July 15, 1999

USDA-CSREES
Partnerships/POW
1400 Independence Avenue, SW.
Stop 2214
Washington, DC 20250-2214

Dear Dr. Hefferan:

Enclosed is a diskette containing the FY2000-FY2004 Joint AREERA Performance Plan for the Tennessee Agricultural Research and Extension System. This plan incorporates efforts of the University of Tennessee Institute of Agriculture's Tennessee Agricultural Experiment Station and Tennessee Agricultural Extension Service and the Tennessee State University 1890 Cooperative Extension Program. The Tennessee State University Cooperative Agricultural Research Program administration chose to develop and submit their plan separately from this effort.

We are also submitting an electronic copy of this document to Bart Hewitt by July 15. If you have any questions, please feel free to contact us.

Sincerely,

Jack H. Britt, Vice President for Agriculture
University of Tennessee Institute of Agriculture

Clyde E. Chesney, Administrator
Tennessee State University Cooperative Extension Program

Billy G. Hicks, Dean
Tennessee Agricultural Extension Service

Don O. Richardson, Dean
Tennessee Agricultural Experiment Station

Enclosure

TENNESSEE AGRICULTURAL RESEARCH AND EXTENSION SYSTEM

FY 2000-2004
PLAN OF WORK

University of Tennessee Institute of Agriculture -
Agricultural Experiment Station
Agricultural Extension Service
and
Tennessee State University -
Cooperative Extension Program

Tennessee Agricultural Research and Extension System

The Tennessee Agricultural Research and Extension System (TARES) refers to the components of the two land-grant universities in the state of Tennessee which conduct research and extension/outreach activities in partnership with the U.S. Department of Agriculture's Cooperative States Research, Education and Extension Service (CSREES). The four components of TARES are the Agricultural Experiment Station and the Agricultural Extension Service of the Univ ersity of Tennessee's Institute of Agriculture (the 1862 land-grant components) and the Cooperative Agricultural Research Program and Cooperative Extension Program of Tennessee State University (the 1890 land-grant components).

This Plan of Work for FY2000-2004 represents the combined collaborative and organization-specific efforts of three of the four components of the Tennessee Agricultural Research and Extension System. The plan was prepared through the joint efforts of the Tennessee Agricultural Exper iment Station and Agricultural Extension Service of the University of Tennessee Institute of Agriculture and the Tennessee State University Cooperative Extension Program. The Tennessee State University Cooperative Agricultural Research Program has prepared and submitted a separate plan of work document.

1. **PLANNED PROGRAMS**

GOAL 1: AN AGRICULTURAL PRODUCTION SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY

STATEMENT OF ISSUES

Tennessee agriculture continues to undergo significant and rapid change, driven by changes in the business and financial structure of the industry, the competitive global marketplace, the increasing complexity both of emerging technologies and environmental regulations, and fundamental shifts occurring in demands and markets for Tennessee-specific food and fiber products and uses of Tennessee's rural lands.

Reflective of these conditions, the number of farms in Tennessee has declined from 89,000 to 80,000 since 1990, according to the Tennessee Agricultural Statistics Service. Individual operators and agribusinesses have also been challenged by drought conditions, falling prices for grain, cattle, swine, and other products, and growing competition by corporate and out-of-state producers. The state's large number of part-time farmers and the fractionalized ownership of farms impacts the nature of information, research and Extension services sought by Tennessee producers. This situation also suggests a greater dependence on traditional land grant activities than in states characterized by large full-time agricultural enterprises.

To remain competitive and ensure a sustainable production system within the state, Tennessee's growers and agribusinesses must make informed decisions. The success of their operations increasingly depends on making correct choices from an array of commodity options, production practices, and management and marketing strategies. The state's unique agronomic conditions add complexity to agriculture operations, from West Tennessee's highly erodible loess soils to Middle Tennessee's fescue-based pastures to the farm land of East Tennessee, which has for years supported tobacco crops and is now being examined for adaptability to other crops and products.

The Tennessee Agricultural Research and Extension System is working with producers and agricultural industries on these and other issues. Areas of emphasis or concern include the following:

Forages

- Specific challenges exist in ensuring a stable and healthy forage production system to serve cattle and horse enterprises. Approximately 40% of the agricultural income in Tennessee comes directly from forages and forage-based production of beef cattle and dairy products. Many producers do not take advantage of the potential production of their pastures and hay fields, leading to problems such as forage of inadequate quality available to cows at critical times during their reproductive cycle, which impairs cow-calf production. Similar problems with forage supply and quality exist during mid-winter and mid-summer, resulting in cows and calves

in poor condition. The use of stored feed instead of grazing by some operators contributes to high feed costs. Advances in Tennessee's forage system can be made by careful management both of the production, handling, and storage of forages and the management, quality, and marketing of cattle and cattle products.

Tennessee has one-tenth of U.S. acreage of tall fescue, an important forage grass for cattle, horses, and other ruminants. An estimated 90% or better of the tall fescue pastures in the state, 3.5 million acres or one-half of all the state's land area in farms and pastures, are infested with an endophytic fungus that cause toxicosis in ruminants, harming animal health and breeding success. An ongoing multi-state, multi-nation research program launched in 1978 has yielded management strategies animal users can use to minimize the impacts of fescue toxicosis, and the program continues to refine understanding of breeding and grazing issues associated with this important problem.

Value-Added Agricultural Industries

- Adding value to Tennessee agricultural operations is a fundamental concern, from aiding growers in choosing the best crop varieties for yield and market return to adding value by further processing, packaging, and marketing products developed from agricultural sources. The UT Institute of Agriculture's Agricultural Development Center will continue to provide assistance to potential entrepreneurs to determine the feasibility of new value-added enterprises. Opportunities also exist in agriculture-related tourism, fee hunting, other recreational activities, and home-based industries. Value can also be found in new uses for waste and byproducts from agricultural and industrial operations and municipalities, which are being explored by UT's Tennessee's Forest Products Center, Textiles and Non-Wovens Development Center, and the Agricultural Development Center.

