown, producing a net gain of only one or two additional plants per year. Research at the Fort Valley State University Research Station has been proposed to employ tissue culture techniques to rapidly propagate tetraploid amaryllis and daylilies in order to speed up commercial release of new cultivars. This is a commercially viable project that will develop technologies needed by growers.

Performance Goal 1-37:

1. To develop techniques for micropropagating amaryllis and daylily.

Key Program Components:

1. Establish basal media formulations.
2. Study requirements for micropropagation, including light characteristics, container size, and explant size.
3. Study requirements for plant growth regulators at various stages of *in vitro* regeneration.

Output Indicators:

1. Develop protocols for micropropagating amaryllis and daylily.
2. Increase availability of superior ornamental cultivars through micropropagation.
3. Mass produce amaryllis and daylily using micropropagation.

Outcome Indicators:

1. Increased availability of perennial cultivars to the public.
2. Enhanced profits for ornamental growers.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Daylily growers, Middle Georgia Hemerocallis Society, American Hemerocallis Society.
3. The University of Georgia

Target Audiences:

Ornamental growers, small farmers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Asparagus spears are better used at the tender and non-fibrous stage. The continuous emergence of spears during growth necessitates frequent and inconsistent harvests, which poses a problem for asparagus producers. This phenomenon in asparagus is attributed to growth suppression of the proximal buds due to the presence of shoots on the crowns.

Mechanical harvester has been developed for whole-spear asparagus, however, its use is not cost effective. The use of plant growth regulators in the greenhouse stimulated asparagus spears to appear earlier and prevented their continuous emergence. The greenhouse results duplicated in the field will reduce the harvesting frequency, resulting in a shorter harvest season and early crop. Combination of plant growth regulators and mechanical harvesting could possibly be economical to asparagus growers.

Performance Goal 1-38:

1. Identify suitable plant growth regulator(s) to stimulate early, simultaneous, and abundant emergence of asparagus spears .
2. Determine the optimum time, concentration, and method of application plant growth regulator(s).

Output Indicators:

1. Increase early, simultaneous, and abundant spear emergence.
2. Determine optimum time, concentration, and method of plant growth regulator application.

Outcome Indicators:

1. Increased earliness as well as simultaneous and abundant emergence of asparagus spears.
2. Shortened harvest season and increased early yields.
3. Increased use of mechanical harvesting for asparagus.
4. Enhanced awareness of asparagus as an alternative crop.

Key Program Components:

1. Evaluate the influence of different plant growth regulators on asparagus spears emergence.
2. Determine optimum time, concentration, and method of plant growth regulator application.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities and private company in Washington state.
3. Asparagus commission in Washington state.

Target Audiences:

Asparagus growers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The ethnic population is increasing in the USA. Limited quantities of exotic vegetables are now available to the ethnic population and curious consumers seeking nutritious and quality produce. Most of these vegetables are imported and their demand is expected to increase.

Some of the important exotic vegetables include parwal (*Trichosanthes diocia*), karela (*Momordica charantia*), luffa (*Luffa acutangula, L. cylindricia*), and lauki (*Lagenaria siceraria*). These speciality vegetables are good sources of carbohydrates, vitamins , and minerals. There is a need to introduce, evaluate, select, and establish exotic vegetables, and develop environment friendly practices for their production.

Performance Goal 1-39:

1. Introduce, evaluate, and select exotic vegetable germplasm.
2. Develop environment friendly management system.

Output Indicators:

1. Increase production of exotic vegetables.
2. Develop agronomic practices for exotic vegetables.

Outcome Indicators:

1. Developed production practices for new vegetables.
2. Increased domestic production of speciality vegetables.
3. Improved income of specialty vegetable growers.

Key Program Components:

1. Introduce and maintain germplasm of different exotic vegetables.
2. Establish cultural practices for optimum production.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities.

Target Audiences:

Vegetable growers, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Sweet potato, the sixth most important food crop in the world, is also an important high value cash crop in Georgia. Sweet potato, a low-input and high calorie per unit area producer may play an important role as a renewable energy source in the future. Industrial types (non sweet) are also grown as sources of raw material for animal feed and other industries. Genetic improvements in farm crops have been made through breeding. However, sweet potato, a perennial polyploid and vegetatively propagated crop, is not amenable to conventional breeding because of problems like male sterility, incompatibility, and low pollen viability. A large potential exists for improvement in sweet potato yield, but remains unrealized. The application of recombinant DNA technology can accelerate the pace of improvement in sweet potato, especially starch/dry matter enhancement.

Performance Goal 1-40:

1. Evaluate domestic and exotic germplasm for identification of desirable traits.
2. Use *in vitro* techniques to regenerate plants from different tissues.
3. Develop industrial type sweet potato to enhance market potential.
4. Enhance carbohydrates/starch content to increase storage root/dry matter yields to make it

economically important for industrial use for starch and alcohol production.

5. Increase starch content of storage roots by recombinant DNA technology.

Output Indicators:

1. Develop *in vitro* techniques for sweet potato regeneration.
2. Improve sweet potato germplasm pool *via* transgenic plants.
3. Develop gene transfer between species via recombinant DNA techniques.

Outcome Indicators:

1. Better adapted sweet potato cultivars.
2. Enhanced understanding of recombinant DNA technology for developing sweet potato cultivars with value-added traits.
3. Increased application of technology for other root and tuber crops.

Key program Components:

1. Develop *in vitro* plant regeneration techniques.
2. Modify photosynthate allocation of sweet potato to enhance carbohydrates of storage roots.
3. Transfer the technology from the laboratory for practical application in the field.
4. Initiate new research projects to determine the application of this technology to other root and tuber crops.

Internal and External Linkages:

1. USDA/ARS agencies (St. Paul, MN; Griffin and Athens, GA; Charleston, SC, and NAL).
2. Private industry (Monsanto, Research Genetics, DowElanco).
3. Land-Grant Universities and other institutions.
4. High school and undergraduate students and teachers.
5. Professional associations including the American Society for Horticulture Science, Plant Molecular Biology, Society for In Vitro Biology, Crop Science.
6. International Potato Center (CIP) and other sweet potato centers in developing countries.

Target Audiences:

1. Sweet potato producers.
2. Industries based on starch/carbohydrate production.
3. Research scientists in public and private sectors.

Program Duration:

Long term

Goal 2: A safe and secure food and fiber system

1862 and 1890 Extension

Statement of Issue:

Food producers, processors, preparers and consumers must all follow appropriate food handling procedures so that food that enters and leaves every part of the food chain is safe. All members of the food system, from producer to consumer, make decisions that affect the nature of the food supply both in terms of availability and safety. These decisions reflect changing consumer needs, technological advances in food production, processing and distribution, and research findings related to food, nutrition and h ealth.

The reported incidence of food borne illness from pathogenic bacteria is increasing; these illnesses may be life threatening or trigger chronic disease. Changing patterns of consumption, an aging population, more persons with chronic illness and wide variation in food handling and preparation practices are some of the factors contributing to increased vulnerability of the population to food borne disease. Food safety and quality concerns often put different groups within society in conflict over per ceived and real concerns.

Approximately 97% of documented cases of food borne illness result from the mishandling of foods in food service establishments and in the home. The resulting percentage from food service establishments alone is about 77%. With an increasing number of meals being eaten away from home, there is the potential for an increased incidence of food borne illness. Employee education and certification in the sanitary handling of food is viewed by food protection experts nationally as one s trategy for reducing food borne hazards to the consumer.

The production of agriculture commodities using integrated pest management techniques and is vital and important part of food safety, resulting in agricultural economic integrity. However, marketing of raw agricultural products is not the optimum strategy for maximizing economic returns to the state. The greatest opportunity to take advantage of Georgia's diverse agricultural base is by adding value to our raw products. In 1991, the Georgia food processing sector accounted for over $10.5 billion in output annually. Over 56,000 people employed in the industry with almost 184,000 jobs created to supply this industry with needed inputs. The future of the Georgia agricultural base, as well as the general economic growth and vitality of the state could be greatly enhanced by increased activity in further processing of Georgia's raw products. The relationship between the economic success of the food industry, the sustainability of the food system and the nutritional quality and safety of food are increasingly becoming intertwined.

Production of food in America is carried out by less than 3% of the population. The general public has no

experience on which to base perceptions of the safety and reliability of the food supply as it relates to production agriculture and aquaculture. New technologies in food production on the farm have brought forth questions about the safety of the food supply and the impact on the environment. Information on technology of on-farm food production is often brought to the attention of the public by media as it reports controversies arising between groups with different agendas. The facts of safe food production are often left out of such presentations. The public is left to decide what is right and wrong without any basis for the decision. This could lead to unnecessary fear and concern over (1) on farm food production process (2) harm to the environment and (3) the availability of safe food.

Food companies continue to develop high quality products to meet consumer needs and desires. The high interest in reduced fat and reduced calorie foods, fresh-cut produce, and extended shelf-life foods made possible by new technologies, including aseptic processing and modified atmosphere packaging, can be seen by anyone visiting today's supermarkets. Consumer requirements for higher safety, quality and lower prices are increasing the pressure on profitability. Concern about heart disease, cancer, and other diseases and their relationship to diet led to increased interest in reduced-fat and reduced calorie foods as well as fresh foods, minimally processed foods and neutraceuticals. It appears that the demand for fresher, less-processed foods is increasing. As the population ages and the biggest cohort of consumers to ever exist edge toward their 50's, the wants and needs of the whole population shift, and the responses of food processing companies, regulatory agencies, universities and other groups must meet these needs. In the State of Georgia alone, the farm gate value of food in 1996 was $4.63 billion, resulting in an economic impact of $13.89 billion. The Georgia broiler industry accounted for $2.43 billion at the farm gate with an economic impact of $7.28 billion. Approximately 50% of Georgia food production goes to the food processing industries which number 1000 in Georgia. Quality maintenance and enhancement of food will result in increased consumer acceptance and decreased variability. Universities and industry must continue to work on development of technologies for providing consumers with safe, more convenient high quality food products. Industry employees must continue learning traditional and new technologies through educational programs and outreach efforts provided by government, universities and other agencies.

Food value and affordability are fundamental concerns that touch every single household in the State of Georgia. Post harvest handling of Georgia's food produce is an area of tremendous potential for reduction of food losses. Also, better post harvest practices can increase the value of produce by maintaining quality from field to consumer. Lack of control over postharvest handling techniques is costing growers, packers, and buyers an estimated $1.5 billion in food produce losses annually. On the other hand, systematic approaches to food commodity production are resulting new industries in Georgia, such as carrot production. Consumer demand for quality food produce is greatly regulated by affordability and the perceived value of the food product. Post harvest operations account for over 70% of the selling price for most food items consumed and over 20% loss of the product shipped. Greater efficiency of postharvest handling of food crops and livestock can reduce farm-to-market losses, which can lead to more competitive pricing of foods. In addition, food processing using value-added technology can directly affect the perceived value to consumers.

The relationship between the economic success of the food industry, the sustainability of the food system

and the nutritional quality and safety of food are increasingly becoming intertwined. Food producers, processors, preparers and consumers must all follow appropriate food handling procedures so that food that enters and leaves every part of the food chain is safe. All members of the food system, from producer to consumer, make decisions that affect the nature of the food supply both in terms of safety and availability. These decisions reflect changing technological advances in food production, consumer needs, processing and distribution, and research findings related to food, nutrition and health.

Production of food in America is carried out by less than 3% of the population. The general public has no experience on which to base perceptions of the safety and reliability of the food supply as it relates to production agriculture and aquaculture. New technologies in food production on the farm have brought forth questions about the safety of the food supply and the impact on the environment. In a 1995 national survey, 74% of supermarket shoppers indicated that nutritional and health attributes were very important factors in their food selection (Trends, Food Marketing Institute). Product safety was cited by 69% and environmental issues influenced selection for 55% of shoppers.

Information on technology of on-farm food production is often brought to the attention of the public by media as it reports controversies arising between groups with different agendas. The facts of safe food production are often left out of such presentations.

The public is left to decide what is right and wrong without any basis for the decision. This could lead to unnecessary fear and concern over 1) on farm food production process, 2) harm to the environment, and 3) the availability of safe food.

The U.S. EPA and USDA are currently revising the regulatory program for pesticides as a result of the passage of the Food Quality Protection Act (FQPA). It is critical to consider and balance actual health/environmental risks, public concerns about pesticides, and the role of pesticides in the maintaining a safe and abundant supply of food. The University System of Georgia must participate in both the public debate and the education of consumers and agriculture producers concerning the process and implications of FQPA.

Demographic changes in the U.S. population impact food production areas, nutrition, health and food safety issues. Many rural agricultural areas are being developed into rural residential communities. The relocation of populations into agricultural production areas has emphasized added concerns for not only food safety but sound environmental an d crop production practices.

Rural areas also, often because of a lack of resources, could greatly benefit from food safety education designed specifically for their residents and delivered in their communities. The Fort Valley State University Cooperative Extension Program is particularly sensitive to the problems, concerns and cultural and ethnic factors that influence food safety practices of the los-income and limited resource audience.

The Georgia Extension Service (University of Georgia and Fort Valley State University), Experiment Station, and Teaching Faculty are positioned to enhance society's capacity to understand and address

these and other issues.

Performance Goal 2-1: To minimize the risk of food borne illness, through adoption of recommended food handling and preservation practices.

Output Indicators:

Number of trainings for Extension county - based employees.
Number of meetings/trainings/programs/educational workshops held.
Number of families reached.
Number of child care providers reached.
Number of school food service employees reached.
Number of personal care home providers reached.
Numbers in food processing industry reached.
Number of high school students reached.
Number of elementary school students reached (hand washing education).
Number of home visits made.
Number of volunteers recruited.
Number of newsletters distributed.
Number of news stories, radio and television spots.
Number of clients reached through media (television, radio and newspapers).
Number of food companies represented at workshops.
Number of food companies requesting technical assistance by telephone or on - site.
Number of food companies reached by extensi on educational materials.
Number of food companies that considered feasibility of incorporating steps to enhance or maintain food quality.
Number of presentations made to professional, scientific and consumer groups.
Number of clients reached through responses to telephone inquiries in the home food safety and home food preservation area.

Outcome Indicators:

Number of clientele and Extension program participants increasing their adoption of recommended food handling and home food preservation practices that minimize the risk of food borne illness.
Number of program participants adopting the use of recommended food cooling and storage methods that minimize risk.
Number of program participants adopting the use of proper hand washing practices.
Number of program participants using thermometers to determine proper cooking and holding temperatures when appropriate.
Number of program participants improving their understanding of risks and responsib le practices in relation to food and health.
Number of program participants using HACCP systems in food service and processing

operations as appropriate.

Number of program participants passing safe food handling and/or HACCP certification examinations.

Key Program Components:

County educators will conduct group training programs or make home visits to teach safe food handling for consumers, elementary and high school students, child care providers, personal care home providers, school food service employees, restaurant employees, food processors, and/or other food service or distribution professional. County educators will collaborate with relevant agencies, organizations and individuals who deliver food handling information to the public and food service industry. County educators will provide up-to-date food safety information to the general public through television, radio, newspaper columns, newsletters, and in-person educational programs. County educators will set up food safety and/or home food preservation displays at agricultural fairs, farm markets, family health fairs, schools, etc. County educators will respond to consumer questions in the food safety area. County educators will respond to consumer questions on home food preservation methods and principles. County educators will use media and educational programs to improve consumer use of recommended home food preservation practices.

Faculty will provide technical expertise in food safety to Extension agents and individual or industrial clientele. County Extension educators will be trained and/or updated in food safety issues and recommended food handling practices yearly. Existing curricula and lesson plans will be modified and/or expanded as needed. Reading materials and resources will be produced as needed on topics such as: food preparation, preservation, storage and handling practices; cooking and storing food; proper hygiene practices; cooking times and temperatures; food selection techniques; and, understanding risks and responsible practices. Training will be offered in use of specific curricula, such as the ServSafe (EFNRA) food service manager certification and employee training programs. HACCP, GMP and Sanitation Training Programs for meat, poultry and other food processors will be regularly scheduled and available throughout the state. Faculty will conduct research and Extension studies on problems involving safe food handling practices and prevention of food borne illness. Faculty will incorporate appropriate, current information on food safety issues into academic curricula for university students. Faculty will collaborate with relevant agencies, organizations and individuals who deliver food handling information to the public and food service industry. Faculty will publish research results, Extension program outcomes, or review articles on issues involving food safety and prevention of food borne illness, or present them at national, regional and state professional, scientific and Extension meetings.

Internal and External Linkages:

Both the Fort Valley State University Cooperative Extension Program and the University of Georgia Cooperative Extension Service Program have identified and built partnerships with internal and external linkages. Internal linkages at the Fort Valley State University (FVSU) include the Department of Family and Consumer Sciences, Food Service Center, and Agricultural Research/Small Ruminant Processing Center. External linkages (FVSU) are with the Peach County School Food Service, Peach County Public Health Service, and University of Georgia CES and county-based Extension programs in Middle

Georgia.

Internal linkages at the University of Georgia (UGA) include Extension, teaching and research faculty in the College of Family and Consumer Sciences (Foods and Nutrition Department), the College of Agricultural and Environmental Sciences (Food Science & Technology, Animal & Dairy Science, Poultry Science, and Horticulture). External linkages include state and county levels of the Division of Public Health, Office of Aging, Office of Regulatory Services, Child Care Licensing, and Department of Family and Children Services, all in the Department of Human Resources (DHR). The Georgia Department of Agriculture is a collaborator on industry workshops. The Food Processors Institute (FPI) is a collaborator for Better Process Control Schools.