Agricultural Management and Marketing

- In Tennessee, net farm income fell by 8% from 1997 to 1998 and is forecast to fall an additional 5% in 1999. Management and marketing strategies are needed to aid Tennessee farm families and assist agricultural industries to diversify and improve their operations, explore new markets and survive in a climate of profound change. Since 1985, the Extension Service's MANAGE program has assisted 8,000 farm families in marketing, management, and financial solutions, and the program's work is expected to expand during the period of 2000-2003.

Beef Management Systems

- Each year Tennessee cow-calf producers fail to capture millions of potential dollars because of problems in managing for optimum calf growth rates and achieving quality factors such as uniformity of size, castration of bulls, and general health of calves sold for feeder cattle. Other opportunities that could increase income include participation in cooperative marketing agreements. For both

cow-calf producers and beef producers, assistance is needed in obtaining, interpreting, and acting on marketing information in ways that ensure that Tennessee's production practices more closely meet market demand.

Crop Production

- Crop production remains the backbone of Tennessee's agricultural system, accounting for more than half of the cash receipts in farm marketings in 1997. Tennessee row crop farmers need to adopt production practices that will enable them to be more efficient and competitive in today's global economy.

- Agricultural producers must make informed decisions to keep costs per unit of production to a minimum. Growers need information on new varieties of soybeans, cotton, corn, to bacco and other commodities that are suited to the Tennessee's growing conditions and perform well within integrated pest management systems. Breeding and genetics programs that seek to optimize varieties for today's and tomorrow's unique growing condition s, including herbicide and pesticide resistance, continue to be important for growers throughout the state, region, and nation.

- A need also exists to optimize the nutritional characteristics of grains, fruits, and vegetables grown in Tennessee, from aiding producers in selecting appropriate varieties available from industry to the development of new breeding lines and releases of value-added varieties, such as a high-yield, high-protein soybean that is low in palmitic and linolenic fatty acids.

- Blue mold has been a serious disease in Tennessee tobacco production from 1995-98. Crop losses from blue mold were estimated at about $11 million in 1998. This disease was inadvertently imported into Tennessee on Florida transplants in April, 1998, earlier than the normal first occurrence time when the disease spreads by transport on wind currents. This early occurrence made blue mold a seedling disease problem resulting in plant shortages and high levels of systemic blue mold.

Greens Industry

- Tennessee ranks 14th in the nation in nursery and greenhouse crops. In 1997, the combined farm market value of the greens industry, including nursery, greenhouse, Christmas trees, mushrooms, and sod, exceeded $213,000,000. Need exists to help the varied growers within this industry adopt Best Management Practices and diversify their product mix. Research programs offer opportunity to help growers expand the development of sought-after native plants, identify strains and breeding lines adaptable for Tennesse e growing conditions, and provide strategies to use greenhouse growing conditions to accelerate plant growth and reduce crop time. Collaborative research and Extension programs can increase awareness of and demand for Tennessee-developed greens products including herbaceous and woody ornamentals and improve the greens industry's productivity.

- Sales of flowering dogwoods are worth $30 million annually in Tennessee. A symbol of the state, flowering dogwoods are an important tourist attraction in both spring and autumn and are integral to forest ecosystems. These trees are under attack by a fungal disease, dogwood Anthracnose, and by powdery mildew. Discovery research by UT scientists has resulted in the release of a new flowering dogwood cultivar that offers a new product for Tennessee nurseries and allows sales to resume in areas where the disease has halted or depressed the market. Continued research is needed to yield recommendations and best management practices that contain and control dogwood Anthracnose and powdery mildew, as well as to yield new dogwood lines and cultivars that confer resistance to them.

Soil and Water Conservation

- Soil erosion, surface water contamination, and resultant loss of crop yields are problems throughout Tennessee. In the 1970s and 1980s, west Tennessee generally led the nation in soil erosion rates, with the region's fertile loess soil considered among the most erodible in the U.S. Conservation-oriented no-till practices introduced by the Tennessee Agricultural Research and Extension System have helped curtail soil loss, along with the integration of crop rotation and use of cover crops into best management practices. Problems remain in maximizing soil productivity and yields and minimizing nutrient loss and water runoff due to fragipans in west Tennessee and, similarly, with thinning topsoil over sand and bedrock in middle and east Tennessee. Growers throughout the state need assistance in production and conservation strategies to manage thinning soil layers in order to maintain and enhance soil fertility, reduce nutrient loss, and protect water quality for human consumption, tourism, and the state's biotic systems.

Limited Resource and Small Farmers

- According to the 1998 USDA Census of Agriculture, 69,000 farms (75.8% of all farms) in Tennessee have an income of less than $10,000. Minorities operated 1,458 farms (1.6% of all farms). Although small-scale family farm operators produce a small percentage of the total agricultural output, they control significant agricultural resources (land, buildings, machinery and equipment). They are also major purchasers of agricultural inputs and are an important stabilizing force for rural, agricultural-related business communities. Problems of small-scale farm operators have traditionally included limited capital, uneven cash flow, lack of management skills, and limited land resources. Alternative crop and animal enterprises based on available farm resources and on appropriate technical knowledge can provide small-scale family farms with a competitive advantage.

The Tennessee Agricultural Research and Extension System will address these critical issues with the following performance goals. Successful achievement of the goals will be measured by the indicators associated with each goal.

PERFORMANCE GOAL 1.1: Enhance the competitiveness of Tennessee agriculture through improved management, marketing, and value-added strategies.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to management, marketing, and value-added strategies.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to management, marketing, and value-added strategies.

Outcome Indicators:

- Number of participants in Tennessee Agricultural Research and Extension System programs conducted related to management, marketing, and value-added strategies.
- Number of participants increasing their knowledge of management, marketing, and value-added strategies.
- Number of participants who adopt recommended management, marketing, and value-added practices.

PERFORMANCE GOAL 1.2: Enhance the competitiveness of Tennessee agriculture through improved forage, livestock, and crop production systems.

Output Indicators:

- Number of research projects conducted, research grants received, and research projects completed related to forage, livestock, and crop production system strategies.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to forage, livestock, and crop production system strategies.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to forage, livestock, and crop production system strategies.

Outcome Indicators:

- Number of participants in programs related to forage, livestock, and crop production.
- Number of participants reporting increased knowledge of forage, livestock, and crop production system issues.
- Number of participants adopting recommended production practices.

PERFORMANCE GOAL 1.3: Preserve the sustainability of Tennessee agriculture through improved soil and water resource conservation.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to soil and water resource conservation strategies.

- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites, and software produced that relate to soil and water resource conservation strategies.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to soil and water resource conservation strategies.

Outcome Indicators:

- Number of participants in soil and water resource conservation programs.
- Number of participants reporting increased knowledge of soil and water resource conservation issues and practices.
- Number of participants adopting recommended conservation practices.
- Number of participants reporting improvements in soil and water resource conservation attributed to the adoption of recommended practices.

PERFORMANCE GOAL 1.4: Enhance the competitiveness of Tennessee's greenhouse, turf, nursery stock, and associated greens industry.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed and plant materials released related to the greenhouse, turf, nursery stock, and greens industry.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to greenhouse, turf, nursery stock, and greens industry issues.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to greenhouse, turf, nursery stock, and greens industry.

Outcome Indicators:

- Number of participants in greenhouse, turf, nursery stock, and greens industry programs.
- Number of participants reporting increased knowledge on production and management practices.
- Number of participants adopting recommended production and management practices.

PERFORMANCE GOAL 1.5: Increase understanding and information about management and marketing practices for limited resource and small farm operations that will result in increased net income, improved production and managerial skills, and utilization of improved marketing strategies.

Output Indicators:

- Number of workshops, demonstrations, field days, and other educational programs conducted related to limited resource and small farm operators.
- Number of research or Extension fact sheets developed.

Outcome Indicators:

- Number of limited resource and small farm operators increasing their knowledge of management and marketing practices.
- Number of program participants who adopt recommended management and marketing practices.

EXPECTED IMPACTS - all performance goals

As a result of a coordinated multi-disciplinary research and extension effort, the Tennessee Agricultural Research and Extension System will assemble a reliable body of relevant knowledge and deliver effective educational programs to clientele that result in a sustainable and competitive agricultural production system. The following expected impacts of these programs will be tracked through annual reports that summarize successful extension and research activities.

Value-Added Agricultural Industries

- The use of cotton in nonwoven materials will increase.
- New products will be developed that improve wood products industry technology and save money.
- Projects completed by the Agricultural Development Center will increase.
- New or expanded business enterprises started based on Agricultural Development Center recommendations will increase.

Agricultural Management and Marketing

- Computerized management and marketing decision making tools will be developed for use with specific commodities.
- Agricultural producers will increase their use of computerized management and marketing programs.

Forage

- Understanding of the biochemical impacts of fescue toxicosis in animal physiology will increase.
- Ways will be identified to introduce alternative endophytes into year-round grazing systems to reduce the occurrence of fescue toxicosis in ruminant animals.
- The number of acres of fescue pasture overseeded with clover will increase.
- The number of acres planted in improved forage plant cultivars will increase.
- The number of acres planted to summer annuals for beef production will increase.
- The number of producers keeping records on forage production and marketing will increase.

Beef Management Systems

- The number of low-weight weaned calves going to market will decrease.
- Environmental and nutritional stressors that impair beef reproduction will be reduced.
- The number of producers using predictive methods to group weaned calves will increase.
- The number of producers using economically feasible estrus synchronization procedures will increase.

Crop Production (including cotton, corn, soybeans, wheat and tobacco)

- Insect damaged corn will be reduced through the use of Bt hybrids and other technologies.
- The number of acres of Bt hybrid corn planted in Tennessee will increase.
- Weed control costs will be reduced through the use of genetically-altered crop lines and reduced chemical applications.
- The number of acres planted to genetically altered lines (e.g., Roundup Ready, Liberty Link) in Tennessee will increase.
- Tobacco producer losses from systemic blue mold will decrease.
- Grower purchases of out-of-state tobacco transplants will decrease.

Greens Industry

- The diversity of products within Tennessee's greens industry will increase.
- Adoption of strategies that use greenhouse growing conditions to accelerate plant growth and reduce plant time will increase.
- The production and sale of selected Tennessee-produced ornamentals will increase.
- Dogwood cultivars that are resistant to dogwood Anthracnose and powdery mildew will be developed and released.
- Best management practices will be formulated and released to minimize the development of dogwood Anthracnose and powdery mildew on existing dogwood populations.

Soil Conservation

- Erosion and the associated movement of sediment into streams will be reduced by increasing the number of acres of corn, soybeans, and cotton in no-till production.
- Soil erosion will be reduced and energy conserved by reducing row-crop producer use of deep tillage when it is not needed.
- The number of acres that are subsoiled will be reduced.
- Erosion will be reduced by adoption of best management practices that keep soil in place on production fields.

Water Conservation

- Movement of sediment, nutrients and agricultural chemicals to water bodies will be reduced by educating agricultural producers about the benefits of buffer strips.
    - The number of stream miles protected by buffer strips will increase.
- Awareness of water quality issues will increase as a result of increased participation of farmers and other Tennesseans living and working in priority watersheds in watershed programs.
- The number of streams included on the 303 (d) list will decrease.

Limited Resource and Small Farmers

- Limited resource and small farm operators will adopt appropriate record keeping systems.
- Limited resource and small farm operators will utilize management resources and production practices emphasizing diversification, cultural practices, harvesting, storage, and marketing.
- Limited resource and small farm operators will market agricultural products using recommended marketing tools and techniques.

KEY PROGRAM COMPONENTS

Value-Added Agricultural Industries

"Development of Textile Materials for Environmental Compatibility and Human Health and Safety" and Compostable Nonwovens from Cotton/Cellulose Acetate Blends" - two research projects exploring new textile materials that would result in the development of nonwoven products containing cotton fibers for increased comfort and biodegradability.

"Wood composites, hardwood lumber processing and statistical process control research" - research projects designed to develop software programs resulting in improved wood products and new production techniques to measure quality in the manufacturing process.

"Agricultural Development Center" - a multi-disciplinary, integrated program to assist entrepreneurs in the exploration and startup of new or expanded businesses utilizing Tennessee agricultural products to add value to those products.
"Sparks Project" - research project in cooperation with the Tennessee Department of Agriculture and the Sparks Companies, Inc. to identify comparative advantages available in various geographic regions of Tennessee for development of agribusiness industries utilizing raw agricu ltural commodities produced in Tennessee.