County Extension agents use advisory committees that include key leaders and organizational representation from their counties. County environmental health specialists are collaborators in carrying out food handler certification programs. County Extension agents also collaborate with the public school systems (school nutrition program staff and classroom teachers), church and civic groups, senior program meal sites, local colleges, child care providers, personal care home providers, and Long-term Care Ombudsmen.

Target Audience(s):

Consumers, adults and youth
- Elementary school children (Hand washing education)
- Peach County high school family and consumer sciences class
- Home food preparers/preservers, including
  - Low-income and limited resource families and individuals
- Groups (church, civic, youth, etc.)

Institutional food service managers and employees
- Child care providers
- School food service employees
- Personal care home providers
- Fort Valley State University food service workers

Commercial food service industry
- Restaurant managers and food service employees

Food processing industry
- Meat and poultry processors
- Fruit and vegetable processors

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	21	22	23	24	25
Paraprofessional	12	12	13	13	13
Volunteer	35	40	45	50	55
Funds					

Formula	226,364	230,000	233,000	235,000	240,000
State	1,706,636	1,750,000	1,800,000	1,850,000	1,900,000
Matching	226,364	230,000	233,000	235,000	240,000

Performance Goal 2-2: To increase consumer understanding of agriculture and aquaculture practices that are necessary to consistently produce an abundant, safe, and inexpensive food supply.

Output Indicators:

Number of consumers participating in agriculture field days and demonstrations.
Number of media representatives participating in agriculture field days and demonstrations.
Number of demonstrations, field days, research station open houses.
Number of newsletter articles and other publications dealing with agriculture production practices.
Number of teachers trained through 'Life on the Farm', 'Ag in the Classroom', and 'Project Learning Tree'.
Number of teachers using curricula from programs in #5 on monthly basis.

Outcome Indicators

Number of field day/demonstration participants that gain better understanding of agriculture production.
Number of field day/demonstration media participants that gain better understanding of agriculture production.
Number of students that gain better understanding of agriculture production as a result of 'Life on the Farm', 'Ag in the Classroom', and 'Project Learning Tree'.

Key Program Components:

It is part of the basic University of Georgia mission to provide outreach programs to educate the public on a wide range of issues, including agriculture. We will continue to provide agriculture outreach through field days and demonstrations through existing and new programs at the University of Georgia. Experiment stations and other facilities. These programs encompass a large number of personnel and disciplines, including extension, research, and teaching. Additionally, extension, research, and teaching faculty regularly publish scholarly and popular articles concerning agriculture production. Media outlets of all kinds utilize our personnel to support articles in newspapers, radio, and television.

The University also has developed materials for elementary and secondary school teachers to use in the classroom. These materials are designed to help teachers and students develop better understanding of agriculture production.

Internal and External Linkages:

Internal linkages at the University of Georgia (UGA) include Extension, teaching and research faculty in

the College of Agricultural and Environmental Sciences (Food Science & Technology, Animal & Dairy Science, Plant Pathology, Entomology, Biological and Agricultural Engineeri ng, Agricultural and Applied Economics, Crop and Soils, Poultry Science, and Horticulture) and the College of Family and Consumer Sciences (Foods and Nutrition Department) and School of Forestry (Aquaculture). Distance Diagnostics through Digital Imaging Diagnostic Imaging Stations in 94 county offices and all offices conected to the network for distance diagnostics. County Agent faculty work closely with state staff faculty to provide the best possible integrated approach to crop production to emphasize crop sustainability and enhance environmental quality. External linkages include state and county levels of the Georgia Department of Agriculture, Georgia Farm Bureau, Commodity Commissions (Cotton, Peanut etc), Environmental Protection Agency, Department of Natural Resources, Georgia Geologic Survey and others. Multi state development (Lousiana and Illinois) of the Distance Diagnostics through Digital Imaging program through Internet Imaging System developed by the College of Agricultural and Environmental Sciences at University of Georgia.

County Extension agents use advisory committees that include key leaders and organizational representation from their counties. County programing also supports scout schools conducted for the training of scouts for IPM programs in production agriculture.

Target Audiences:

Producers (farmers)
- commercial
- homeowner

Consultants (agricultural production)
Agribusiness community leaders
Consumers (buyers)
Commodity packing houses
Commodity and Further Processors

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Professional	6	6	6	6.5	6.5
Paraprofessional	4	4	4	4	4
Volunteer	8	10	10	12	12
Funds					
Formula	66,681 70,000	72,000 75,000	77,000		
State	503,319	515,000	520,000	550,000	560,000
Matching	66,681 70,000	72,000 75,000	77,000		

Performance Goal 2-3: To ensure full participation in the reassessment of the pesticide regulatory system as mandated by the Food Quality Protection Act.

Output Indicators:

Number of presentations made to agriculture groups concerning FQPA.
Number of participants at meetings with presentations concerning FQPA.
Number of popular and trade publications concerning FQPA.
Number of newsletter articles concerning FQPA.
Number of items posted on the Web concerning FQPA.
Number of Web visits to sites with information concerning FQPA.
Number of crop profiles prepared for Georgia crops.
Number of national policy meetings attended concerning FQPA issues.

Outcome Indicators:

Number of agricultural extension specialists that participate in development of crop profiles as a response to FQPA.
Number of requests from federal agencies for our expertise in reviewing FQPA policy materials.
Number of growers that gain better understanding of FQPA policies/activities so they can more fully participate in the process.
Number of public citizens that gain better understanding of the pesticide regulatory process so they can more fully participate in the process.

Key Program Components:

The Food Quality Protection Act is a far-reaching law with tremendous implications for both agriculture and consumers. As a result, it is imperative that both AG producers and consumers understand the process and how to effectively participate. Because of the encompassing nature of FQPA, a wide variety of faculty will participate in FQPA activities from public meetings to development of crop profiles. Both growers and citizens want information about how changes to pesticide regulation will affect production and food safety. Articles are regularly published in popular magazines and newsletters. Annual satellite broadcasts typically include one or more topics related to FQPA implementation. The University is regularly asked to review FQPA policy proposals and risk analyses. Complete review may include both research and extension personnel at all levels of the University system. As FQPA is implemented, we will continue to provide education and to facilitate feedback.

Internal and External Linkages:

Internal linkages at the University of Georgia (UGA) include Extension, teaching and research faculty in the College of Agricultural and Environmental Sciences (Food Science & Technology, Animal & Dairy Science, Plant Pathology, Entomology, Biological and Agricultural Engineering, Agricultural and Applied Economics, Crop and Soils, Poultry Science, and Horticulture) and the College of Family and Consumer Sciences (Foods and Nutrition Department) and School of Forestry (Aquaculture). County Agent faculty

work closely with state staff faculty to provide the best possible integrated approach to crop production to emphasize crop sustainability and enhance environmental quality. External linkages include state and county levels of the Georgia Department of Agriculture, Environmental Protection Agency, Department of Natural Resources, and Agricultural Pharmaceutical producers.

County Extension agents use advisory committees that include key leaders and organizational representation from their counties. They work with county governments to assure food and water quality concerns are addressed in agricultural production. County programing also supports scout schools conducted for the training of scouts for IPM programs in production agriculture.

Target Audiences:

Producers (farmers)
- commercial
- homeowner

Consultants (agricultural production)
Agribusiness community leaders
Consumers (buyers)
Commodity packing houses
Commodity and Further Processors
Agri-leaders

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	7	7	8	8	8
Paraprofessional	4	4	4	5	5
Volunteer	0	0	0	0	o
Funds					
Formula	75,455	77,000	79,000	82,000	85,000
State	569,545	575,000	585,000	595,000	600,000
Matching	75,455	77,000	79,000	82,000	85,000

Performance Goal 2-4: Develop a systems approach that combine extension, teaching, and research to enhance food handling, processing, value-added technologies, marketing, and distribution at the state, national, and international levels to insure Georgia's place in the increasingly global food economy.

Output Indicators:

Number of extension workshops on postharvest issues for agricultural commodities in Georgia.
Number of extension/research surveys to identify and describe important postharvest issues.
Number of courses offered that relate to postharvest technologies, food processing, value-added

technologies, and food marketing/economics.

Number of seminars scheduled relative to postharvest technologies, food processing, and food marketing/economics.

Number of undergraduate and graduate students targeted to major or minor in this subject matter.

Number of instructional materials to be developed in this area, e.g., software and publications.

Number of Hatch Projects involved in postharvest technologies, food processing, and food marketing/economics.

Number of research projects focus on key postharvest issues for Georgia.

Outcome Indicators:

Quality of workshops conducted to assess food processing, marketing, and distribution in Georgia. Number and attendance at activities in the Postharvest Active Learning (PAL) Laboratory.

Number of diverse food industries and commodity groups participating in workshops.

Quality of surveys conducted to assess food processing, marketing, and distribution needs.

Based on follow-up surveys, number of quality control procedures implemented in companies.

Measured reduction of farm-to-consumer food losses based on surveys.

Self evaluations to measure the success and timeliness of the over all po st harvest program.

Number and quality of extension publications on food economics.

Quality of classes offered relevant to postharvest technologies, food processing, value-added technologies, and food marketing/economics.

Actual number of undergradu ate and graduate students recruited in postharvest technologies, food processing, and food marketing/economics

Number and quality of teaching materials developed, such as instructional videos/slides, interactive software, and printed literature.

Number and quality scientific presentations and refereed journal articles on postharvest, food processing, marketing areas of science that relate to food value and/or food affordability issues.

Number of times a given article is cited, the potential economic impact on the food industries, and the prestige of the journal reported in will be used as indicators of the quality of a given article.

Key Program Components:

Extension will demonstrate and implement improved product handling at the packing shed, the processing plant, in-transit (especially produce) and in the consumer markets and stores. This will be initiated with improved monitoring of product losses through surveys so that a benchmark for progress to performance goals can be quantified. It also will involve development and delivery of food handling workshops targeted at post harvest handlers, food processors, marketing organizations and consumer organizations. The Post harvest Active Learning (PAL) Laboratory will place a pivotal role in this process for the

University of Georgia System. The goal will be to reduce losses by 5% of the total loss value per year. In 1997, produce cullage was estimated at approximately 20% at the shed, approximately 10% in-transit and approximately 10% in-store. Extension will help to identify food processing, marketing, and distribution needs in the State of Georgia through workshops, surveys, and other activities in cooperation with the PAL Laboratory. Food economics data will collected and reported for the State of Georgia (e.g., crop production statistics, consumer preferences, etc.). A list of attendees of workshops an surveys will be compiled. These constituents will be contacted and survey information will be collected on post harvest losses and reasons for the losses. The control methods used for post harvest problems will be compiled and compared to former years. Information on the adoption of these applied programs by other industries and state/countries will be collected. Extension will also demonstrate new technologies that add value to existing products through innovative packaging, processing, or marketing techniques. This information will be summarized and presented at food technology workshops. The Vidalia onion industry is a good example of what marketing can do to promote a Georgia food product above and beyond the value of a typical agricultural commodity. Extension personnel will play a critical role in identifying research and teaching needs to pursue value-added technologies.

Teaching will be critical in providing the tools that extension will need to complete the extension objective. The University of Georgia College of Agriculture and Environmental Sciences (CAES), Department of Food Science and Technology currently offers 26 undergraduate and 34 graduate level courses and seminars. The Departments of Horticulture, Biological and Agricultural Engineering, Animal and Dairy Science, Agricultural and Applied Economics, Poultry Science (all in CAES), and Foods and Nutrition in the College of Family and Consumer Sciences also offers a variety of courses pertinent to this objective. Undergraduate and graduate students will be trained in this area that could provide long term benefits to the food processing and marketing industries. Publications, instructional videos, interactive software programs, etc. will also be on-going activities within the teaching mission of these departments.
The departments in CAES that have missions relevant to food processing, marketing, and distribution will emphasize a systems approach that takes into account regional, national, and global issues concerning food value and affordability in their teaching programs. The Department of Agricultural and Applied Economics will play an important role in providing teaching materials concerning the economics of food production and consumption in the State of Georgia. Publications, instructional videos, interactive software programs, etc. will also be on-going activities within the teaching mission of these departments. The potential impact this teaching effort on food value and affordability in the State of Georgia is nearly impossible to assess, but it is assumed that this activity will impact attitudes toward the global economy of food. One major assumption under this objective is that the more globally attuned the food production system in Georgia becomes, the better food industries in Georgia will be able to take advantage of economic opportunities inside and outside of the State.

Research will be conducted on post harvest handling techniques and factors affecting post harvest food value. Also, research will help to identify and develop technologies to add value to agricultural commodities in Georgia. The University of Georgia currently has approximately 17 Hatch Projects that deal with issues concerning postharvest handling, value, and ultimately the affordability of food products. A few critical projects include: "Technology and Principles for Assessing and Retaining Quality of Fruits

and Vegetables", "Postharvest Physiology of Fruits", "An Evaluation of International Markets for Southern Commodities", "Economic Issues Affecting the U.S. Fruit and Vegetables Systems", and "Private Strategies, Public Policies and Food Systems Performance". Quality refereed publications are expected from each of the projects that relate to food value and affordability issues.

Internal and External Linkages:

Within the University of Georgia, the Department of Food Science's interactions with the Departments of Horticulture, Biological and Agricultural Engineering, Animal and Dairy Science, Agricultural and Applied Economics, Poultry Science, Entomology, Plant Pathology and others, place it in a key role for fostering new technologies that add value to Georgia's food produce and enhance postharvest technologies. The PAL Laboratory at Griffin, GA will also provide a "hands-on" environment for the teaching of these new technologies and will be a key contact with the food industries within and outside of Georgia. Each of the aforementioned departments currently has on-going projects with various food and fiber industries in Georgia, including: poultry, beef, pork, various vegetables, various agronomic crops, such as peanut, soybean, cotton, etc. and are generally linked by specific commodity groups.

Target Audience(s):

Consumers of agricultural products, adults and youth
Commercial food/fiber marketing agencies and vendors
Food/fiber processing industry
Food/fiber producers/farmers

Program Duration:

The general Safe Food Handling Education program for consumers, food service workers and the food processing industries in the state will be Intermediate (four years, FY 2000-2004) to long-range, as will the Hand washing education program for elementary school students in the state.

The Food Safety Education program for Fort Valley State University food service workers and Peach County high school students will be short term, 2000-2001.

The other programs related to food and fiber production are long term (over 5 years)- All safe and secure food and fiber education programs are conducted to address long term issues.

These programs are developed to deal with short term topics while maintaining long range education activities in extension and research programs. Base programs are conducted by professional and well trained diverse academic and public service faculty and can be modified to accommodate immediate crises management issues.

Allocated Resources:

1862 Extension

EFT	2000	2001	2002	2003	2003
Professional	9.2	9.5	10	10	11
Paraprofessional	2.3	3	3	3.5	4

Volunteer	1,362	1,400	1,450	1,450	1,500
Funds					
Formula	88,791	90,000	95,000	100,000	110,000
State	670,209	700,000	735,000	750,000	775,000
Matching	88,791	90,000	95,000	100,000	110,000

Existing Educational and Outreach Programs:

Some of the existing programs include:

- Safe Food Healthy Children state curriculum for child care providers
- Preventing Food borne Illness in Preschoolers and Senior Adults state curriculum for child care and personal care home providers
- Safe Food Handling for Occasional Quantity Cooks Curriculum
- A Clean and Healthy Home Curriculum
- ServSafe training for food service managers and employees
- Annual food safety/sanitation training for school food service employees
- HACCP Workshops for meat and poultry processors
- HACCP workshops for the fruit and vegetable industry
- Better Process Control School
- IPM Scout Schools (peanut, cotton etc)
- Distance Diagnostics through Digital Imaging
  - State Wide
  - National (Lousiana, Illinois)
- Southeastern Fruit Production Team
- Commodity Updates (cotton, peanut, soybean, etc)
- Winter School (County Faculty Update and Training)

Statement of Issue:

Processing, further processing, and value added poultry plants are major components of the poultry industry in Georgia. Over 30 plants are currently operating in Georgia, processing more than 5 billion pounds of product annually. It is imperative that these plants operate with the highest level of efficiency while providing food safety and quality control to ensure profitability and compliance with government regulations. These plants are in need of educational assistance in the areas of food safety, quality control, plant sanitation, government regulation, improving in-plant yields and reduction of water usage during processing.

Performance Goal 2-5: To have all poultry processing plants producing the safest, highest quality product possible with the current available technology and quality control programs.

Output Indicators:

Number of publications and educational materials produced and distributed.
Number of workshops conducted and educational presentations
Number of problem solving activities conducted in plants.

Outcome Indicators:

Number of plants complying with government regulations.
Number of plants reducing downgrades of carcasses.
Number of plants reducing carcass contamination.
Number of plants reducing water usage during processing.
Number of plants improving product yield.
Dollar value of improved performance and yield.