Agricultural Management and Marketing

"MANAGE" - program to assist farm families in identifying appropriate marketing, management, and financial solutions to problems.

"Soybean Systems Project" - multi-disciplinary program will produce a computerized tool for use in working with individual soybean producers in making management and marketing decisions.

"Cotton Systems" - multi-disciplinary project that will produce a computerized management and marketing tool for use with cotton producers.

"Beef Cattle Decision Tool Project" - multi-state (Georgia and Tennessee), multi-disciplinary, and integrated (research and Extension) project to design a beef cattle system decision making tool to assist producers in making production and marketing decisions.

"4-H Projects" - projects help 4-H members learn management and marketing knowledge and skills related to a variety of agricultural-related topics through hands-on learning experiences.

Forage

"Fescue Toxicosis Research" - multi-state, multi-disciplinary research will seek to identify ways in which novel, or friendly, endophytes can be used in year-round grazing systems to reduce the occurrence of fescue toxicosis in ruminants and, through blood serum analysis, to yield greater understanding of the biochemical impacts of fescue toxicosis in animal physiology.

"Integrated Forage Management and Utilization Program" - an educational program to help forage producers learn improved management methods that will result in greater quantity and quality of usable forage crops, including: utilizing legumes in grass pastures, establishing and maintaining diversified forage species, incorporating managed grazing, stockpiling tall fescue to reduce the winter hay feeding period, and proper hay storage to reduce hay storage losses.

Beef Management Systems

"On-Farm Applied Research Trials" - trials to demonstrate the impact of clovers in endophyte infected fescue pastures on beef produced per acre.

"Beef Reproductive Performance" - program to teach practices that improve reproductive performance of beef cattle grazing fescue pastures.

"The Beef Cattle fIRM Program" - a recordkeeping software program to assist cattle producers in Total Herd Evaluation from Improved Records Management (THE fIRM). This tool will help maintain individual cow, bull and calf performance, sale information and inventory records.

"Beef Cattle Decision Tool Project" - multi-state (Georgia and Tennessee), multi-disciplinary, and integrated (research and Extension) project to design a beef cattle system decision making tool to assist producers in making production and marketing decisions.

"Tenn-Vac" - educational program that will be used to provide production, health and marketing information to beef producers.

"4-H Beef Projects" - designed to help 4-H members learn knowledge and skills in various aspects of beef management through hands-on experiences.

Crop Production

"Crop Variety Trials" - research trials to identify attributes of varieties of cotton, corn, soybeans and wheat for use in making recommendations to Tennessee producers.

"On-Farm Crop Demonstrations" - on-farm applied research trials for genetically-engineered varieties of cotton, corn, soybeans and wheat to demonstrate effectiveness of these varieties in reducing production costs.

"COTMAN" - plant monitoring program to help cotton producers improve insect control decisions and reduce number of pesticide applications.

"Tennessee Blue Mold Task Force" - a multi-disciplinary and integrated (research and Extension) team that will address the problems of blue mold disease in Tennessee tobacco.

"4-H Crop Projects" - projects help 4-H members increase knowledge and skills related to crop production and plant science through hands-on learning experiences.

Greens Industry

"TenneSelect" - a plant promotional campaign to increase production and sale of selected ornamentals proven to be well suited to Tennessee growing conditions. The campaign is based on findings from UT Herbaceous Ornamental Trial Program and involves multiple internal and external linkages

"Dogwood Improvement Program" - an ongoing research program that aims through breeding and discovery to develop and select dogwoods resistent to dogwood Anthracnose and powdery mildew. The program involves multiple internal and external linkages

Soil and Water Conservation

"Vegetable Research Initiative" - research program that will encourage producers to adopt vegetable production in an economically and environmentally sustainable manner.

"No-till Agricultural Production" - continuing education of agricultural producers about the economic and environmental benefits of no-tillage for the production of small grains, row-crops, and some specialty crops.

Limited Resource and Small Farmers

"High Value Vegetables Production" - a program to introduce limited resource and small farm producers to alternative high value crops that can be grown on smaller scales, but can provide higher returns on investment than some traditional crops grown by small farm producers.

"Sustainable Agriculture for Limited Resource and Small Farm Producers" - a broad, multi-disciplinary and multi-institutional (TSU and UT) program to provide information and educational programs specifically designed to teach skills and practices that will address the problems and situations facing limited resource and small farm operations.

PROGRAM LINKAGES

Internal Linkages:

Internal program linkages will include research and Extension faculty cooperation across multi-unit and multi-disciplinary components of the University of Tennessee Institute of Agriculture and Tennessee State University.

External Linkages:

External linkages will include but are not limited to the following state, regional, and national organizations:

- Textiles and Nonwoven Development Center - program collaborator and information source
- Nonwovens producers - information sources and providers of services
- Textile processing equipment producers - program collaborators and information sources
- USDA Agricultural Research Service - program collaborator
- Tennessee Department of Agriculture - program collaborator, resource provider, information source
- Tennessee Beef Industry Council - program collaborator
- Tennessee Cattlemen's Association - program collaborator
- Tennessee Beef Cattle Improvement Association - program collaborator
- Tennessee Livestock Markets Association - program collaborator, information provider
- Tennessee Division of Forestry - program collaborator, information source
- American Forest and Paper Association - program collaborator
- U.S. Forest Service - program collaborator, information source
- Tennessee Forestry Association - program collaborator

- The Hobart Ames Foundation - program collaborator, resource provider
- Tennessee Milk Producers - program collaborator, resource provider
- Tennessee Farm Bureau Federation - program collaborator
- Tennessee Forage and Grassland Council - program collaborator
- Tennessee Soybean Promotion Board - program collaborator, resource provider and information source
- Cotton Incorporated - program collaborator, resource provider and information source
- Farm Service Agency - program collaborator
- Farm Credit Services - program collaborator
- Tennessee Nursery and Landscape Association - program collaborator, resource provider, information source
- USDA - National Arboretum - program collaborator
- Horticulture Research Institute - resource provider, information source
- Natural Resources Conservation Service - program collaborator, information source
- International Society of Arboriculture - resource provider
- Friends of the Gardens - resource provider
- Tennessee Flower Growers Association - resource provider
- Agri-business Corporations - resource providers
- Oak Ridge National Laboratories - program collaborator, resource provider
- The Tennessee Valley Authority - program collaborator, resource provider, information source
- Watershed Associations - program collaborators
- Tennessee and land grant university research affiliates, including Middle Tennessee State University, University of Tennessee Martin, Tennessee Technological University, University of Georgia, University of Kentucky, North Carolina State University, Clemson University, Florida A&M University, Auburn University, Mississippi State University, Louisiana State University, University of Arkansas, Texas A&M University, Texas Tech University, Oklahoma State University, West Virginia University, Virginia Polytechnic Institute and State University, Ohio State University, Penn State University, Purdue University, University of Maryland, University of Nebraska, Alabama A&M.

TARGET AUDIENCES

Value-Added Agricultural Industries
- Cotton producers and processors
- Manufacturers of nonwoven products
- Agricultural product entrepreneurs

Agricultural Management and Marketing
- Agricultural producers
- Agricultural lenders
- Agri-business owners and managers
- Extension and outreach personnel (in-service training)

Forage

- Forage producers
- Ruminant animal producers
- Forage-related agribusinesses
- Extension and outreach personnel (in-service training
- Other researchers

Beef Management Systems

- Beef producers
- Beef marketers and buyers
- Beef industry organizations
- Animal health products agribusinesses
- Extension and outreach personnel (in-service training)
- Other researchers
- 4-H beef project members and adult volunteer leaders

Crop Production

- Row crop producers
- Row crop industry organizations
- Row crop-related agribusiness owners and managers
- Crop production-related agribusinesses
- Extension and outreach personnel (in-service training)
- Other researchers
- 4-H crop and plant science project members and adult volunteer leaders

Greens Industry

- Greens industry producers
- Greens industry-related agribusiness owners and managers
- Government agency personnel and policy makers
- Extension and outreach personnel (in-service training)
- Other researchers

Soil and Water Conservation

- Small grain, forage, row crop and specialty crop producers
- Milan No-Till Field Day participants
- Members of producer organizations
- Extension and outreach personnel (in-service training)
- Government agency personnel and policy makers
- Other researchers.

Limited Resource and Small Farmers

- Limited resource farm producers and their families
- Small farm producers and their families

Emphasis will be placed on program efforts to involve minority, low - income and underserved audiences as the Tennessee Agricultural Research and Extension System strives to reach diverse audiences.

PROGRAM DURATION

The programs in Goal 1 will range in duration from intermediate to long range.

ALLOCATED RESOURCES

Estimated Program Cost:

1862 Research

Year	Federal 3(b)&(c)	State and Local	Other
2000	4,626,341	13,818,266	3,881,394
2001	4,632,723	13,837,329	3,886,748
2002	4,699,147	14,035,727	3,942,476
2003	4,643,934	13,870,813	3,896,153
2004	4,584,379	13,692,932	3,846,189

1862 Extension

Year	Federal 3(b)&(c)	State and Local	Other*
2000	3,698,645	13,021,269	399,665
2001	3,698,645	13,542,119	419,648
2002	3,698,645	14,083,803	440,631
2003	3,698,645	14,647,155	462,662
2004	3,698,645	15,233041	485,795

* Includes Smith-Lever 3(d) funds utilized to support programming in this goal.

1890 Extension

Year	Federal 3(b)&(c)	State and Local	Other

2000	680,400	0	18,900
2001	680,400	0	18,900
2002	680,400	0	18,900
2003	680,400	0	18,900
2004	680,400	0	18,900

Estimated FTE Commitment:

1862 Research SY/PY/TYs

Year	Scientist Years	Professional Years	Technical Years
2000	66.1	138.8	185.0
2001	67.0	140.7	187.6
2002	67.6	142.0	189.3
2003	68.8	144.4	192.5
2004	69.9	146.6	195.4

1862 Extension FTEs

Year	Professional	Paraprofessional
2000	216.5	1.0
2001	216.5	1.0
2002	216.5	1.0
2003	216.5	1.0
2004	216.5	1.0

1890 Extension FTEs

Year	Professional	Paraprofessional
2000	8.0	6.0
2001	8.0	6.0
2002	8.0	6.0

2003	8.0	6.0
2004	8.0	6.0

EDUCATION AND OUTREACH PROGRAMS CURRENTLY UNDERWAY

Educational programs that are currently underway include:

- Good Agricultural Practices (GAP)
- Precision Farming Technologies Program
- Soil/Forage Laboratory and Nutrient Management Program
- Commercial Small Fruit and Vegetable Production Program
- Agricultural Development Center (ADC)
- THE Beef Cattle fIRM
- Tenn-Vac educational program (cow-calf operations)
- Feeding is Fundamental educational program (beef cattle production)
- Livestock and Livestock Product Marketing program
- Round hay bale management
- 4-H Agricultural-related projects
- Good Agricultural Practices (GAP)
- Hazard Analysis Critical Control Points (HACCP)
- Master Gardener program
- Management and Marketing Priority Program
- Precision farming technologies program
- Greens industry disease identification and management workshops
- Tennessee Blue Mold Task Force
- Plant and Pest Diagnostic Laboratory
- County demonstration plots to demonstrate transgenic crop varieties
- Wood products extension programming
- Integrated Pest Management and other strategies for limited resource and small farm programs
- Cooperative Agricultural Pest Survey (CAPS) Program
- Cotton seedling disease control test plots
- Wheat disease control test plots
- Soybean Cyst Nematode sampling program
- Row crop irrigation program
- Swine Competitive Enhancement Program
- Pesticide applicator training
- Class I CAFO operator training
- TenneSelect Program
- Dogwood Improvement Program
- Herbaceous Ornamentals Trial Program
- Ornamental Horticulture and Landscape Design Department Floriculture Extension Program

- Limited Resource and Small Farm Program

GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM

STATEMENT OF ISSUES

Located within one day delivery of 76% of the major US markets, Tennessee has ready access to the rapidly growing value-added food industry. To have a significant impact in this market, producers and processors in Tennessee must be provided with cutting edge information about producing, processing, and marketing these value-added foods. Food quality and/or food safety refers to an array of attributes of food that impact marketability and acceptance. It generally means how a particular food meets a desired or expected standard. In many cases food quality is in the "mind of the beholder" (ultimately the consumer), but food quality generally involves attributes such as sensory quality, nutritional quality, and microbial quality, from both a spoilage and safety standpoint. Absence or reduction of quality results in loss of consumer desire to purchase, having a significant economic impact on a food company, and occasionally, the food industry, including local to global markets. Maximizing and maintaining quality is, therefore, a key to successful marketing of both fresh and processed foods.