Key Program Components:

Educational programs and materials will be developed to aid poultry producers in implementing government mandated Hazard Analysis of Critical Control Points (HACCP) operating procedures and standard operation procedures (SOPs) to ensure sanitation and quality control. Educational materials and programs will be developed related to feed withdrawal practices to minimize carcass contamination and improve in-plant yield. Workshops, symposium and individual consultations will be used to educate processors regarding water conservation and waste water treatment.

Internal and External Linkages:

Department of Poultry Science, The University of Georgia
Department of Food Science, The University of Georgia
Department of Biological & Agricultural Engineering, The University of Georgia
Georgia Tech
Georgia Poultry Federation
U. S. Poultry and Egg Association

Target Audiences(s):

Processing plant managers
Poultry grow-out managers
Quality assurance personnel

Program Duration:

Fiscal year 2000-2004

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	2.25	2.25	2.25	2.5	2.5

Paraprofessional	1	1	1	1	1
Volunteer	0	0	0	0	0
Funds					
Formula	23,251 2,500	2,600	2,700	2,800	
State	175,499	180,000	185,000	190,000	200,000
Matching	23,251 2,500	2,600 2,700	2,800		

Existing Educational and Outreach Programs:

This program is in the early stages of development and implementation.

Statement of Issue:

Georgia currently has 12 million commercial layers producing 2.8 billion eggs for human consumption annually. It is imperative that producers and processing plants operate in such a way as to ensure the highest quality and safest product possible for human consumption while maintaining efficiency and profitability. Commercial egg processors and producers are in need of educational assistance in the areas of food safety, quality control, plant sanitation, and government regulation.

Performance Goal 2-6: To have all poultry producers and processing plants producing the safest, highest quality product possible using currently available technology and best management programs.

Output Indicators:

Number of publications and educational materials produced and distributed.
Number of workshops and seminars conducted and the number of educational presentations made.
Number of problem solving activities conducted in plants and on farms.

Outcome Indicators:

Number of plants complying with government regulations.
Number of plants implementing quality assurance programs.
Number of producers implementing quality assurance programs.
Number of plants improving product yield.
Dollar value of improved quality performance and yield.

Key Program Components:

Educational programs and materials will be developed to aid egg producers and processors in implementing government mandated and voluntary quality control programs. Education programs will be developed related to HACCP programs and quality control for both egg processing plant operations and live production farms. The primary focus will be on reduction of microbiological contamination of products, but will also include programs related to improving product yield and grade.

Internal and External Linkages:

Department of Poultry Science, The University of Georgia
Department of Food Science, The University of Georgia
Georgia Poultry Federation
U. S. Poultry & Egg Association

Target Audiences(s):

Commercial egg producers
Commercial egg processors

Program Duration:

Fiscal years 2000-2004

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	0.75	0.75	0.8	0.8	0.8
Paraprofessional	0.5	0.5	0.5	0.5	0.5
Volunteer	0	0	0	0	0
Funds					
Formula	8,335	8,500	8,500	8,600	8,700
State	62,915	65,000	66,000	67,000	68,000
Matching	8,335	8,500	8,500	8,600	8,700

Existing Educational and Outreach Programs:

This program is in the early stages of development.

1862 and 1890 Research

Statement of Issue:

Americans are increasingly concerned about the nutritional value, quality, and safety of their diets. Recent consumer surveys indicate that 85 percent of consumers identify food-borne pathogens as a serious concern. In fact, the Centers for Disease Control estimates that more than 30 million cases of food-borne illness resulting in 8,000 deaths occur each year. All components of the food continuum from production to consumption are affected by the potential for food-borne disease problems. Quality and nutritive value of foods are also affected by production, harvest, post harvest handling and storage, processing, and preparation.

Performance Goal 2-7: Enhance the safety and quality of foods through continued innovations in detecting and preventing microbiological and parasitological hazards and in adding value throughout the pre-harvest, post harvest, and processing segments of the food continuum.

Output indicators:

Measures of:
Improved detection and monitoring of microbiological and parasitological contaminants
Reduced incidence of food-borne illnesses
Increased consumer acceptance of value-added and higher quality foods and food products
Increased nutritive value and quality of foods and food products

Outcome indicators:

Reduced incidences of food-borne illness and deaths associated with these illnesses
Reduced recalls of contaminated foods
Increased healthfulness and nutritive value of foods that are good tasting but convenient for consumers.

Key Program Components:

Study the epidemiology of food-borne diseases and illnesses.
Develop rapid, improved, and effective methods and techniques for detecting hazardous microorganisms, microbial toxins, and parasites in foods and food products.
Develop integrated control systems, methods, and technologies for controlling microbiological and parasitological hazards associated with foods throughout pre-harvest, post harvest, and consumption segments of the food continuum.
Quantify post harvest physiological processes of foods and develop technologies for retaining the post harvest quality of Georgia-produced fruits, vegetables, nuts, and other products.
Improve post harvest storage of Georgia-grown vegetables and other horticultural crops and products.
Assess the quality of animal and plant foods produced and stored in various systems and develop quality enhancement and preservation models for these foods and food products.
Quantify the quality and sensory properties of foods.
Evaluate food demand and consumptive behavior of consumers.

Internal and External Linkages:

Centers for Disease Control
Food Processing and Distribution Industries
Food Safety Consortium
Regional Research Projects NC-136

Target Audiences:

General public and consumers, policy/decision-makers, food industries, and food handlers.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	7.4	7.5	8	8.5	8.5
Professional	2.3	2.3	2.5	2.5	3
Technical	8.2	8.5	8.5	9	9
Clerical 3.9	4	4	4	4	

Research Funds					
Federal	190,766	200,000	250,000	275,000	300,000
Non-Federal	1,929,614	1,950,000	2,000,000	2,000,000	2,100,000
Other	37,810	40,000	45,000	50,000	50,000

Statement of Issue:

It is estimated that by the year 2020, more than 45 percent of the U.S. population will live in the southeastern U.S. The food processing industry, currently Georgia's second largest industry, will expand in the southeastern states to meet the food consumption demands of this growing population. This University's existing and emerging links with the food processing industry will place Georgia at a focal point for future growth of the industry. Several areas, however, are of critical importance to the food processing industry including food safety (Program 11), value-added processing (Program 1), consumer acceptance, enhanced nutritional quality, and technologies that improve efficiency, reduce energy consumption, conserve natural resources.

Performance Goal 2-8: Develop, transfer, and promote the adoption of safe and efficient food processing technologies and systems that improve consumer access to affordable, convenient, and good-tasting foods while ensuring food safety and quality maintenance in processing systems.

Output indicators:

Measures of:
Increased efficiency of new and improved processing technologies
Increased consumer acceptance of foods processed with new and improved technologies
Maintenance of food quality and nutritive value following harvest in new and improved processing methods.

Outcome indicators:

Growth and expansion of food processing industries in Georgia
Increased value of food commodities processed in Georgia
Greater market share opportunities for these Georgia-processed products.

Key Program Components:

Research to:

Develop new or improved processes and technologies to enhance food safety and quality and to improve efficiency and profitability.
Assess the economic and technological feasibility of adopting new and improved processing technologies.
Facilitate technology transfer from research to the marketplace.
Determine factors governing consumer acceptance of foods processed by new and improved technologies.

Internal and External Linkages:

U.S.D.A.
Food process industry
Georgia Institute of Technology
Regional Research Projects NE-179, NE-103, S-222, S-216

Target Audiences:

General public and consumers and food processing industries.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	9.3	9.3	9.5	9.5	9.5
Professional	2.7	2.7	2.5	2.5	2.
Technical	8.9	9	9	9.5	10
Clerical	7.7	7.5	7	7	7

Research Funds	2000	2001	2002	2003	2004
Federal	157,008	155,000	155,000	155,000	155,00
Non-Federal	2,366,988	2,400,000	2,450,000	2,500,000	2,500,000
Other	30,098	30,000	32,000	33,000	35,000

Statement of Issue:

The demand for chevon (goat meat) in the USA has increased in recent years. Chevon is considered less palatable than red meat from other species by most US consumers. A better understanding of the postmortem characteristics of goat muscle is essential to improve the acceptability of chevon. The ante- and post-mortem practices adopted should produce meat products with superior palatability and also be safe for human consumption. It is imperative that chevon is handled and processed to prevent contamination from all sources.

Performance Goal 2-9: Develop value-added chevon products of superior palatability and shelf-life.

Output Indicators:

1. Develop ante- and post-mortem practices to enhance palatability and shelf-life of chevon.
2. Enhance understanding of keeping quality of value-added products.

Outcome Indicators:

1. Increased use of recommended practices to improve shelf-life.
2. Developed new value-added products.

Key Program Components:

1. Determine total plate count during aging of fresh chevon.
2. Develop value-added products.
3. Evaluate the stability of chevon products under different storage conditions.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA Meat Science Laboratory at Beltsville, MD.
3. Other universities, including The University of Georgia and Louisiana State University.

Target Audiences:

Goat producers and processors, scientific community, students, and the public.

Program Duration:

Long-term

Statement of Issues:

Import of goat milk cheeses to the US has increased tremendously in recent years. However, dairy goat producers in Georgia and the US are not competitive due to the lack of continuous supply of quality goat milk. Technology needs to be developed to complement milk supply and enhance the year-round production of value-added products acceptable to consumers. Development of suitable technology is essential for the profitability and sustainability of the dai ry goat industry.

Performance Goal 2-10:

1. Develop dairy product technology to overcome the seasonality of goat milk supply
2. Enhance profitability and sustainability of dairy goat industry in Georgia by developing year-round uniform quality goat milk cheeses.

Output Indicators:

1. Develop innovative technology for producing fresh and frozen goat milk cheeses including Cheddar and Monterey Jack cheeses.
2. Produce full and reduced fat cheeses using whole and skim goat milk.

3. Enhance shelf-life and improve palatability of goat milk products.

Outcome Indicators:

1. Increased year-round availability of value-added products.
2. Enhanced profitability and sustainability of dairy goat industry.

Key Program Components:

1. Develop fresh and frozen goat milk cheeses.
2. Produce uniform goat milk products year-round.
3. Evaluate microbiological, rheological, and organoleptic characteristics of developed goat milk products.
4. Determine volatile flavor and other chemical compounds in the goat milk products.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA-CSREES Eastern Regional Research Center, Philadelphia, PA.
3. Other universities including Ohio State University, The University of Georgia, Athens, and Center for Food Safety and Quality Enhancement, Experiment, GA..

Target Audiences:

Dairy goat producers and milk processors, scientific community, students, and the public.

Program Duration:

Long term.

Goal 3: A healthy, more well-nourished population.

1862 and 1890 Extension

Statement of Issue:

The leading causes of diet-related morbidity and mortality in the United States and in Georgia today include heart disease, cancer, stroke, and diabetes, ranked respectively from most prevalent to least prevalent. Other significant diet-related public health concerns include osteoporosis and obesity. Statistics show that a disproportionate burden of diet-related disease is borne by minority, low income, and educationally disadvantaged persons. These groups have higher rates of hypertension, stroke, diabetes, and other diseases than the general population. Most of these diseases also occur more frequently with advancing age.

Diabetes is a major public health problem in Georgia. Over 350,000 people have diabetes and over half are undiagnosed. It is estimated that $1 billion could be saved in medical care costs due to complications of diabetes if nutrition education were a routine part of diabetes management.

It is also important to recognize that hunger exists in Georgia. Almost 15% of the population is at or below the poverty level. As a result, may people lack the quantity and quality of food for adequate nutrition. There is a growing recognition that hunger and food security do not exist in isolation. Poverty and related problems that affect families and communities cause hunger. The societal conditions which sustain the problems of hunger and jeopardize food security are known globally. However, the relationships among the issues that endanger food security and create hunger in a community are often not understood. Hunger compromises the ability to learn because it reduces the ability of a child to concentrate. Undernutrition during pregnancy can result in low birth-weight infants who are more likely to require intensive medical care after birth and special education services, and infants with neural tube defects resulting from insufficient folic acid.

Nutrition education programs enable families and individuals to make food selection and preparation choices that are consistent with their lifestyle and cultural practices and enhance their health status. These programs enable families with limited resources to get the most nutritional value for their food dollar. In the long-term, nutrition education programs benefit families and individuals, and therefore society, by improving overall health and well-being.

Performance Goal 3-1: Georgians will become aware of their risk factors for chronic disease and change their eating and exercise habits to decrease those risks. Georgians with diabetes who attend Extension-sponsored education programs will use food products and recipes lower in fat, sugar, and/or sodium in order to improve their blood glucose and blood pressure levels. Women who participate in the Teenage Mothers Nutrition Program (TAMS) will gain weight within the recommended range during their pregnancy.

Output Indicators:

Number of trainings for Extension county - based employees.
Number of individuals reached through programs.
Number of publications written.
Number of publications distributed.
Number of media presentations made.
Number of programs conducted.

Outcome Indicators:

Number of program participants who report improving one or more nutrition behaviors to decrease the risk of chronic disease.
Number of participants in diabetes programs who report improving one or more behaviors to decrease the risk of chronic disease complications.
Number of participants in the TAMS program who gain the recommended amount of weight during their pregnancy.
Number of babies of normal birthweight born to TAMS participants.

Key Program Components:

A comprehensive diabetes education program is offered by the University of Georgia Cooperative Extension Service. This includes intensive training for County Extension Agents in nutrition issues related to diabetes, a quarterly newsletter focusing on diabetes, the Rite Bite cooking school written by Extens ion Specialists and conducted by County Extension Agents, and a diabetes management program conducted locally by County Extension Agents and cooperating hospitals, health departments, or physicians.

Walk-a-Weigh is a comprehensive social-learning based weight management curriculum written by University of Georgia Extension Specialists and conducted by County Extension Agents. Fitness is emphasized, and walking is an integral part of the program. Recipes which teach lesson concepts are demonstrated and/or sampled.

The Family Nutrition Program targets limited resource audiences with information related to nutrition and chronic disease prevention. This program is currently available in approximately 75% of Georgia's counties. The Expanded Foods and Nutrition Education Program (EFNEP) is also a key part of Georgia's nutrition education efforts. This program is in place in 18 counties of the state, and has had a major impact on enabling homemakers with limited resources to improve the quality of their diets. The Teenage-Mothers Program (TAMS) provides nutrition education for teenagers, who are more likely to have low birth weight babies.

In addition to these programs, workshops, newsletter and newspaper articles, and public service announcements on nutrition and chronic disease prevention are key components of the University of

Georgia Cooperative Extension Service's nutrition education program. Extension Specialists have primary responsibility for providing resources and training for county faculty. Research faculty communicate research in their area of expertise to Extension specialists and county faculty.

Internal and External Linkages:

Centers for Disease Control and Prevention
American Diabetes Association
USDA Food Stamp Program
West Virginia Cooperative Extension Service
American Diabetes Association, Georgia affiliate
American Cancer Society, Georgia affiliate
Medical College of Georgia
Fort Valley State College
The University of Georgia Departments of Foods and Nutrition and Health Promotion and Behavior
Georgia Nutrition Education Coalition
Georgia Department of Education - Nutrition Education and Training
Georgia Department of Human Resources, Office of Nutrition
Georgia Healthy Mothers/Healthy Babies Coalition
Georgia Folic Acid Task Force

Target Audience:

Adults
Older adults
Youth
Limited resource clientele
Individuals diagnosed with diabetes
Pregnant adolescents

Program Duration:

Base nutrition education efforts of The University of Georgia Cooperative Extension Service are an on-going, long-term effort, anticipated to last well beyond the five years of this Plan of Work. The Family Nutrition Program (FNP) utilizes funding from the USDA Food Stamp program, and is funded on an annual basis. It is anticipated that this will be a long-term program. The EFNEP program is also federally funded, and celebrated its 30th anniversary in 1999. It is anticipated that this outstanding program will continue for many years.

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	29	30	30	31	31

Paraprofessional	21	22	22	23	23
Volunteer	1600	1600	1650	1700	1800
Funds					
Formula	328,140	350,000	355,000	360,000	365,000
State	2,476,860	2,500,000	2,600,000	2,650,000	2,700,000
Matching	328,140	350,000	355,000	360,000	365,000

Existing Programs and Resources:

Walk-a-Weigh: Healthy lifestyle curriculum incorporating fitness and nutrition
Diabetes Lifelines, a newsletter for people with diabetes
Rite-Bite Diabetes Cooking School
Teenage Mothers (TAMS) Nutrition Education Curriculum
Senior Sense Newsletter
Nutrition for the Health of It: publications on fat, sodium, sugar, and alchol
Healthy U: Wellness Curriculum
For the Health of Our Children Curriculum Packet
Food Guide Pyramid
Eating Right is Basic curriculum
Lifeskills Curriculum: Foods

Statement of Issue:

McGinnis and US DHHS stated that the leading causes of diet-related morbidity and mortality in the United States today include heart disease, cancer, stroke, and diabetes, ranked respectively from most prevalent to least prevalent. Other significant diet-related public health concerns include osteoporosis and obesity. With these statistics and other data, nutrition education programs are needed to improve the health and well-being of families and individuals.

General health statistics show that the incidence of these health problems is higher in African American, Hispanic and Native-American populations than other population groups. Nutrition education programs enable families and individuals to make food selection and preparation choices that are consistent with their lifestyle/cultural practices and enhance their health status. A benefit of a nutrition education program is that families and individuals reached will improve thier levels of nutrition and health.

The Fort Valley State University Cooperative Extension Program is particularly sensitive to the problems, concerns, and cultural and ethnic factors that influence nutrition education practices of the low-income and limited resource audience.

Performance Goal 3-2: To reduce the risk of chronic diseases (hypertension, cancer, diabetes,

and obesity) and to maintain optimum health for all ages, families and individuals will use the appropriate dietary guidelines to choose a healthy diet and integrate physical activity into daily life.

Output Indicators:

Number of trainings for Extension county - based employees.
Number of volunteers recruited.
Number of families reached.
Number of individuals reached.
Number of home visits made.
Number of publications distributed.
Number of presentations made and programs/workshops conducted.

Outcome Indicators:

Number of program participants who improve nutrition behaviors to decrease the risk of chronic diseases.

Key Program Components:

Major program efforts include reading materials and res ources on:

Food Guide Pyramid.
Dietary Guidelines for Americans.
Basic Nutrition.
Exercise.
Eating Right.
Menu Planning.
Stretching Food Dollars.

Other key components of the program include home visits and group meetings for program participants and trainings and workshops for Extension county - based employees. The program will be evaluated from pre/post tests, surveys and or questionnaires results.

Internal and External Linkages:

The following groups and organizations have been id entified as internal and external linkages and will work as partners and collaborators with the Fort Valley State University Cooperative Extension Program, Family and Consumer Sciences program area, to implement the nutrition education program:

Middle Georgia Extension Service Counties
Fort Valley State University Department of Family and Consumer Science.
Middle Georgia Counties' Health Departments
Middle Georgia Counties' Women, Infants, and Children (WIC) Programs
Middle Georgia Counties' Head Start Programs
Georgia Coalition for Nutrition Education

Target Audience:
The audiences for which the nutrition education program is intended to influence are county-based low-income and limited resource families and individuals, primarily Hispanics and African- Americans.

Program Duration:
The Nutrition Education Program for county-based low-income and limited resource families and individuals will be long term (five years or longer).

Allocated Resources:

Fiscal:	CSREES-USDA Funds, $70,000 (Estimated)	
Human:	Professional FTE's	0.8
	Paraprofessional FTE's	1.4
	Volunteers FTE's	0.6
Information:	Stretching Food Dollars for Healthier Living Curriculum	
	Team Nutrition USDA	
	Food Guide Pyramid Handout	
	Dietary Guidelines for Americans Handout	
	Nutricise (Nutrition and Exercise) Booklet	
	Catfish Facts and Recipes Booklet	
	Selected Resources and Audio Visuals	

Existing Educational and Outreach Programs:
The Nutrition Education Program for county-based low-income and limited resource families is on-going and expected to continue long-term.

1862 and 1890 Research

Statement of Issue:
The leading causes of diet-related morbidity and mortality in the United States and in Georgia today include heart disease, cancer, stroke, and diabetes, ranked respectively from most prevalent to least prevalent. Other significant diet-related public health concerns include osteoporosis and obesity. Statistics show that a disproportionate burden of diet-related disease is borne by minority, low income, and educationally disadvantaged persons. These groups have higher rates of hypertension, stroke, diabetes, and other diseases than the general population. Most of these diseases also occur more frequently with advancing age.

Performance Goal 3-3: To increase the research and knowledge base available in human nutrition, primarily in the areas of obesity, bone health, nutrition and age-related hearing loss, bone health, and cancer.

Output Indicators:

Obtained support for grants.
Graduate degrees conferred.
Refereed and popular publications.
Meeting presentations.

Outcome Indicators:

Better understanding of the relationship of nutrition to health, including:
Obesity: understanding molecular and physiological processes
Diabetes: interactions of diet and genetics
Cancer: role of minerals and phytochemicals in modifying risk
Stroke: role of diet
Bone health in young women and in the elderly
Age-related hearing loss: role of nutrition as a risk factor for poor hearing
Dietary fat and protein in health and disease
Mineral nutrition (especially iron, zinc, and calcium):
bioavailability from foods, status assessment, role in diseases
Vitamin nutrition (especially vitamin B12, folate, and vitamin D):
status assessment; role in bone health, cognition, depression, hearing loss

Key Program Components:

Ongoing HATCH Projects include:
Berdanier, C. D. Nutrition and Gene Expression.
Canolty, N. L. Role of Nutritional Factors in Reducing Adverse Effects of Lithium.
Fischer, J. G. Iron-Nutrient Interactions Related to Human Health and Disease.
Flatt, W. P., Energy Metablism Studies Using Indirect Calorimetry.
Grider, A. Understanding Zinc Bioavailability Using Cell Culture Models.
Hargrove, J. L. Protective Effect of Dietary Protein Against Hemorrhage and Stroke.
Johnson, M. A. Nutrition in the Oldest Old.
Lewis, R. d. Diet, Exercise, and Bone Health in Children and Adolescents.
Martin, R. J. Endogenous Signals of Energy Balance Regulation.
Swanson, R. B. Acceptability of Healthy Foods.

Internal and External Linkages:

National Institutes of Health
United States Department of Agriculture
Centers for Disease Control and Prevention
Dairy Management Inc., National Dairy Council
International Life Sciences Institute, Nutrition Foundation
Georgia Department of Aging
Georgia Department of Human Resources, Division of Aging Services
Georgia Department of Education

Medical College of Georgia
Medical College of Georgia, School of Nursing
Georgia State University
Emory University
Henry Ford Hospital Bone and Mineral Research Laboratories
Yale University
Rutgers University
University of Colorado Health Sciences Center
University of Minnesota
University of Tennessee
University Paul Sabatiur, Toulose France
USDA Animal Physiology (Athens, GA)
USDA Food Sensory Analysis Laboratories (Athens, GA)
UGA Department of Food Science and Technology
UGA Department of Communication Sciences and Disorders
UGA Department of Exercise Science
UGA Department of Physiology and Pharmacology, College of Veterinary Medicine
UGA College of Pharmacy
UGA Gerontology Center

Target Audience:

Individuals and consumers
Research Scientists
Local, state, federal, and private agencies

Program Duration:

Ongoing

Allocated Resources:

EFT		2000	2001	2002	2003	2004
Scientist		3.3	3.5	3.5	4	4
Professional		4.4	4.5	4.5	4.5	4.5
Technical		4.6	4.6	4.7	4.8	4.8
Clerical	0	0	0	0.1	0.1	

Research Funds		2000	2001	2002	2003	2004
Federal	45,144	45,000	47,000	50,000	50,000	
Non-Federal		965,437	950,000	960,000	960,000	970,000
Other		325	1000	1500	2000	2500

Existing Educational and Outreach Programs:

Research faculty in the Department of Foods and Nutrition at The University of Georgia present training for County Extension Agents at the annual Extension Service Winter School. At this time, they communicate new developments in their field of expertise and results of their research, and receive information from County Extension Agents as to problems they observe in the field.

Research faculty review Extension publications in their respective fields of expertise. They collaborate with Extension faculty on grants and communicate the results of their research through presentations to practitioners throughout the state.

Faculty also give invited presentations in their areas of expertise to lay groups, policy makers, and other scientists involved local, county, state, and national organizations.

Statement of Issue:

Chevon is lower in fat than other types of red meat. Reduced deposition of subcutaneous fat makes goat carcass leaner than that of sheep or cattle. Furthermore, chevon is higher in arginine, leucine, and isoleucine than mutton. These nutritional qualities could make chevon an ideal choice for health conscious consumers.

Chevon could be an excellent component in the preparation of low-fat diets. A variety of chevon recipes, such as ham, fresh and smoked sausages, pickles, and patties, have been studied mainly in Asia. There are immense opportunities to popularize chevon in processed forms using suitable postmortem methodologies.

Performance Goal 3-4:

1. Improve palatability traits of chevon.
2. Develop value-added chevon products.
3. Increase consumption of chevon and chevon products.

Output Indicators:

1. Perform organoleptic evaluation of chevon products.
2. Increase acceptability of chevon.
3. Enhance consumption of low-fat chevon products.

Outcome Indicators:

1. Increased availability and consumption of chevon products.
2. Enhanced understanding of low-fat chevon products.

Key Program Components:

1. Develop low-fat chevon products.
2. Evaluate physicochemical and organoleptic properties of chevon and chevon products.
3. Study nutritive properties of products from chevon exposed to different postmortem handling and storage conditions.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA-CSREES facilities including BARC, Beltsville, MD.
3. Other universities including Louisiana State University, The University of Georgia, and Alabama A&M University.

Target Audiences:

Meat processing industry, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Access to technology and mass communication has enhanced public awareness of nutritional requirements essential for a healthy life style. Soybean is traditionally used for oil and animal feed. However, soyfoods that reduce disease incidences are growing in popularity. Consequently, it is essential to develop vegetable soybean cultivars with traits to improve production of healthy and nutritious foods. The primary constituents of vegetable soybean can be genetically modified through biotechnological approaches. This will require research collaboration between plant and food sciences.

Performance Goal 3-5:

1. Introduce vegetable soybean germplasm with nutraceutical properties.
2. Expand cultivation of vegetable soybean for niche markets.

Output indicators:

1. Develop vegetable soybean cultivars with nutraceutical properties.
2. Increase production of vegetable soybeans.
3. Evaluate biochemical components of vegetable soybean.
4. Enhance availability of soyfood products.

Outcome indicators:

1. Enhanced availability of vegetable soybean cultivars.
2. Increased production and consumption of vegetable soybean.
3. Expanded availability of soybean-based dietary supplements.
4. Advanced awareness of soybean as a health food.

Key program Components:

1. Develop crop production system for vegetable soybean.
2. Evaluate biochemical components of vegetable soybean.

Internal and External Linkages:

1. FVSU teaching, research and extension personnel.
2. Center for Food Science and Safety, The University of Georgia, Experiment, GA.
3. The University of Georgia and 1890 Land-Grant universities participating in the RR-7.
4. Georgia Land Stewardship Association
5. Farmers in Georgia
6. EM Technologies, Inc
7. Japanese and American Association
8. Bogs Rural Life Academy

Target Audiences:

Vegetable soybean farmers, soyfood industry, health stores, scientific communities, students and the public.

Program Duration:

Long term.

Goal 4: Greater Harmony Between Agriculture and the Environment

1862 and 1890 Extension

The University system of Georgia has many programs that focus on enhancing the quality of the environment through better understanding of and building on agriculture's and forestry's complex links with soil water air and biotic resources. These programs cut across all areas including research, extension, and teaching and all departments in the College of Agriculture and Environmental Sciences and at Fort Valley State University. Cataloging these programs into critical issue areas presented a challenge, however, we chose to group them into the two critical areas of water quality and agricultural waste management. This in no way diminishes the importance of other issues such as carbon sequestration and global warming or the changing American landscape and issues at the rural/suburban interface, but many of these issues are also inherit to water quality or waste management. For example, the intensification of animal production systems has led to increased emphasis on animal waste management and many of the programs covered in that section such as odor control and treatment deal with these issues. Also, many practices such as conservation tillage, organic soil amendments and cover crops are being used to address water quality concerns and indirectly lead to increased carbon sequestration.

Statement of Issue:

Agriculture is one of several industries that face criticism today because of their impact on the environment. As one of the largest industries in Georgia, agriculture has significant potential for environmental degradation. It produces a wide range of environmental problems from solid waste generation, air and water quality degradation, and the production of nuisances such as odor and flies. However, agriculture also offers solutions. It can serve as an outlet for agronomically beneficial municipal and industrial waste materials, it serves as a land use that can protect and improve water quality under proper management scenarios, and it can sequester carbon to reduce the impacts of atmospheric emissions. The role of agriculture and the public's perception of agriculture is to a large part dependent on the research, education, and extension efforts of the CSREES. Agricultural waste management is one of the areas that will have substantial impact on agriculture and its relationship with society. Not only must solutions be developed to manage agricultural waste in an environmentally sound and sustainable manner, but these solutions must also address agriculture's relationship with society.

Georgia's 1998 total farm income was $6.78 billion. Approximately 40% of this income was generated from the poultry industry and about 16% of it from livestock production. Georgia ranks first in the United States in the value of production of poultry and poultry products, supplying approximately 12% of U.S. production. Animals produced in Georgia generate an estimated 22 million tons of manure each year containing more than 84,000 tons of nitrogen and 33,000 tons of phosphorus. Many of these nutrients, if not managed and used properly, can degrade both the surface and ground water within the State of Georgia. Animal operations also produce mortality and other by-products such as odor and ammonia

emissions that can also impact the environment. To minimize the impact th at animal production has on the environment, we need to insure that the animal producers are educated on the value of animal manures, proper and safe ways of storing and handling manures, and that they remain on the cutting edge of manure management technologies. Many of the by-products of animal production also contain compounds of potential value to farmers or to society. However, realizing this potential in a manner that is profitable is often difficult. Rather than viewing manure and other by-products of production as waste, they should be viewed as economically beneficial agricultural by-products.

Crop production, including row crops, small grains, turf, hay, commercial vegetable production, orchards, and vineyards are also important to Georgia's economy. Land producing crops totaled 4,497,000 acres excluding orchards and vineyards or approximately 12% of total land area in Georgia. Georgia leads the nation in the production of peanuts, pecans, and rye. Cotton and peanuts are the top crops in Georgia in terms of value and acreage. Both crop production and associated processing of crops and other agricultural products present further opportunities for agricultural waste management. Crop residues and processing wastes present solid waste management opportunities. Non-point source pollutants from crop production and waste water generation at food processing facilities are wastes that need to be reduced or eliminated. Pesticide containers, fuel storage and handling, and wastes generated through hortic ultural production also represent significant opportunities for CSREES to have substantial impact on developing an agricultural system that functions in harmony with the environment.

Performance Goal 4-1: To have an agricultural sector that manages it waste in an environmentally sound manner, utilizes production by-products to the greatest extent possible and practical, and provides society with sustainable waste management options

Output Indicators:

- Number of courses taught that address aspects of waste management and utilization
- Number of research projects involving the development of methods that focus on by-product utilization or further processing
- Number of research projects funded addressing environmental impacts of wastes
- Number of journal articles published
- Number of public educational meetings on waste management issues
- Number of Nutrient Management Plans developed
- Number of certified operators trained to manage wastes
- Number of environmental assessments conducted on farms or industries
- Number of extension publications and web pages developed on waste management
- Pounds of waste pesticide disposed
- Pounds of pesticide containers recycled

Outcome Indicators:

- Development of industries or service providers that further process or market agricultural, municipal, or industrial by-products

Profitability and number of farms in the State
Reduction in solid wastes entering landfills in Georgia
Percentage of water in Georgia assessed as impaired due to agricultural sources
Number of individuals in the state working in environmental fields
Percentage of farms that have Comprehensive Nutrient Management Plans

Key Program Components:

AWARE team: The overall objective of the AWARE Team is: "To facilitate awareness of animal waste issues to research scientists, Extension personnel, industry representatives, and producers and to serve as a catalyst for providing economically and environmentally sound waste utilization solutions to Georgia's animal production industry." Some more specific objectives of the AWARE Team are to:
1) identify waste management problems and impediments to economically and environmentally sound waste utilization solutions.
2) prioritize research and Extension waste management needs.
3) promote statewide communication among all parties involved in Georgia's Animal production industry.
4) develop and provide educational tools and workshops to Georgia's agricultural community.
5) provide a forum to demonstrate the pro-active nature of Georgia's agricultural industry.
6) provide for information exchange and updates on the newest technologies, research, and events that affect animal waste management in Georgia.

The AWARE team is inclusive of a wide variety of people from farmers and equipment manufacturers to industry leaders and external professional organizations, however, most of its members are University researchers and extension professionals. AWARE meets its objectives using tools such as a quarterly newsletter, workshops, field days, a webpage: http://www.bae.uga.edu/outreach/aware and an electronic list serve. The AWARE team is currently working with producer groups such as the Georgia Pork Producers and several poultry integrators to develop educational training and certification programs for their producers. It also works closely with other groups such as the State Pollution Prevention Assistance Division and the National Pork Producers Counsel to provide On-site farm environmental assessments. It addition, it helps in the development of research projects by highlighting needs and distributing funding opportunities. Some of the recent research projects have included the use of alternative bedding materials and amendments such as alum in poultry litter, investigations into separation, screening, condensing, and dewatering technologies that could be used to produce more transportable products, and the development of feeding programs and genetic engineering to reduce the amounts of excreted nutrients in animal manures.

NESPAL: The National Environmentally Sound Production Agriculture Laboratory, or NESPAL, is a research organization dedicated to the development of environmentally and economically sound agricultural production systems. NESPAL is guided by an advisory board made up of diverse individuals who share a common commitment to the environment. Members of the advisory board represent farmers, environmentalists, consumers, educators, agricultural support industries, food processors, food affiliated businesses and regulatory agencies. Agriculture currently faces an unprecedented challenge: maintain efficient production and assure consumers of a safe and affordable food and fiber supply while protecting our natural resources and the environment. NESPAL was formed to address these concerns. NESPAL's

directives include:

* Improving water and soil quality and water use efficiency and integrating buffer systems into farms for pollution control.
* Developing alternative pest management strategies and practices.
* Encouraging farm diversity and profitability through further development of innovative enterprise combinations, including rotational farming systems.
* Creating methods to use agricultural by-products as resources.