Food Safety

- While the United States produces the safest food in the world, food borne illnesses are still a major concern to food processors, consumers and food regulators. There are an estimated 6-11 million cases annually in the US and 9,000 deaths at a cost of $6-22 billion each year. Estimates from our stakeholders indicate that approximately 1 in 20 Tennesseans suffer from food borne illness each year. Food safety must be addressed by all segments of the food delivery system from the producer to the consumer.

- Producers and processors must be provided with the latest research information and technology in order to adopt best management practices that will allow production and processing of plants and animals that are relatively free of chemical, physical and microbial hazards. Research to be conducted will encompass testing the suitability of existing microbiological assay methods to identify and monitor the presence of pathogens in farm (dairy, beef, swine, poultry, fruit, and vegetable) environments, development of rapid detection methods when existing methods are found to be unsuitable, determine the survival and persistence of food borne pathogens in microenvironments such as animals, animal feed, soil, water, bedding, equipment, and feces. Additionally baseline information will be established for the occurrence and distribution of food borne pathogens in agricultural environments and the extent to which production management practices influence the development and persistence of antibiotic resistance in microbial pathogens. An initial model plan will be developed to reduce the number of pathogens in the food production chain.

- The food processing and service industries must have access to verifiable research-based data on the effectiveness of handwashes, wipes, food wraps, and sprays or dips used to kill bacteria on food/animal contact surfaces; no standardized methodology for assessing effectiveness currently exists. Standardized and effective methods to check for the presence of pathogens is a key

component of in-plant Hazard Analysis Critical Control Points (HACCP). There is evidence that suggests that some pathogens, injured, but not killed during processing, may recover during subsequent cold storage and in modified atmosphere packaging. Research to develop methods to improve detection and control of pathogens under these conditions is underway.

- Personnel involved in food production, processing and handling must be trained and provided information on safe food handling practices to reduce or eliminate pathogens. Consumers must be provided with research-verified information on food handling, preparing, processing and storing food safely. Best management practices that address issues from production through storage and consumption will be developed and disseminated to aid food producers, processors, handlers and consumers in reducing or eliminating pathogens and, ultimately, in decreasing incidences of food borne illnesses.

Food Quality/Security

- The availability of high quality and safe fresh and processed foods is fundamental to expanding the range of food choices available to Tennesseans, affecting both nutritional quality and safety and, through those properties, population health. To expand food choices, better understanding is needed to aid food producers, processors, marketers, and handlers. Outcomes of this understanding include new cultivars and research into optimizing the nutritional quality of agricultural products produced in Tennessee, new processing and engineering technologies that improve production practices, new ingredients and formulations that aid food quality and storage, and the development of strategies that enhance foods' sensory acceptance and assure nutritional quality and minimal risk associated with the safety of food.

A Tennessee Agricultural Research and Extension System's mission is to discover new methods of detecting, controlling or eliminating food borne pathogens from foods produced in Tennessee and disseminate this new research-verified information to food producers, processors, food service handlers and consumers to allow them to make informed, responsible decisions related to food safety and quality issues.

PERFORMANCE GOAL 2.1: Control or eliminate risks from food borne organisms at the producer level.

Output indicators:

- Number of research projects conducted, research grants received and research projects completed related to food safety issues at the producer level.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to food safety issues at the producer level.
- Number of workshops, demonstrations, field days and other educational programs conducted related to producer food safety issues and best management practices.

Outcome indicators:

- Increase the adoption rate of food safety best management practices for participants trained at the producer level.
- Increase in the number of participants reporting expanded knowledge of food safety at the farm level.
- Increase in the number of participants accessing Food Safety Initiative Web site for information or asking a question via e-mail.
- Reduction in the number of reported cases of food borne illnesses attributed to lack of adoption of best management practices by producers.

PERFORMANCE GOAL 2.2: Control or eliminate risks from food borne organisms at the processor level.

Output indicators:

- Number of research projects conducted, research grants received and research projects completed related to food safety issues at the processor level.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to food safety issues at the processor level.
- Number of workshops, demonstrations, field days and other educational programs conducted related to processor food safety issues.
- Number of Hazard Analysis Critical Control Points (HACCP) certification programs conducted for food processors.

Outcome indicators:

- Increase in the number of participants trained at the processor level in Hazard Analysis Critical Control Points (HACCP).
- Increase in the number of participants certified at the processor level in Hazard Analysis Critical Control Points (HACCP).
- Increase in the number of participants reporting increased knowledge of food safety at the processor level.
- Increase in the number of participants accessing Food Safety Initiative Web site for information or asking a question via e-mail on food safety at the processor level.
- Reduction in the number of reported cases of food borne illnesses attributed to lack of adoption of best management practices by processors.

Performance Goal 2.3: Control or eliminate risks from food borne organisms at the food service handler level.

Output indicators:

- Number of research projects conducted, research grants received and research projects completed related to food safety issues at the food service handler level.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to food safety issues at the food service handler level.
- Number of workshops, demonstrations, field days and other educational programs conducted related to food service handler food safety issues.
- Number of Hazard Analysis Critical Control Points (HACCP) certification programs conducted for food service handlers.

Outcome indicators:

- Increase in the number of participants trained at the food service handler level in Hazard Analysis Critical Control Points (HACCP).
- Increase in the number of participants certified at the food service handler level in Hazard Analysis Critical Control Points (HACCP).
- Increase in the number of participants reporting increased knowledge of food safety at the food service handler level.
- Increase in the number of participants accessing Food Safety Initiative Web site for information or asking a question via e-mail on food safety at the food service handler level.
- Reduction in the number of reported cases of food borne illnesses attributed to lack of adoption of best management practices by food service handlers.