To meet its broad-based research goals, NESPAL has implemented a unique organizational structure. NESPAL integrates a wide range of research disciplines into a cohesive research unit committed to formulating both environmentally and economically sound production agriculture systems. This multidisciplinary approach enables NESPAL researchers to draw on in-depth knowledge of specialized agricultural specialties and apply that knowledge to broader questions and issues. Among NESPAL's core researchers are animal scientists, microbiologists, crop and soil scientist s, horticulturists, ecologists, plant pathologists, engineers, entomologists, network and systems integrators, and mass communications professionals.

The Environmental Resources Assessment Group (ERAG): Natural resource allocation and management can be facilitated through improved concepts, theory, and methods for resource assessment and policy analysis. Meeting these research needs is the purpose of the ERAG, a partnership between the U.S. Department of Agriculture's Southeastern Forest Experiment Station and the University of Georgia's Department of Agricultural and Applied Economics. Through cooperative research, the Resources Group develops and applies improved concepts, theories and methods for assessing local recreational resources; conducts research-related educational activities; disseminates research results, and cooperates with interested individuals, policy-makers, agencies, private firms, and others to address specific resource problems such as the use of public and private land and water resources for outdoor recreation, environmental and social values and uses specific to agricultural land, forest land, wilderness and other predominately roadless rural areas, environmental issues and conflicts related to the use public and private natural resources, the social, economic, environmental, and public policy effects of recreational and environmental resource use, allocation, and management.

Nutrient Management Task Force: The University of Georgia recently established a task force to specifically address nutrient management planning in Georgia. Both State and Federal directives have established that all animal operations should development nutrient management plans over the next ten years. This creates both research and extension needs in that educational efforts must begin to create the knowledge and materials needed for plan development and additional research will be needed to determine how these plans should be created. This task force will guide these efforts. In addition, Georgia recently mandated a CAFO operator training and certification program that this task force will be working to implement.

Bioconversion Research and Education Center: The goal of this center is to enhance environmentally sound economic development in Georgia by strengthening the competitiveness of the state's industries through bioconversion processes such as composting and other thermal processing approaches. It focuses

on waste volume reduction, alternative products, groundwater pollution prevention, soil amendment development, and bioconversion utilization of recalcitrant compounds. Scientists and researchers at Biological and Agricultural Engineering, in collaboration with Georgia Institute of Technology, are developing and optimizing cost-effective methods of waste treatment including composting, aerobic and anerobic digestion of solid wastes, and biofiltration of odorous gases. The program was established to help the State of Georgia meet its mandate for a 25% reduction in solid waste going to landfills for the next two years by converting by-products and waste streams from potentially environmentally toxic materials to safe and economically value-added products. One aspect of this center has been the development of a compost facility operators training workshop that has trained over 100 individuals in the management of composting facilities.

The By-Products Recovery Facility, constructed through the Georgia Food Processing Initiative, facilitates the development of environmentally sound processes to recover diverse by-products from industrial effluents. The principal, but not exclusive, focus is the diverse food processing industry. A project manager, full time research engineer and technical support staff are devoted to working directly with industries to identify and characterize recoverable and convertible by-products, process the wastes on-site, deliver reports on the economic feasibility and technical details of recovery and present process recommendations.

Georgia Environmental Partnership: The goal of the GEP is to increase the ecomonic competitiveness of Georgia's businesses by fostering superior environmental performance through pollution prevention and promote economic development for waste by-products and emerging environmental technologies. This is accomplished through improved coordination of state environmental and economic development programs, a comprehensive technology transfer and technical assistance program, demonstration of appropriate technologies, and development of incentive programs. The partnership includes the State Pollution Prevention Assistance Division, Georgia Tech, and the University of Georgia. Some of the programs that Georgia offers as a result of this partnership include on-site assessment, demonstration, and applied research opportunities for food processors, pulp and paper industries, textiles and apparel firms and municipalities or industries that generate biosolids. A land application extension specialist that is housed in the Department of Biological and Agricultural Engineering is also developing a program to encourage greater utilization of municipal, industrial, and agricultural by-products as fertilizers and soil amendments.

Pesticide Programs: Several programs have been developed to address crop production wastes in addition to IPM and water quality programs addressed elsewhere in this plan. The pesticide container recycling program provides recycling demonstrations, a quarterly newsletter, and mass media publications on container recycling. Disposal of empty pesticide containers is a tremendous problem in Georgia. Burning or burying of pesticide containers is illegal. Many landfills will not accept them, leaving pesticide applicators with no legal disposal options. Even when landfill disposal is allowed, valuable landfill space and a valuable resource (plastic) are used unnecessarily. Georgia now has a program to collect and recycle empty plastic pesticide jugs. The recycled material is used to make shipping pallets for the pesticide industry. The program is free to pesticide applicators. Many counties in the state are participating; our goal is to achieve nearly 100% participation. Programs on waste pesticide disposal are

also being offered through clean day pesticide collections. If a pesticide cannot be appl ied to a labeled use site, the only legal option for disposal is through a hazardous waste disposal company. The expense of disposing of pesticides through a disposal company would deter many growers. The end result is improper disposal of pesticides or indeterminate storage until the containers eventually begin to decay and leak. Georgia now has a program that coordinates the disposal of agricultural pesticides that can no longer be used. The program is conducted at little or no cost to growers, and proper disposal of the pesticides is assured. Our goal is to provide agricultural producers in every county with an opportunity to properly dispose of unusable pesticides.

Rural Air Quality Team: Land application and utilization of many agricultural and industrial waste materials is hindered in areas of urban and suburban populations by concerns for odors and flies. Public perception must be improved for land application to realize its potentia l. In addition, air quality affects the health and well being of both animals and their caretakers. Odor concerns are drawing increasing amounts of attention as the urban/suburban interface expands into traditional agricultural areas. The reduction of methane emissions from livestock could improve animal efficiency and productivity. Pollutants such as ammonia, hydrogen sulfide, and methane usually originate from the degradation of animal waste and can be controlled through sound management practices. Ai rborne dust originates in animal feeds and bedding. Controlling it is important because microbes and pollutant gases attach to the dust. While significant research has developed management alternatives to control some air quality pollutants, more research is required to refine these alternatives. A multidisciplinary team of research and extension specialists has recently been established at the University of Georgia to address some of these concerns. To date, the group has primarily addressed agricultural odor and its control, however, plans have been developed to expand the scope of this group to address a wider array of pollutants and industries that generate air quality contaminants.

National USDA/EPA Waste Management Curriculum Project: Extension professionals at the University of Georgia are involved in a National Project to develop and pilot test a national cirriculum in animal waste management. The curriculum will include four components on Manure Storage and Handling, Land Application, Odor Control, and Alternative treatment strategies. Georgia's responsibility will be to conduct statewide and regional training sessions to test and review the materials.

Internal and External Linkages:

The University of Georgia and Fort Valley State University f ully recognize that developing effective partnerships is the key to most successful programs. Federal partners that work with us on waste management issues include the Environmental Protection agency and the USDA Natural Resources Conservation Service. They supply funding opportunities as well as technical assistance. State agencies and the general assembly also provide funding but are usually also an active partner in program development and delivery. Some of these include the State Soil and Water Conservation Commission, The Department of Natural Resources Environmental Protection Division and Pollution Prevention Assistance Division, The Department of Community Affairs, and the Department of Agriculture. We also have relationships with almost every co mmodity group in Georgia. They provide program direction as well as funding and implementation assistance. Some of the major cooperators include Farm Bureau, The Georgia Agribusiness Council, the Georgia Poultry Federation, the Georgia Cattleman's Associ ation, the

Georgia Composting Association, the Georgia Pork Producers Association, and several environmental groups.

Target Audiences:

Citizens of Georgia
Farmers
Industries and Businesses
New Business Development
Under-served Audiences
Cooperatives

Program Duration:

Program plans are developed for a four year time frame allowing for possible expansion. Research and teaching activities are on-going and will continue to be supported through both hard and soft funds. Extension activities in the area of waste management are anticipated to expand over the next four years to meet the greater demand for these programs.

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	24	29	34	40	45
Paraprofessional	17	18	19	20	22
Volunteer	3	5	7	9	10
Funds					
Formula	279,233	300,000	350,000	400,000	450,000
State	2,039,767	2,500,000	3,000,000	3,500,000	4,00,000
Matching	279,233	300,000	350,000	400,000	450,000

Existing Educational and Outreach Programs:

Many of the programs discussed above are in place but actively expanding. The AWARE team will continue to be the focal organization on animal waste management issues while activities in other areas of by-product utilization, pollution prevention, and waste disposal will expa nd in the years to come. Land application demonstration sites are being established throughout the State to showcase effective utilization of agricultural, municipal, and industrial by-products. A brief review of existing programs indicated that almost every department in the University or Georgia College of Agricultural and Environmental Sciences and several at Fort Valley State University had faculty or staff working on some form of waste management. In addition this review revealed:

- more than 10 facilities or labs (outside of instruction and departmental housing) dedicated to waste management issues,
- more than 15 extension publications on waste management issues,
- over eight sites with demonstration or research plots using waste materials, and
- at least ten different college or interagency committees addressing waste issues.

In addition, several programs such as the agricultural pollution prevention program, Farm*A*Syst, HUA

water quality demonstration projects, the center for urban agricultu re, the carbon sequestration workgroup and EPRY, and sustainable agriculture (SARE) have been established to address other goals but devote significant resources to waste management issues.

Statement of Issue:

Georgia is blessed with a vast and rel atively pure groundwater supply. Over 90% of its rural residents depend on it for their drinking water. Agricultural usage (irrigation) accounts for about 30% of Georgia's annual groundwater use. Groundwater protection educational programs and research a re needed to assist all citizens in proper management of our valuable groundwater resource.

The Department of Natural Resources has designated over 22% of the state as being a significant aquifer recharge area. The USEPA using the DRASTIC model has ranked Georgia as No. 2 nationally in pollution potential. Forests cover most of Georgia's groundwater recharge areas. Potential for increased water yields as a result of standard forest management practices has been estimated to be 350,000 acre feet. Watershed management and conservation and wetland protection are needed to maintain Georgia's productive industrial base, provide water for public supplies and protect critical biological systems. Active programs are needed to develop groundwater protection pra ctices.

Surface water is used to supply over 95% of water for the metro-Atlanta area. This supply is highly dependent on normal rainfall. Droughts can cause serious water shortages. Until additional water supply reservoirs can be constructed, the daily consumption of water can be reduced by improved water management techniques and water-saving equipment. The Cooperative Extension Service has been designated by the State Environmental Protection Division to have primary responsibility for agricultural education under the Section 319 nonpoint source management plan. Cooperative NPS programs are being conducted with NRCS, FSA and the State Soil and Water Conservation Commission to address this issue.

The Department of Natural Resources estimates there are 600,000+ domestic wells. CES will develop educational programs on well-head protection for both rural and urban well owners.
Public policy education on water quality issues is urgently needed in the state. Recent legislation regarding land-use planning by local governments focuses on protecting our water resources. Decision makers at all levels need to be provided with sound information and skills to seek out resources necessary to make intelligent decisions in the area of water usage practices and water quality.

The tri-state "water-war" continues to be the major issue facing water managers in Georgia. CAES faculty are necessary to actively assist in the equitable allocation of this resource. Programs on water quality/quantity will be needed to reach under-served clientele. Emphasis will be placed on well-head protection and on-site waste disposal.

The top ten agricultural water issues in Georgia are:

1. Management of agricultural non-point source pollution.
2. Allocation of ground-water resources.
3. Ground water protection.
4. Land application of agricultural waste.
5. Wetlands regulations
6. Irrigation water use efficiency.
7. Integrated watershed management.
8. Public policy education.
9. Consolidation and simplification of environmental regulations.
10. Urban vs. Rural conflicts.

Performance Goal 4-2: To provide the research, instruction, and extension activities necessary to insure that Georgia citizens protect, conserve, and utilize surface and groundwater resources in a sustainable manner.

Output Indicators:

Number of publications related to ground and surface water quality and quantity and contaminant sources and meetings held.

Number of college courses that address hydrology, solute transport, water management, sources of ground and surface water contamination, and management practices that reduce ground and surface water contamination.

Number of research projects that address ground and surface water use and conservation and protection of ground and surface water.

Number of public educational meetings addressing ground and surface water use, management, and protection.

Number of soil tests and water well samples by Ag Services Lab.

Outcome Indicators:

The percentage of assessed ground waters in Georgia impaired by nutrients, organic enrichment pathogens, or pesticides.

The percentage of assessed surface waters in Georgia impaired by nutrients, organic enrichment, pathogens, or pesticides.

The total number of wells adequately cased as part of a well-head protection program.

The gallons of water per irrigated acre pumped from confined aquifers.

Number of students who understand ground and surface water hydrology and contamination as indicated by passing courses.

Percent soil tests that test high or very high in P.

Number of water wells tested that exceed MCL.

Percent increase in acreage in conservation tillage.

Key Program Components:

Research to identify and improve practices to conserve ground water resources.
Research to identify and improve practices to protect ground and surface water resources from contamination.
Publish research results in professional journals and Extension Publications in print on demand.
Integrate research results in extension publications and educational meetings to extend research results to the field.
Include ground and surface water hydrology, transport mechanisms, and sources of contamination into college courses.
Establishment of environmental coordinator at college level.
Promote the GA buffer initiative program.
Establish septic tank training center.

Internal and External Linkages:

The CAES has established an excellent rapport with state and federal agencies and has been successful in getting funds from Section 319 NPS, Farm-A-Syst, P2AD, state commodity commissions, and the GA General Assembly for water quality/quantity projects. Some key cooperators include:

Natural Resource Conservation Service
State Soil and Water Conservation Commission
Department of Natural Resources (EPD)
Federation of Southern cooperatives
Conservation Tillage Alliance
Pollution Prevention Assistance Division (P2AD)
GA Environmental Partnerships
Southern Environmental Law Center
GA Environmental Organization
GA Department of Agriculture
GA Department of Human Resources
US Environmental Protection Agency
USDA Farm Services Agency
All GA agricultural commodity commissions and associations.
GA Farm Bureau Federation
GA Agribusiness Council
GA Water Wise Council

Target Audience:

All citizens of Georgia
Farmers
Under-served clientele

Program Duration:

Intermediate (2000-2004)

Counties are being clustered into 3 or 4 county groups. Agents will be expected to excel in certain areas

such as crops, animal science, etc. They will have g reater expertise and thus be more effective in dissemination of research results.

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	38	30	42	44	45
Paraprofessional	22	22	23	23	24
Volunteer	5	5	6	6	7
Funds					
Formula	410,614	440,000	465,000	490,000	525,000
State	3,099,386	3,200,000	3,400,000	3,480,000	3,570,000
Matching	410,614	440,000	465,000	490,000	525,000

Existing Educational and Outreach Programs:

The University of Georgia College of Agriculture and Environmenta l Sciences recently established a water task force that wrote a white paper that cataloged all of the colleges activities relating to water resources. This report is comprehensive review of all programs. It is available at: http://www.griffin.peachnet.edu/wateriss/wpaper/whitepaper.html. Other programs include:
Farm-A-Syst in cooperation w/P2AD
CAES Web site
Ag Water Use Pumping
CAES Water Task Force
Domestic well water testing
WaterSource workbook for Youth
Little River/Rooty Creek HUA Project
Precisi on Ag Demonstration Projects
Irrigation Water Management Demonstrations

Statement of Issue:
Sustainable agriculture is the production of food and fiber using a system that increases the inherent productive capacity of natural and biological resourc es in conjunction with consumer demand. At the same time, it must allow farmers to earn adequate profits, provide consumers with safe food while minimizing adverse impacts on the environment. Intensive agricultural production has contributed to soil depl etion, nutrient losses, surface and groundwater contamination. It also has increased the cost of production, placing increased economic stress on small and limited resource farmers and small rural communities. In response to these problems, increased emp hasis is being placed on the development of sustainable agricultural production systems. Adapting such systems to farms owned by many limited resource farmers in Georgia could result in reduced environmental contamination via nutrient and soil losses from their farms. Sustainable agriculture focuses on environmental stewardship, safe food

production, economic profitability, and compliance with community expectations.

Performance Goal 4-3: Conduct research, establish demonstrations, and educational programs in sustainable agriculture that will enable Georgia's small and limited resource farmers to increase productivity while reducing the physical limitations of their farms; enhance soil quality through the application of organic matter; and compare the performance of a bio-terrace system to a conventional terrace system

Output Indicators:

Research plots established to evaluate applications and/or municipal waste to native forages
Demonstrations established to introduce small and limited resource farmers to native forages and Best Management Practices (BMP's) relating to applications of organic wastes
Improved predictions of the fate of nutrients and soil movement from fields equipped with different terrace systems
Improved nutrient management recommendations for small and limited resource farmers
On-farm demonstrations introducing small and limited resource farmers to native forages

Outcome Indicators:

Number of farmers adopting practices to improve or protect soil/water quality
Number of farmers trained in manure management
Number of farmers adopting recommendations and BMP's that proved to be economically sound
Number of trained or updated agricultural professionals to include Natural Resources Conservation Service, Farm Service Agency, Cooperative Extension personnel and farmers

Key Program Components:

Use bio-terraces to reduce runoff and pollution
Use native forages in crop nutrient management systems
Provide continuing education on the latest developments in sustainable agriculture (distance education, short courses, workshops, and printed bulletins)
Utilize BMP's while assisting small and limited resource farmers in the completion of farm plans

Internal and External Linkages:

Fort Valley State University research faculty
University of Georgia research and extension faculty
Natural Resources Conservation Service
Farm Service Agency
Commodity Groups
Agricultural chemicals and fertilizer companies
Other Land-Grant Universities

Target Audiences:

Small farmers, other producers, FVSU and UGA Extension and Research Staff, key agricultural professionals, consultants, Natural Resources Conservation Service and Farm Service Agency personnel

Program Duration:

Five (5) years

Issue Statement:

Home gardeners are increasingly concerned about their dependency on the use of chemical pesticides and fertilizers in light of such issues as food safety, food quality, shelf life, personal health risks in using chemicals, productivity and soil health.

A growing wealth of experience and evidence from both private and government supported organizations indicate that growing food at home can be accomplished with greater benefits, by utilizing sustainable and organic methods.

Performance Goals 4-4: Demonstrate both intermediate and long term benefits of double dug raised beds as a superior method of managing and improving soil physical qualities, biological activity and fertility; utilize organic fertilizers, cover crops, mulching, organic pest controls, and drip irrigation to determine the best practices for crop management; and grow various types and varieties of vegetables, small fruits, and tree fruits to determine which are best suited to organic culture as well as to climate and soil conditions for east central Georgia.

Output Indicators:

Economic value of crops produced per 100 sq. Ft. of bed per year
Costs of inputs per crops grown on 100 sq. ft. per year
Soil organic matter tests. General observations on soil health and structure
Field observations on earliness of harvest, length of harvest period and total yield per crop
Observable qualities for fresh eating, storage, and preservation

Outcome Indicators:

Number of home gardeners reached who change sustainable/organic practices (slide presentations, garden tours, fact sheets, news articles, radio spots)
Number of school children who learn and use these practices in their school gardens
From the above children, the number who garden at home with these methods
Number of elderly or disabled people who learn and enjoy these skills in their institutional or home

gardens

Key Program Components:

An organic bed garden for trial and demonstrations has been established over the last four (4) years utilizing the methods listed above under "performance goal." It is located in east central Georgia at the Boggs Rural Life Center in Burke County. This garden will continue to be utilized as an outdoor classroom for further learning, demonstration and teaching. School gardens in two (2) neighboring counties are based on this garden and will continue to be supported. Cooperation with other schools will be sought. A simple to use curriculum for teachers could be developed. Collaboration with institutions serving the elderly and disabled should be encouraged. The slide presentation will be updated and continue to be used. Video educational cassettes could be valuable teaching tools.

Internal and External Linkages:

Internally this project provides opportunities for horticulture, economics, education and consumer and family science disciplines to cooperate. External linkages that already exist will be expanded with individual home gardeners, garden clubs, school administrators plus teachers and elementary students. New external linkages will be sought via homes for the elderly and disabled.

Target Audience(s):

Home gardeners or potential gardeners
Elementary school teachers and students
Local garden clubs and community groups
Elderly and disabled
Lawn and garden centers

Program Duration:

Intermediate (five years), fiscal years 2000 - 2004

Issue Statement:

Landowners engaged in production of tree products often face two major challenges — an extended period of time before income is generated from the trees, and second, the challenge of competitive vegetation and weed pest control.

Empirical evidence suggests that small ruminants have a role in solving these challenges. However, further information is required on aspects of both animal and tree management to optimize the outcomes. Biological pest control and multiple income streams from natural resources will serve to promote greater harmony between agriculture and the environment.

Performance goal 4-5:

Determine the critical inputs and management and components for raising grazing livestock and trees on the same piece of land; establish a demonstration unit showing how small ruminants can compliment the production of timber and/or nuts and fruits from trees; and study and demonstrate the outcome of efforts to apply biological control to plant pests in tree plantations as a substitute for some or all application of chemical herbicides.

Outputs Indicators:

- A demonstration site illustrating the grazing of sheep under impro ved pine plantation.
- Periodic reports of animal performance, tree health and income projections
- Presentations on the production and economic aspects of combining small ruminant production and forest, nut or fruit production enterprises
- Animal growth and health indicators such as weight gain, incidence of sickness,
- Tree growth indicators such as height and girth measurements, and tree health
- Lumber, nut and/or fruit yields
- Economic indicators suggesting comparative advantages of the system.
- Income and expenses per unit of land

Outcome Indicators:

- Number of landowners applying some kind of mixed enterprise agroforestry practices
- Change in level of profit per unit of land area under agroforestry as indicated by financial records
- Degree of change in soil health, as indicated by standard agronomic analytical tools and as a result of management practices
- Increased economic returns per unit of land
- Reduced reliance on inorganic and chemical means of weed suppression
- Enhanced fertility and organic level of the soil
- Risk reduction through the availability of multiple enterprises
- Collaboration between university departments, university and state and federal agencies, and partnerships with the private sector

Key Program Components:

- An area of an existing pine plantation will be designated for use for demonstrating the possible advantages and management considerations in keeping sheep and/or goats in combination with trees
- Demonstration sites out in the state will be located and used to establish tree/livestock combined enterprises. Animal weights and tree growth, and management challenges will be documented

Internal and External Linkages:

Internally this project will prov ide opportunities for natural resources, economics and animal science faculty to work together. External linkages already exist and include the USFS and the Georgia Forestry

Commission. Linkages will be established with private landowners who are already practicing agro-forestry or who wish to demonstrate the potential.

Target Audience:
Landowners who have a need and interest in increasing the level of income from land resources while using biological weed control instead of chemicals, and who are willin g to depart from standard practices in managing a monoculture enterprise. These may be small or large land owners, and may or may not already be diversified to some extent.

Program Duration:
The demonstration will be relatively long-term because of the involvement with trees, which are slow growing with a long production cycle. Initial results on animal performance will be illustrated over a shorter term of 2-5 years.

Statement of Issue:
Georgia currently ranks as the number one poultry producing state, producing more than 1.25 billion broilers, 13.0 million breeder hens, 12.0 million commercial layers, and 12.0 million replacement pullets. Growth of Georgia's poultry industry has resulte d in more than 2 million tons of poultry manure and used litter produced annually. Fortunately, poultry litter and manure has value as a fertilizer when used properly, and most of these by-products are applied to land as a soil amendment. Poultry production operations are, however, receiving increasing scrutiny with regard to appropriate application of poultry manures to protect our state's water resources. Proper utilization of dry and liquid poultry manures is critical to the future of this industry. The implementation of nutrient management plans by poultry producers can reduce the potential for adverse impacts on the environment.

Performance Goal 4-6: To have all poultry producers in Georgia implement nutrient management plans.

Output Indicators:
Number of publications produced related to nutrient management.
Number of poultry integrator trainings conducted.
Number of poultry grower meetings held and attendance.

Outcome Indicators:
Number of growers implementing nutrient management plans.

Key Program Components:
Educational materials for implementation of nutrient management plans will be developed and used at trainings for both poultry integrators and poultry growers. Production management personnel of poultry integrated companies will receive training first, followed by programs for their growers. The trainings will cover information related to the key components of implementing nutrient management plans, appropriate

methods of dead bird disposal, record keeping, water quality issues, and state regulations.

Internal and External Linkages:

Department of Poultry Science, The University of Georgia
Department of Crop and Soil Sciences, The University of Georgia
Department of Biological & Agricultural Engineering, The University of Georgia
Georgia Poultry Federation
The National Resource Conservation Service

Target Audiences(s):

Live production managers of integrated poultry companies
Growers of integrated poultry companies

Program Duration:

Fiscal years 2000-2004

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	1.5	1.5	1.5	1.5	1.5
Paraprofessional	1	1	1	1	1
Volunteer	0	0	0	0	0
Funds					
Formula	16,670 17,000	17,500 18,000	18,500		
State	125,830	126,000	127,000	128,000	129,000
Matching	16,670 17,000	17,500 18,000	18,500		

Existing Educational and Outreach Programs:

The development of educational materials has begun. A few preliminary programs have been conducted. This outreach program is, however, primarily in the developmental stages.

1862 and 1890 Research

Statement of Issue:

Georgians living in both rural and urban areas want clean soil, water, and air. The quality of these natural resources is critical not only to human and environmental health, but to the continued production of food, fiber, and forest products. Research must be directed to assuring multiple uses of natural resources in environmentally-responsible agricultural and forestry systems designed to ensure competitiveness and profitability.

Performance Goals 4-7: Protect and enhance soil, water, and air quality in the context of agricultural and forestry operations.

Output indicators:

Measures of improved quality of soil, water, and air resources
Producer adoption of practices that sustain natural resources.

Outcome indicators:

Improved communication and linkages among agricultural, forestry and environmental groups
Sustained quality of soil, water and air resources.

Key Program Components:

Develop an appraisal of soil and water resources, including microbial activities in soils.
Develop management strategies to sustain or improve the quality of ground and surface water and develop technologies for remediating polluted waters and removing point and non-point contaminant sources.
Develop strategies to maximize the use of water supplies by humans, agricultural and forestry.
Develop management strategies to sustain of improve the quality of soil structure and composition.
Assess the impacts of land-applied agricultural and industrial wastes on soil structure and quality.
Develop and evaluate new and improved methods of measuri ng, monitoring, and managing suspended sediments and pollutants in surface and ground water sources.

Internal and External Linkages:

Environmental Protection Agency
U.S.D.A. Natural Resources Conservation Service
Georgia Department of Agriculture
Mulit-state Animal Waste Consortium
Regional Research Projects S-262, S-257

Target Audiences:

General public, communities, governmental agencies, commodity groups, environmental organizations, policy/decision-makers, and industry.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	7.3	7.3	7.5	7.5	7.5
Professional	5.8	5.8	5.5	5.5	5.5
Technical	11.7	11.7	12	12.5	12.5
Clerical	0.6	0.6	0.5	0.5	0.5

Research Funds	2000	2001	2002	2003	2004
321,084	320,000	320,000	320,000	320,000	
Non-Federal	2,310,146	2,300,000	2,350,000	2,400,000	2,400,000
Other	94,571 95,000	100,000	110,000	120,000	

Statement of Issue:

Maintenance of the biological integrity of natural and managed ecosystems is of critical importance to sustained productivity of agriculture and forestry in Georgia. Ecosystem research is needed to enhance agricultural and forestry production that is environmentally-sound, profitable, and socially acceptable, to provide for the health of terrestrial and aquatic ecosystems, and to meet societal needs for recreational areas.

Performance Goal 4-8: Maintain and enhance the biological integrity of natural and managed ecosystems to foster agricultural and forestry production.

Output indicators:

Measures of increased biodiversity within ecosystems
Increased productivity of agriculture and forestry in ecosystems
Increased recreational use of ecosystems.

Outcome indicators:

Increased productivity and profitability of agricultural and forestry systems in managed ecosystems
Increased use and revenues associated with recreational uses of managed and natural ecosystems.

Key Program Components:

Increase the knowledge base of ecosystem structure, functions, processes, and responses to agricultural and forestry practices.
Define relationships between agricultural and forestry production methods and ecosystem components including habitat and niche composition, biodiversity, and wildlife and fish populations.

Internal and External Linkages:

U.S.D.A. Natural Resources Conservation Service
U.S. Environmental Protection Agency
UGA College of Veterinary Medicine

Georgia Department of Agriculture

Target Audiences:

General public, communities, governmental agencies, commodity groups, environmental organizations, policy/decision-makers, and industry.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	2.8	2.8	.27	2.7	2.7
Professional	0.7	0.7	0.5	0.5	0.5
Technical	2	2	1.8	1.5	1.5
Clerical	2.5	2.4	2.2	2	2

Research Funds	2000	2001	2002	2003	2004
Federal	249,509	250,000	250,000	250,000	250,000
Non-Federal	1,105,041	1,100,500	1,100,000	1,000,000	1,000,000
Other	297,640	300,000	290,000	290,000	290,000

Statement of Issue:

Watershed management is critical to Georgia's economy in that watersheds provide general water supplies for municipalities and communities as well as agric ultural areas, habitats for native fish and wildlife species, and recreational sites for Georgians and visitors to the state. However, a number of continuing challenges confront watershed management in Georgia, namely agricultural, urban, and industrial pollutants, drainage practices, sediment control, and water use patterns in urban and rural areas.

Performance Goal 4-9: Improve the quality of surface and ground water for multiple uses for agriculture, wildlife, industry, and human and to increase econom ic benefits derived from societal uses of watershed areas and water resources.

Output indicators:

Measures of:

Efficient use of water supplies
Reduced contamination of watersheds and water supplies
Increased biodiversity in watershed areas.

Outcome indicators:

Improved availability and quality of water supplies from agricultural and urban watersheds.

Key Program Components:

Research to:

Develop and transfer programs, technologies and practices that protect, sustain, and enhance watershed resources.
Develop economic and environmental assessment data to environmental and agricultural policy/decision-makers.
Develop and validate resource management decision systems.

Internal and External Linkages:

U.S. Environmental Protection Agency
Agricultural Resources Service
Southern Region Agricultural Center
U.S.D.A. Natural Resources Conservation Service
Regional Research Projects S-273, W-133

Target Audiences:

General public, communities, governmental agencies, commodity groups, environmental organizations, policy/decision-makers, and industry.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	3.6	3.7	3.8	3.9	4
Professional	1.5	1.5	1.5	1.5	1.5
Technical	3.1	3.5	3.5	4	4
Clerical	1.4	1.4	1.2	1	1

Research Funds	2000	2001	2002	2003	2004
Federal	224,751	225,000	225,000	230,000	235,000
Non-Federal	655,507	660,000	670,000	680,000	690,000
Other	103,850	105,000	110,000	120,000	125,000

Statement of Issue:
Weather variability and recent changes in climatic trends have affected agricultural production and water use patterns in Georgia. More specifically, increases in mean seasonal temperatures and increased variability in rainfall patterns have led to crop failures, reduced yields, decreased marketing opportunities due to delayed plantings, harvesting, or crop development, and increased demands and competition for limited water supplies during periods of drought.

Performance Goal 4-10: Improve production and marketing of agricultural and forestry products through a greater understanding of weather and climate and their impacts on and interactions with agricultural and forestry production.

Output indicators:

New methods for 'real-time' sensing and recording of weather conditions
New technologies for delivery of weather conditions to producers and other stakeholders
Improved understanding of interrelationships of commodity-weather-climate for agricultural and forestry production systems.

Outcome indicators:

Improved production and marketing capabilities as a result of adopting new and improved models of commodity-weather-climate relationships.

Key Program Components:

Research to:

Optimize strategies for merging microclimatic models with soil and vegetation models.
Ascertain and validate crop response to weather and climate.
Evaluate climate risk analysis as it pertains to yields, marketing opportunities, and water use patterns.
Develop methods for sensing, recording, and delivering 'real-time' weather and climate conditions for use in models.

Internal and External Linkages:

State Climatologists
Regional Climate Center
National Center for Atmospheric Research
National Weather Service

Target Audiences:
Producers, commodity groups, municipalities and communities, governmental agencies, policy/decision-makers.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	0.8	0.8	0.8	1	1
Professional	0	0	0	0	0
Technical	1.6	1.2	1	1	1
Clerical 1.2	1.2	1	1	1	

Research Funds	2000	2001	2002	2003	2004
Federal 28,457	28,000	28,000	28,000	28,000	
Non-Federal	151,099	150,000	150,000	150,000	150,000
Other	0	0	0	0	0

Statement of Issue:

The cost for disposing of animal, plant, and human waste is increasing each year and, when not handled appropriately, these wastes and waste products often become environmental problems. Developing methods of recycling wastes not only avoids the disposal problem but can enhance the effective use of natural resources. In addition, odors from animal operations continue to present environmental problems and associated community conflicts.

Performance Goal 4-11: Develop economically and ecologically viable methods of managing, converting and using animal, plant, and human wastes as a resource that can be recycled through agricultural and forestry production systems while not posing an environmental threat to communities.

Output indicators:

Measures of reductions in crop nutrients imported for use as fertilizers and soil amendments
Increased usage of manures as fertilizers and soil amendments
Decreased public complaints of animal production and waste management systems.

Outcome indicators:

Sustained or improved profitability and competitiveness of animal production systems Sustained or improved soil quality
Efficient utilization/recycling of animal, plant and human wastes
Public acceptance of animal production and waste systems.

Key Program Components:

Develop methods to improve the efficiency and profitability of using wastewater, plant materials, and animal wastes as compost, mulch, or fertilizers in production systems.

Identify and develop processes and technologies to remove hazardous trace metals and other elements from wastes that may prove detrimental to plant growth and productivity.

Assess and quantify economic and societal impacts of waste management systems.

Internal and External Linkages:

Producer Groups and Organizations
Multi-state Animal Waste Consortium
Georgia Department of Agriculture
U.S. Environmental Protection Agency

Target Audiences:

Producers, commodity groups, communities, governmental agencie s, policy/decision-makers, and industries.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	3.9	4	4.5	4.5	4.5
Professional	2.3	2.3	2.2	2	2
Technical	6	6	6.5	6.5	6.5
Clerical	5.8	5.7	5.	5.5	5

Research Funds	2000	2001	2002	2003	2004
Federal	160,914	165,000	170,000	175,000	180,000
Non-Federal	1,333,704	1,350,000	1,400,000	1,450,000	1,500,000
Other	23,939	25,000	25,000	30,000	30,000

Statement of Issue:

Too often, environmental policy and regulation are based upon data from spatially and temporally separated systems and studies. It is imperative that policy/decision-makers be provided with multi-faceted models and assessments to make science-based judgements on environmental-agricultural issues.