Performance Goal 2.4: Control or eliminate risks from food borne organisms at the consumer level.

Output indicators:

- Number of research projects conducted, research grants received and research projects completed related to food safety issues at the consumer level.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to food safety issues at the consumer level.
- Number of workshops, demonstrations, field days and other educational programs conducted related to consumer food safety issues.

Outcome indicators:

- Increase in the number of participants completing programs related to food safety at the consumer level.
- Increase in the number of program participants reporting increased knowledge of food safety at the consumer level.
- Increase in the number of program participants who adopt recommended food safety practices.
- Increase in the number of participants accessing Food Safety Initiative Web site for information or asking a question via e-mail on food safety at the consumer level.

- Decrease in the number of reported cases of food borne illnesses attributed to lack of adoption of best management practices by food consumers.

Performance Goal 2.5: Develop and evaluate new cultivars and plant varieties with optimized nutritional and storage properties and new processing strategies and technologies.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to improved cultivars, plant varieties, and processing, storage, and marketing strategies for food-related products associated with Tennessee agriculture.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to improved food production, processing, and usage in Tennessee.
- Number of workshops, demonstrations, field days and other educational programs conducted related to improvement of food crops and production, processing, and utilization.

Outcome Indicators:

- Increase in the number of participants in programs related to methods to improve the quality of food production and enhance food processing practices.
- Increase in the number of program participants reporting expanded knowledge of methods to improve food quality and processing practices.
- Increase in the number of program participants who adopt recommended practices related to improving food quality and processing practices.
- Increase in the number of reported cases of improved quality and availability of fresh and processed foods as a result of adoption of practices by producers, processors and other targeted groups.

EXPECTED IMPACTS - all performance goals

As a result of a coordinated multi-disciplinary research and extension effort, the Tennessee Agricultural Research and Extension System will assemble a reliable body of relevant knowledge, an effective educational program, and deliver food quality/safety information to clientele from the producer to the consumer. These impacts will be tracked through annual reports that summarize successful extension and research activities.

Producer Level

- Fewer tankers of Tennessee milk will be discarded due to antibiotic or bacterial contamination.
- The number of poultry contaminated with salmonella and campybactor on farms will decrease.
- The spoilage rate of fruits and vegetables at the farm will decrease.
- Number of producers keeping records on food quality will increase.

Processor Level

- Product strategies to preserve and increase the nutritional value and safety of processed foods will be improved.
- The incidences of salmonella detection on poultry carcasses will decrease.
- The number of E. coli found in apple cider and beef or swine carcasses will decrease.
- The number of condemned carcasses for injection site lesions will decrease.
- The number of employees of processors following HACCP principles will increase.

Food Service Organizations

- Incidences of food poisoning at retail food establishments will decrease.
- Incidences of food pathogens detected in nursing homes and other commercial establishments will decrease.

Consumer Level

- The number of reported cases of Salmonellosis, lysteria or other food borne illnesses will decrease.
- Positive changes in consumer habits and attitudes on food preparation and handling in the home will occur.
- Consumer adoption of best management practices for serving food in the home will increase.

KEY PROGRAM COMPONENTS

Principal components of the Tennessee Agricultural Research and Extension System Food Safety Initiative will consist of research projects organized by scientists to focus on and investigate issues associated with food safety, quality, and security in Tennessee's food and fiber production and processing system and educational programs to disseminat e that information to target audiences throughout the state.

Food Safety

- Specific research project initiatives will include:

  "Food Borne Pathogen Detection"- will improve detection methods to identify food borne pathogens in livestock products and environments.
  "Critical Control Points"- will identify critical control points and critical levels of food borne pathogens that enter the food chain in dairy, poultry, swine and fruit and vegetable production units.

  "Food Borne Pathogens"- will develop strategies to decrease the prevalence of food borne pathogens such as E. coli O:157:H7, Y. enterocolitica, Salmonella, Listeria monocytogenes and Campylobactor jejuni in the food chain
  - application of research findings will demonstrate food borne pathogen reduction on the farm.

- Extension programs will target food producers, processors, food service workers, and consumers to receive intensive training:

"Producer Training"- training of producers to adopt measures that decrease food borne pathogens at the farm level.

"Food Processor Hazard Analysis Critical Control Points (HACCP) Training" - training for processors of Tennessee's food products.

"HACCP Certification Training"- formal training programs for HACCP certification

"Safe Food Handling"- Educational programs to train food managers in the basic principles of safe food handling.

"Consumer Risk Assessment"- Specialized training in risk assessment procedures for youth and adult audiences.

"Food Safety/Quality Media Education"- Provide media training for state, regional, county and local staff and consumer clientele.

"Nutrition, Health and Food Safety Priority Program Team" - a multi-disciplinary, multi-institute (UT and TSU) team that will provide leadership and direction in strengthening Extension nutrition, health and food safety programming.

"The Tennessee Agricultural Experiment and Extension System Food Safety Initiat ive" - a broad-based, multi-level and multi-disciplinary effort that aims to assure food safety at every stage from the farm through food preparation, storage, and consumption by consumers.

Food Quality/Security

- Specific research project initiatives will include:

"Microbe Identification"- identify the microbial populations responsible for decreased food quality

"Cultivar Improvement"- develop improved cultivars of fruit and vegetable crops

"Best Management Practices"- research new methods which result in improved management practices

- Extension programs will target food producers, processors, food service workers, and consumers to receive intensive training:

"Improved Cultivars" - delivering research verified information on new cultivars to producers

"E. Coli Reduction in Apple Cider" - conduct on-farm training with apple cider producers to decrease E. Coli.

PROGRAM LINKAGES

Internal Linkages:

Internal program linkages will include research and Extension faculty cooperation across multi-unit and multi-disciplinary components of the University of Tennessee Institute of Agriculture and Tennessee State University.