Performance Goal 4-12: Increase and improve databases of risk management decision tools addressing economic environmental quality.

Output indicators:

Measures of increased data and analyses of environmental risks associated with agricultural and forestry production.

Outcome indicators:

Enlightened policy/decision-makers

Improved use of environmental and natural resources

Increased protection and conservation of resources in concert with agricultural and forestry production.

Key Program Components:

Research to:

Simulate impacts of environmental policies on agricultural and forestry production and trade.

Assess and quantify environmental risks associated with agricultural and forestry production decisions and policies.

Develop risk management models for producers and policy/decision-makers.

Internal and External Linkages:

U.S. Environmental Protection Agency

Georgia Department of Agriculture

Regional Research Projects S-257

Target Audiences:

General public, environmental organizations, commodity groups, producers, governmental agencies, policy/decision-makers.

Program Duration:

Long range

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Scientist	2.8	2.8	2.7	2.5	2.5
Professional	1.2	1	1	1	1
Technical	0.3	0.3	0.2	0.0	0.0
Clerical	0.8	0.8	0.5	0.5	0.5

Research Funds	2000	2001	2002	2003	2004
Federal	43,391	44,000	44,000	42,000	40,000
Non-Federal	337,368	335,000	325,000	300,000	300,000
Other	14,022	14,000	10,000	10,000	7000

Statement of Issue:

The intensive use of agricultural chemicals has resulted in over production, and has also caused environmental pollution and natural resource depletion. Over production of farm commodities has reduced prices and put economic stress on farm communities. These problems have created a need for alternative farming systems that are less dependant on chemicals, and remain sustainable and profitable. Sustainable organic farming systems utilizing crop rotations, green manure , compost, and farm yard manure, replenish soil organic matter and nutrient supply as well as reduce plant pests. Further, integrating organic production systems with natural fertilizers also known as efficient microorganisms (EM), will promote agricultural sustainability, improve the environment, and produce safe, healthy, and nutritious foods.

Performance Goal 4-13:

1. Develop an environment friendly organic soybean production system.
2. Minimize chemical usage by employing insect -repellant and trap crops.
3. Develop strategies for sustainable organic farming system.
4. Encourage the use of EM technology.

Output indicators:

1. Develop practices for sustainable organic soybean production.
2. Identify and introduce insect-repellant and trap crops.
3. Promote EM technology for sustainable production.

Outcome indicators:

1. Developed practices for sustainable organic soybean production.
2. Introduced insect-repellant and trap crops.
3. Increased use of EM technology for sustainable production.
4. Increased acreage under organic soybean production.
5. Decreased use of agricultural chemicals in harmony with environmental safety.

Key program Components:

1. Evaluate and characterize exotic and domestic vegetable soybean genotypes.
2. Develop environment friendly soybean production system.
3. Develop specialty soybean cultivars that are nutritionally superior.

Internal and External Linkages:

1. FVSU teaching, research and extension personnel.
2. Center for Food Science and Safety, The University of Georgia, Experiment, GA.
3. The University of Georgia and 1890 Land-Grant universities participating in the RR-7.
4. EM Technologies, Inc
5. Japanese and American Association
6. Bogs Rural Life Academy.

Target Audiences:

Vegetable soybean farmers, soyfood industry, health stores, scientific communities, students and

the public.

Program Duration:

Long term.

Statement of Issue:

Intensive agriculture has increased crop production, but has accelerated soil erosion and nutrient loss. As a result, soil and water quality have been deteriorated. Industrialization and fossil fuel use has increased carbon dioxide concentration in the atm osphere resulting in global warming. Therefore, agricultural practices that sequester carbon from the atmosphere, are needed for reducing global warming and related problems.

Performance Goal 4-14:

1. Increase carbon sequestration in the plant and soil.
2. Improve soil and water quality.
3. Increase tree production that reduce global warming.
4. Develop other environment friendly practices.

Output Indicators:

1. Develop agricultural practices to increase carbon sequestration.
2. Increase knowledge of sustainable agricultural system.

Outcome Indicators:

1. Increased carbon sequestration in plant and soil.
2. Improved soil fertility and productivity.
3. Improved water quality.
4. Reduced fertilizer use.
5. Maintained crop productivity.
6. Increased use of wood for energy or by-products.

Key Program Components:

1. Develop tillage practices, cover cropping, nitrogen fertili zation, and agroforestry systems.
2. Improve nutrient management systems for effective crop use and reduced leaching.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA and other Land-Grant Universities.
3. Farmers, agricultural professionals, industries, and interested parties.

Target Audiences:

Farmers, producers, managers, agribusiness professionals, students, and the public.

Program Duration:

Long term.

Statement of Issue:

Alternate cultural practices that will protect, improve, and maintain soil fertility are required for sustainable vegetable production. Leguminous and non-leguminous, green manure and cover crops will be used as a substitute for inorganic nitrogenous ferti lizers. These options could provide economic and productive sustainable system. Environment friendly research methods that produce quality produce will be developed for exotic vegetables.

Performance Goal 4-15:

1. Develop sustainable production system using leguminous and non-leguminous, green manure and cover crops as a substitute for inorganic nitrogenous fertilizers.
2. Produce vegetables using sustainable system.
3. Compare conventional and sustainable systems of vegetable production.

Output Indicators:

1. Increase use of green manure and cover crops.
2. Reduced usage of commercial nitrogen.
3. Develop a sustainable vegetable production system.

Outcome Indicators:

1. Improved vegetable production system.
2. Enhanced use of legumes as nitrogen source.
3. Minimized use of inorganic nitrogenous fertilizers.

Key Program Components:

1. Evaluate the effect of fall/winter cover crops on vegetable production.
2. Compare the effect of organic and inorganic sources of nitrogen on vegetable production.
3. Develop sustainable vegetable production system.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. USDA and other Land-Grant Universities.
3. Farmers, agricultural professionals, industries, and interested parties.

Target Audiences:

Farmers, producers, managers, agribusiness professionals, students, and the public.

Program Duration:

Long term.

Statement of Issue:

The worldwide food demand has led to intensive farming that requires heavy use of agricultural chemicals to increase production, restore soil fertility, and control pests. These chemicals contaminate ground water and pollute the environment. Insect resistant transgenic cultivars would reduce the use of pesticides. Available pesticides are ineffective in controlling sweet potato weevil. The weevil is spreading and threatening the sweet potato industry in the South.

Performance Goal 4-16:

1. Develop *in vitro* regeneration system for sweet potato.
2. Devise techniques to incorporate Bt genes into important sweet potato cultivars.

Output Indicators:

1. Develop Bt gene transfer technique.
1. Develop an efficient plant regeneration system for sweat potato.
2. Produce transgenic sweet potato plants tolerant to weevil.
3. Enhance understanding of genetic engineering and gene integration.
4. Minimize use of environment - polluting pesticides.

Outcome Indicators:

1. Produced transgenic sweat potato plants.
2. Reduced use of insecticides to protect environment.
3. Enhanced control of sweet potato weevil in soil and storage.

Key program Components:

1. Carry out research for *in vitro* plant regeneration and Bt gene transfer.
1. Determine the geographic effectiveness of the Bt gene mediated resistance.
2. Extend this technology to other root and tuber crops.

Internal and External Linkages:

1. FVSU teaching, research, and extension personnel.
2. Other universities including The University of Georgia, Experiment, GA.
3. USDA Vegetable Laboratory, Charleston, SC.

Target Audience (s):

Sweet potato growers, processing companies, scientific community, students, and the public.

Program Duration:

Long term.

Goal 5: Enhanced economic opportunities and quality of life for Americans

1862 and 1890 Extension

Statement of Issue:

There are internal and external social problems impacting families, individuals and communities. Some of these problems are centered around ineffective parenting, communication skills and family life. Parents need to learn how to openly and effectively communicate and share values, attitudes, and knowledge with their children. Society increasingly r ecognizes the critical importance of effective parenting and communicating. Unemployment, mobility, divorce, and absent parents, along with related social conditions, combine to aggravate parent-child relations. Adults play critical roles in the physical , emotional and mental development of children.

Increasing numbers of youth are growing up without the basic types of support necessary to become capable and responsible adults. This support takes many different forms, including nurturing parenting, positive school experiences, supportive communities and opportunities to explore career and life options. Extension provides a unique approach to supporting youth and families at -risk through an overall positive youth development focus, in addi tion to targeting specific at -risk groups and behaviors.

The lack of affordable housing is the most common problem householders experience in Georgia. Almost one in six households is cost-burdened. A household is cost-burdened if it pays more than 30 percent of its income on housing expenses, and is severely cost-burdened if more than 50 percent goes to housing expenses. Approximately 185,000, or nearly three in ten, of the state's renter households and approximately 111,000 owner households, or one in 11, are cost burdened.

In the past decade Georgians have decreased home energy consumption, yet households are paying more for heating and cooling their homes than they did ten years ago. Energy costs have risen as Georgians pay for plants built to gain larger generating capacity. 25% of Georgia's housing inventory was built before 1969. These homes are prime candidates for energy saving retrofit of weatherization and insulation materials and heating and cooling systems.

Self-management skills are the foundation of employee marketability. They begin with setting personal goals which include the enhancement of one's appearance and health. Appropriate work apparel, grooming and hygiene, proper diet and exercise practices all contribute. While initial g oals are being determined and achieved, progress can be made toward developing skills needed to competitively interview for and hold a job.

Families need to know how to plan their finances, cope with lack of adequate income effectively , control cash flow, manage credit and debt wisely, insure adequately, contribute to savings/investments regularly, pay necessary taxes but no more, prepare to retire at current living level, and pass assets to heirs. Limited resource families, particularly, are faced with economic uncertainty, and it is often difficult for these families and individuals to make wise consumer choices in the marketplace and meet basic needs.

Performance Goal 5-1: To annually improve the financial status of families through financial management education programs implemented in which CSREES partners and cooperators play an active research, education, or extension role.

PERFORMANCE SUB-GOAL:

Develop Financial Self Reliance

SUB-OBJECTIVES: assist families in establishing and/or maintaining a financial plan

assist families experiencing a loss in income find ways to cope with their financial crisis
assist families in establishing and or maintaining a household recordkeeping system
assist families establishing and maintaining a cash flow plan
assist families in establishing and/or maintaining credit and understanding how to reduce debt if overextended
assist families in acquiring and/or maintaining adequate insurance coverage
assist families in establishing and/or contributing to savings and investments on a regular basis
assist families in paying necessary taxes but no more
assist families in planning for their retirement to maintain current level of living during retirement years.
assist families in planning estate to transfer property to beneficiaries in most effective way
assist consumers in making wise consumer decisions with resources - time & money
assist consumers in understanding how behavior patterns influence how much money you have

Output Indicators:

Number of mass media articles; programs and features prepared (print, broadcast, electronic)
Number of direct contacts (individual visits, mail, e-mail, telephone)
Number of brochures distributed
Number of presentations and programs conducted
Number of participants who participated in and completed educational opportunities, field days/trips, workshops
Total number of participants who completed program who plan to adopt one or more recommended practices
Number of participants who gaine d new knowledge (list concepts)*
Number of participants who increased knowledge (list concepts)*
Number of participants who developed new skills (list skills)*
Number of participants who improved skills (list skills)*
Number of participants who changed their attitudes (list attitudes)*
Number of participants who improved understanding (list concepts)*

*Financial Management Competencies
Establish and/or maintain a financial plan
develop cash flow worksheet
calculate new worth
develop debt reduction worksheet
calculate estate value
Cope with loss of income
Establish and/or maintain organized household recordkeeping system
Establish and/or maintain a cash flow plan by writing down income and expenses
Establish and/or maintain credit;
establish credit in own name
pay bills on or before date due
pay bills in full by due date
if overextended, set up self-managed debt reduction plan, contact credit counselor or debtor's anonymous.
How to acquire and/or maintain adequate insurance coverage life insurance to replace
paycheck of breadwinner, cover funeral, burial, and uninsured medical costs; pay taxes; pay outstanding debts, pay for major goals
disability insurance to replace 60 to 70 percent of monthly income
health insurance
homeowner's/renter's insurance
household inventory and photo/video of household content
automobile insurance
umbrella liability insurance
Establish and/or contribute to savings and investments on a regular basis contribute some money from each paycheck to savings/investments
set aside money for temporary and permanent goals
buy and maintain appropriate types of savings and investment products to reach goals
pay self first 10% of take-home pay
Pay necessary taxes but no more
Claim appropriate number of exemptions
Withhold appropriate amount of money to cover tax liability
Itemize deductions when appropriate
Keep adequate records to justify deductions
Use tax credits when eligible
Take advantage of tax deferred or tax-exempt investment opportunities
Assist families in planning for retirement years so they can maintain current level of living during retirement years
Compare amount of income and expenses now and in retirement
Request Social Security Earnings Benefit Statement
Understand your retirement plan

when will you be vested
when can you retire
how much will your pension benefit be when you retire
if Social Security and retirement plan aren't enough,
supplement with personal savings and investments

Assist families in planning estate to transfer property to beneficiaries in the most effective way
plan for mental/physical incapacity
physical person
finances
plan for transfer of property
name personal/financial guardians

Assist consumers in making wise consumer decisions with their resources - time and money

Assist consumers in understanding how behavior patterns influence how much money you have.

Total number of people completed program who actually adopted one or more recommended practices within six months after completing program

Changed behavior practices
developed or revised financial plan
set up household recordkeeping system
set up cash flow worksheet
increased income
decreased expenses
establish credit
improved credit record
decreased debt
changed insurance coverage
increased contributions to savings/investments
reduced tax liability
increased contributions to retirement plan
developed or revised estate plan
improved spending behavior patterns by minimizing self -defeating behavior patterns.

PROGRAM EVALUATION: (Pre- and post-test of knowledge, skills, attitudes; surveys; questionnaire; benchmark data, program data/impact)

BENCHMARK DATA;
Census data
Consumer expenditure survey

Outcome Indicators: Increased satisfaction with consumer purchases
More dollars earned
Fewer dollars spent
Increased ability to manage resources

Decrease in bankruptcies
Decrease in personal debt
Less spent in interest and debt
Increase in consumers shopping for credit
Increase in number of consumers with positive credit histories
Increase in emergency fund savings
Increase in dollars invested for long-term goals
Increase in evidence of balancing income and expenses
Increase in net worth
Appropriate dollars spent on insurance
Fewer dollars spent on taxes
Increase in retirement savings
Increase in estate plans developed

Key Program Components:

Educational workshops, seminars, trainings, conferences, short courses, correspondence or home-study courses
Satellite conferences
Continuing education courses
Worksite programs
Lunch 'n' learn
Special interest projects
Contests (poster, essay)
Shows
Judging event - consumer and financial product tests and comparisons
School enrichment and after-school programs
Camps
Groups forums
Testing/diagnostic services
Visits/consultations
Educational exhibits (library, financial institutions)
Trials and demonstrations
Educational fairs
Point-of-purchase teaching
Field days/trips/tours
Mass media releases or series (newspaper, radio programs, newsletters, popular press, television, Internet)
Direct support of contact
Exchange programs
Educational publications, fact sheets and guides, bill stuffers
Posters displayed in community

Internal and External Linkages:

Georgia Personal Financial Literacy Consortium
Consumer Credit Counseling Service

Target Audience(s):

Adults
Older adults/elderly/retirees/senior citizens
Limited-resource clientele
Low-literacy clientele
Teachers
Farm families
Farm managers
Landowners
Business owners/self-employed
Employee groups/worksite
Advisors
Producers
Civic Groups
Agencies/organizations
Farm/city
Homeowners
Youth educators
Volunteers
Parents
First-time home buyers
Unemployed/those with reduced work hours
Displaced workers
Migrant workers
Working poor
Military families
Those affected by divorce, separation, illness or military deployment
Families with unexpected increases in family expenses
Financial counselors (volunteers)
College students
Newlyweds
New parents
Parents
Single parents
General public
Youth detention centers
Health risk populations and their support groups
Disabled

Beginning investors
Church groups
Youth
Preschool
School
4-H and youth
High school students

Program Duration:

Intermediate (four years), fiscal years 2000-2004.

Allocated Resources:

EFT	2000		2001		2002	2003	2003
Professional	7.5		8		8	8.5	9
Paraprofessional	4		4		5	5	5
Volunteer	250	275	300	325	350		
Funds							
Formula	79,842	81,000	83,000	85,000	87,000		
State	602,658		625,000		630,000	635,000	640,000
Matching	79,842	81,000	83,000	85,000	87,000		

Existing Educational and Outreach Programs:

Publications/Transparencies/Lesson Plans

Life Cycle Financial Planning
Living on a Reduced Income
Financial Record Book
Household Records: What To Keep and Where
Life Skills - Financial Management
Budget Box
How To Make Your Money Go Further
Credit and Debt
Insure Adequately
Starting Your Investment Program with $1 to $1,000
Pay Necessary Taxes But No More
Retirement Planning
Wills and Estate Planning
What To Do When Your Loved One Dies
Understanding The Georgia Living Will
Understanding The Georgia Durable Power of Attorney For Health Care
The Georgia Statutory Financial Power of Attorney

Packaged Programs

High School Financial Planning Program - National Endowment for Financial Education
Take Charge of Your Money - AARP Women's Information Program

Performance Goal 5-2: To annually improve the financial status of limited resource families and individuals through management education programs implemented in which CSREES partners and cooperators play an active research, education, or Extension role.

Output Indicators:

Number of training for Extension county-based employees
Number of publications distributed
Number of presentations made and programs/workshops conducted
Number of volunteers recruited
Number of families reached
Number of individuals reached
Number of home visits made

Outcome Indicators:

Number of program participants adopted one or more recommended practices.
Number of program participants changed behavior and increased knowledge.

Key Program Components:

Major efforts include reading materials and resources on: Family budget and behavior patterns
Time, money and wise decisions
Care for and repairing clothes
Basic skills (foods, money management, home care, and clothing)
Family relations and parent education
Home visits and group meetings for program participants.
Trainings and workshops for Extension county-based employees.

Internal and External Linkages:

The Fort Valley State University Cooperative Extension Program Family and Consumer Sciences program areas identified and built partnerships with internal and external linkages. Internal linkages are with the Fort Valley State University Department of Family and Consumer Sciences and other University faculty and staff. External linkages are with the University of Georgia Cooperative Extension Service, as well as federal, state and local organizations.

Target Audience(s):

The audiences for which this program is intended to influence are limited-resource families, working poor, low-literacy, adults, youth-at-risk, senior citizens, parents, unemployed, underemployed, college students, preschool, and farm families.

Program Duration:
The financial management, clothing and textiles, basic skills, and youth parent education pro grams will be long term, 2000-2004.

Performance Goal 5-3: To provide the educational resources to enable older Georgians to make informed decisions about lifestyles.

Output Indicators:

Number of senior citizens who attend educational training and workshops
Number of people who participate in four (4) planned health fairs.
Number of brochures/handouts titles and program aids developed, programs held, training sessions conducted, and cooperators involved.

Outcome Indicators:

It is the goal to increase knowledge of senior citizens to develop attitudes of practices of healthier lifestyles by participating in the following training:

Health Education and Physical fitness programs.
Social and recreational activities
Chronic disease education and self care training.
Lifestyle education.
Consumer education.

Key Program Components:

A comprehensive training module for older community persons as health advocates and as peer counselors in health promotion will be used. A comprehensive curriculum was developed by extension staff and is being used by health educators and community leaders.
A sixteen (16) topic manual was also developed. This manual is designed to be used by agencies and institutions in the aging netw ork to conduct health promotion sessions for low-income older adults and to train peer counselors. This manual will be piloted as twelve (12) session course.
Rural Health Conference
Mass media (newspaper articles, radio and TV programs, newsletters, Internet

Internal and External Linkages:

Morehouse School of Medicine Gerontology Center
Older American Council of Middle Georgia
Mercer University School of Medicine Georgia Department of Human Resources
Southern Association Baptist Church

University of Georgia CES

Target Audiences:

Disadvantaged senior citizens, general public, extension program assistants and county agents.

Program Duration:

Four (5) years, fiscal years 2000-2004

Stakeholder Input:

Each year the program leader for Community Resource Development and selected faculty will hold seven (7) or more meetings. The purpose of these meetings will be to gather stakeholder input and comments on past achievements, current activities, and propose d plans for our Community Resource Development programs. All sessions will be publicly announced through letter of invitation, conference calls, teleconferences and through our county Cooperative Extension offices. Additional ad hoc members may be added for any meeting, especially for an agenda that focuses on a special topic.

Performance Goal 5-4: Develop, provide and expand effective child caregiving.

Output Indicators:

Number of child care providers reached in face-to-face trainings
Number of certified hours of child care provider training awarded
Number of newsletters/publications delivered to child care providers

Outcome Indicators:

Competency scores on child care provider self-studies

Key Program Components:

Local and regional child care provider trainings
Participation in statewide child care collaborations
Providing and monitoring child care self-studies
Providing educational newsletters/publications for child care providers and parents

Internal and External Linkages:

Georgia Association on Young Children
Georgia Child Care Collaborative Team

Target Audiences:

Childcare providers (licensed centers, homes, and informal)
Parents as consumers of child care
Child care policymakers

Program Duration:

five years

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Professional	6.8	7	7	7	7
Paraprofessional	3	3	3	3	3
Volunteer	0	0	0	0	0
Funds					
Formula	70,190	70,500	70,700	80,000	82,000
State	529.810	531,000	535,000	640,000	545,000
Matching	70,190	70,500	70,700	80,000	82,000

Existing Educational and Outreach Programs:

Early Childhood Institutes

Child care self-studies on various topics

Performance Goal 5-5: Develop citizenship skills

Output Indicators:

Number of 4-H'ers involved in citizenship programs through participation at the local, state, national, and international levels.

Number of citizenship activities implemented by Extension programs.

Outcome Indicators:

Key Program Components:

Internal and External Linkages:

National 4-H Council

Kids Voting Coalition

Institute of Governments

Secretary of State

Target Audiences:

Middle and high school youth in Georgia

Program Duration:

Five years

Allocated Resources:

EFT	2000	2001	2002	2003	2004
Professional	12	12/3	12/5	12/8	13
Paraprofessional	8	8	8.5	8.5	9
Volunteer	10	12	14	17	20
Funds					
Formula	133,362	135,000	137,000	140,00	143,000
State	1,006,638	1,100,000	1,200,000	1,300,000	1,400,000
Matching	133,362	135,000	137,000	140,000	143,000

Performance Goal 5-6: Develop skills in communication, arts and leisure

Output Indicators:

Number of 4-H'ers participating in communication, arts and leisure programs on all levels.
Number of 4-H'ers demonstrating skills identified via public speaking, demonstration, illustrated talks, expressive and performing arts on all levels.
Number of 4-H'ers involved in Photography Exhibits
Number of 4-H'ers involved in Issues Public Speaking Contest.
Number of 4-H'ers involved in Public Speaking, Communications, Arts and Crafts, Performing Arts, Recreation and Sports projects.
Number of 4-H'ers involved in 4-H Day at Six Flags, Braves games, UGA football, UGA basketball, and UGA gymnastics.
Number of 4-H'ers involved in district, regional and state 4-H Camps, conferences, and workshops
Number of 4-H'ers involved in 4-H fair exhibits and contests.

Outcome Indicators:

.

Key Program Components:

4-H Leisure Education project activities at local level
Statewide Performing Arts group Clovers & Co.
4-H camping program

Internal and External Linkages:

4-H camp counselors
County Extension Agents
Six Flags Over Georgia
Georgia 4-H Foundation

Target Audiences:

4-H youth age 9-19

Program Duration:

Five years

Allocated Resources:

EFT	2000	2001	2002	2003	2003
Professional	7	7.2	7.5	7.7	8
Paraprofessional	5	5	5	6	6
Volunteer	16	18	20	23	25
Funds					
Formula	78,964	82,000	85,000	87,000	90,000
State	596,036	610,000	630,000	650,000	670,000
Matching	78,964	82,000	85,000	87,000	90,000

Performance Goal 5-7: Develop coping and life skills among children, youth and families at risk

Output Indicators:

Agents trained in CYFAR programming
Number of youth involved in CYFAR programming

Outcome Indicators:

Improved awareness/practice of CYFAR programming among agents

Key Program Components:

In-school 4-H curriculum
Special forums
State 4-H Council
4-H Fall Forum
Statewide CYFAR training initiative
Targeted CYFAR program in Bulloch County
Targeted CYFAR program in Cobb County
Targeted CYFAR program in Lowndes County/Moody AFB

Internal and External Linkages:

Georgia Department of Human Resources
Georgia Department of Education, local school districts
Moody AFB

Fort Valley State University
Iowa State University

Target Audiences:

At-risk youth and their families
School-age youth, ages 9-19
Youthworkers and volunteers

Program Duration:

Five years

Allocated Resources:

1862 Extension Resources

	2000	2001	2002	2003	2004
Professional FTE's	5.17	5.69	6.25	6.25	6.25
Paraprofessional FTE's	1.25	1.40	1.50	1.50	1.50
Volunteer FTE's	39.75	43.72	48	48	48
Formula Funds	$169,687	$186,500	$205,000	$205,000	$205,000
Matching Funds	$ 42,625	$ 46,800	$ 51,500	$ 51,500	$ 51,500

Existing Educational and Outreach Programs:

CYFAR Initiative

Performance Goal 5-8: To build the leadership capacity of individuals, groups and organizations to make decisions and take action for the public well-being.

To annually increase the research and knowledge base available from CSREES Partners and Cooperators on the economic well-being of communities and their citizens.

Output Indicators:

Number of participants completing Extension Leadership Development programs including Community Leadership, 4-H and others
Number of brochures/handouts titles and program aids developed, programs held, training sessions conducted, and cooperators involved
Number of leadership educational workshops, Summer Day Camps, conducted

Brochures, pamphlets produced.

Outcome Indicators:

Number of youth participants involved in community outreach programs.
Number of youth adapting dual utilizing decision making and conflict resolution skills.
Participants setting educational goals and/or community service goals as a result of leadership training.
Participants indicating they gained new skills in communications
New leadership programs started.
New leadership positions acquired by participants of Extension Leadership programs.
New participants in community service organizations.
Number of people trained who began to participate in local, community activities.

Key Program Components:

Enhance the quality of contributory behavior for youth and adults which promotes quality of life in communities.
Increase opportunities for youth to become involved in youth programs which teach them the necessary skills to become capable and responsible adults.
Train young citizens to accept responsibilities through Citizenship Education Training.
Enhance opportunities for youth to learn and adapt youth entrepreneurial skills.
Teen Leadership Project competition
District and State Officer training
County Leadership Programs
Counselor Training
Georgia Youth Tour

Internal and External Linkages:

E. Marion Kauffman Foundation provides funding for youth Entrepreneurial program and staff training.
Office of School Readiness provides funding for Summer Day Camps Nutrition Programs.
Goodwill Industries for career exploration and community in - service opportunities for youth.
Concerned citizens of Atlanta, Inc to provide opportunities for community vol unteerism for youth.
Georgia Association of Public Housing.
Georgia Department of Human Resources
Georgia Power Company
Georgia Farm Bureau
CES specialists
Southeast Electrification Council
Local government leaders

Target Audiences: 4/HOther Youth

Pre-4-H Youth
Teen leaders enrolled in Program

At-Risk Youth and Young Adults
Adults
Agencies/Organizations
Volunteers

Program Duration:
Five years

Allocated Resources:
1862 Extension Resources

	2000	2001	2002	2003	2004
Professional FTE's	5.36	5.80	6.40	6.40	6.40
Paraprofessional FTE's	2.20	2.40	2.50	2.50	2.5
Volunteer FTE's	19.80	21.00	23.00	23.00	23.00
Formula Funds	$171,425	$188,600	$207,000	$207,000	207,000
Matching Funds	$ 54,010	$ 59,400	$ 65,000	$ 65,000	65,000

1862 and 1890 Research

Statement of Issue:

As the number of rural Georgia citizens directly engaged in agricultural production decreases, farm families are depending increasingly on non-farm income. Towns and communities within commuting distances of metropolitan centers in the state are now the preferred residences of a growing proportion of Georgia's total population. The economies of these communities are often service-based and are decreasingly agricultural-based or industrial-based. Many of Georgia's other rural communities that were based on agricultural production are now at risk economically. These rural communities must identify other economic development opportunities compatible with their resources, including participation in agricultural production and processing.

Performance Goal 5-9: Identify and enhance opportunities for economic revival and development of rural Georgia communities.

Output indicators:

Measures of employment levels and job opportunities
Increased per capita income
Increased availability of housing
Decreased poverty index in communities supporting economic development projects.

Outcome indicators:

Economic survival/revival of rural community economies
Increased adoption of community development projects that are agriculturally or forestry based.

Key Program Components:

Identify and develop opportunities and strategies for adoption of agriculturally-based community projects that will provide potential for rural community economic development.
Quantify and model the impacts of agricultural and forestry projects on rural community economies.
Assist in developing viable industries and projects based upon agricultural an d foresty production that will provide for economic development of rural communities.

Internal and External Linkages:

Georgia department of Human Resources
Georgia Department of Education
State and Local Government
Georgia Farm Bureau

Target Audiences:

Governmental agencies, communities, and industries.

Program Duration:

Long range

Allocated Resources:

EFT		2000		2001		2002		2003		2004
Scientist		1.4		1.4		1.5		1.5		1.5
Professional		1.2		1.2		1		1		1
Technical		2.6		2.6		3.0		3.0		3.0
Clerical	0.2		0.2		0.2		0.2		0.2	

Research Funds		2000		2001		2002		2003		2004
Federal	29,857	30,000	30,000	30,000	30,000					
Non-Federal		291,535		295,000		300,000		300,000		300,000
Other		13,572	13,000	13,000	13,500	13,500				

Statement of Issue:

Demand for specialized, non-traditional, and other high value products (HVP) is increasingly met through production and sales contracts between farmers and companies. This approach allows farmers to reduce price risk, and assures product supply to companies at an established price. Contract-organized production should reduce marketing uncertainty and cost to farmers and companies, and may lower consumer prices.

United States trade in selected fruits, vegetables, and small ruminant products has expanded dra matically in recent years. This increase has resulted from changing consumer diets, eating habits, the availability of nutritionally improved foods (NIF), and nutraceutical foods (NF). Consumption patterns and market trends for HVP and globalization forces must be evaluated to effect changes in production and demand. Thus, such a study will provide an understanding of the interaction between consumption and market trends to enhance the competitiveness of HVP.

Performance Goal 5-10:

1. Determine consumer preferences for HVP.
2. Identify market segments and HVP demand.
3. Expand HVP markets.
4. Enhance understanding of contractual arrangements.

Output Indicators:

- Determine demand for HVP.
- Enhance an understanding of market trends and consumption patterns.
- Increase availability of HVP.
- Promote contractual arrangements.
- Enhance profitability and reduce risk.

Outcome Indicators:

1. Documented HVP demand.
2. Enhanced availability of HVP information.
3. Increased consumption of high value products.
4. Promoted contractual arrangements.
5. Improved farmer's profit margin.

Key Program Components:

1. Assess the demand for the HVP.
2. Evaluate marketing efficiency of HVP.
3. Evaluate profitability of HVP.
4. Promote contractual arrangements for HVP.

Internal and External Linkages:

- FVSU teaching, research, and extension personnel.

- Georgia Fruit and Vegetable Growers Association .
- Entities associated with The Kellogg Foundation and S-276 Regional project.
- The Georgia Association of Cooperatives and The Federation of Southern Cooperatives.
- USDA/ERS - Risk Management Team.
- The University of Georgia Department of Agricultural and Applied Economics.
- The Georgia Organic Growers Association.

Target Audiences:

Producers, processors, scientific community, students, and the public.

Program Duration:

Long term.

Statement of Issue:

New farm enterprises that will diversify cropping patterns are needed to create opportunities for enhancing farm income. The potato is a valuable crop that ranks fourth in total food production in the world. Potato is mainly grown in the cool climate of northern United States, but its cultivation is extending to warm regions. It could be a short season high value cash crop in the Southeast during spring. However, the production potential of this crop is limited by constraints such as lack of adapted cultivars, high cost of seed, and uncertain marketing channels. The presence of Frito Lay potato processing facility in Georgia has enhanced marketing opportunities. In order to make potato a new farm enterprise in the southeastern United States, our research focus will continue to alleviate some of the potato production constraints.

Performance Goal 5-11:

1. Evaluate potato germplasm for adaptation, stress tolerance, and processing quality.
2. Develop seed-plot technique to reduce seed cost.
3. Develop true potato seed production technology.
4. Use biotechnology to improve tolerance to temperature stress.
5. Enhance economic opportunities through crop diversification.

Output indicators:

1. Evaluate potato germplasm for adaptation.
2. Develop techniques to facilitate potato as a new enterprise in warm areas.
3. Encourage farmers to grow potato through demonstration.

Outcome indicators:

1. Evaluated potato germplasm.
2. Developed techniques to reduce seed cost.
3. Developed transgenic plants.

4. Enhanced economic opportunities for potato growers.
5. Demonstrated new potato production techniques to farmers.

Key program Components:

1. Evaluate a wide range of potato germplasm.
2. Develop cost saving methods.
3. Encourage farmers to grow potato.

Internal and External Linkages:

1. FVSU teaching, researchers, and extension personnel.
2. Other universities including universities of Georgia and Wisconsin..
3. USDA Vegetable Laboratory, Beltsville, MD.
4. CIP and other regional CIP centers.
5. Georgia Land Stewardship Association
6. Small Farmers.

Target Audiences:

Producers, processors, scientific community, students, and the public.

Program Duration:

Long term.

CSREES Allocated Resources for Research, 1890

Program Areas	EFT	Salary+Fringe Benefits	Operating Expense	Total
Agric Economics	4.0	$ 158,410.19	$ 43,969.78	**$ 202,379.97**
Animal Sciences	16.1	$ 521,547.80	$ 201,298.39	**$ 722,846.19**
Plant Sciences	15.1	$ 586,621.59	$ 193,635.25	**$ 780,256.84**
TOTAL	**35.2**	**$ 1,266,579.58**	**$ 438,903.42**	**$1,705,483.00**