External Linkages:

- Tennessee Department of Agriculture - provide statistical information on all aspects of production and marketing
- Tennessee Department Health - statistics on reported food borne illnesses
- Tennessee Restaurant Association - program collaborator
- U.S. Food and Drug Administration - program collaborator, monetary resources
- USDA - FSIS - information source, provider of monetary resources
- UTK Department of Microbiology - program collaborator, information source
- Lays Packing Company - program collaborator, provider of processing resources
- American Meat Science Association - program collaborator
- Institute of Food Technologists - program collaborator
- Independent and cooperative milk processors - program collaborators
- Tennessee Beef Council - program collaborator
- Tennessee Pork Producers Association - program collaborator
- National Country Ham Association - program collaborator
- Tennessee Fruit and Vegetable Association - program collaborator
- Tennessee Viticulture and Oenological Society - program collaborator
- National Sweet Sorghum Producers and Processors Association - program collaborator
- Cooperation with other institutions in the southeastern region and nationally will be a result of the University of Tennessee's membership in the National Alliance for Food Safety.

TARGETED AUDIENCES

Both youth and adults will be the direct beneficiaries of research and Extension knowledge and programs.

- Food producers of all commodity groups
- Food processors and commercial handlers prior to consumer use
- Food Service managers/workers
- Home food preparers and consumers
- Limited resource and minority audiences.
- 4-H members and leaders and other youth organizations

Emphasis will be placed on program efforts to involve minority, low - income, and underserved audiences as the Tennessee Agricultural Research and Extension System strives to reach diverse audiences.

PROGRAM DURATION

The program duration for the programs included in Goal 2 will be from intermediate to long range (will be an ongoing Statewide priority).

ALLOCATED RESOURCES

Estimated Program Cost:

1862 Research

Year	Federal 3(b)&(c)	State and Local	Other
2000	157,838	471,988	132,675
2001	194,994	583,098	163,908
2002	234,376	700,863	197,012
2003	344,655	1,030,635	289,710
2004	344,655	1,273,902	358,092

1862 Extension

Year	Federal 3(b)&(c)	State and Local	Other*
2000	516,518	1,333,548	233,130
2001	516,518	1,386,890	244,787
2002	516,518	1,442365	257,026
2003	516,518	1,500,060	269,877
2004	516,518	1,560,062	283,371

* Includes Smith-Lever 3(d) funds utilized to support programming in this goal.

1890 Extension

Year	Federal 3(b)&(c)	State and Local	Other
2000	72,000	0	2,000
2001	72,000	0	2,000
2002	72,000	0	2,000
2003	72,000	0	2,000
2004	72,000	0	2,000

Estimated FTE Commitment:

1862 Research SY/PY/TYs

Year	Scientist Years	Professional Years	Technical Years
2000	4.1	8.5	11.4
2001	4.2	8.8	11.7
2002	4.9	10.2	13.6
2003	5.6	11.7	15.6
2004	6.3	13.2	17.6

1862 Extension FTEs

Year	Professional	Paraprofessional
2000	23.5	14.0
2001	23.5	14.0
2002	23.5	14.0
2003	23.5	14.0
2004	23.5	14.0

1890 Extension FTEs

Year	Professional	Paraprofessional
2000	1.0	0.5
2001	1.0	0.5
2002	1.0	0.5
2003	1.0	0.5
2004	1.0	0.5

EDUCATION AND OUTREACH PROGRAMS CURRENTLY UNDERWAY

Educational programs that are currently underway include:

Safe Food for Families - a program for food safety programming at the consumer level.
Pork Quality Assurance - a multi-level producer education program to enhance the quality of pork sold to the world's pork consumers.
HACCP training - for meat and poultry processing plants in Tennessee is supported by USDA grants.
Beef Quality Assurance - a multi-level producer education program to enhance the quality of beef sold to the world's beef consumers.
Tennessee's "Dairy Plus+" Dairy Management Education Program - contains a module stressing Milk Quality Management at the producer level.
Better Process Control School - program aimed at low acid canning and acidified food processors.

GOAL 3. A HEALTHIER, MORE WELL-NOURISHED POPULATION

STATEMENT OF ISSUES

Health and nutrition are essential to personal, social, and economic well being, with decisions related to diet, lifestyle and health care impacting both individuals and the communities in which they live and work. In Tennessee, regional influences on food choice, preparation, and lifestyle contribute to the state exhibiting some of the highest rates of hypertension, stroke, and diabetes in the nation. Improved choices regarding lifestyles, food, and health care can improve Tennesseans' health, benefitting families and society as a whole through reductions in health care and economic costs and improvements in quality of life, stronger social systems, and enhanced business productivity. The research and extension activities of the Tennessee Agricultural Research and Extension System will identify, develop, and disseminate strategies designed to help Tennessee citizens and communities improve diet and lifestyle choices.

Nutrition and Diet Issues

- Poor diet choices are key factors in four out of 10 leading causes of death in the United States and are also major contributing factors to other health-threatening conditions, such as obesity, hypertension, and osteoporosis. Diet-related health conditions cost society an estimated $260 billion a year in lost productivity and medical costs. An estimated 20 percent of these costs, and 20 to 40 percent of the deaths associated with poor diet, are believed to be preventable through efforts to improve diet. These issues assume greater importance in Tennessee and the Southeast, where poor diet choices contribute to the region exhibiting the highest rate of hypertension, stroke, diabetes, and obesity in the nation. Research and Extension activity is needed to assist the public in making wiser choices in diet and in improving their nutritional practices.

Healthy Lifestyles and Health Care Issues

- Health care and the maintenance of personal health are major concerns for citizens of Tennessee. Research shows people often lack the nutrition and health self-care knowledge and skills necessary to prevent illness and disease and to utilize available health care systems effectively. Such knowledge and skills can reduce the risk of complications of untreated problems and the disabling and debilitating effects of disease, both of which place a financial burden on the individual and the Tennessee health care system. Researchers have shown that consumers trained in self-care and health care decision making demonstrate a decrease of 15% to 29% in use of medications, emergency room visits, and health care provider visits. Educational programs designed to teach participants how to avoid illness and injury through positive diet, lifestyle choices, and self-care skills and how to effectively access and utilize the health care system could lead to significant reductions in health costs for individuals and communities.

The Tennessee Agricultural Research and Extension System (TARES) will address issues related to nutrition, diet, healthy lifestyles and health care through the development and delivery of research -based information that will allow community leaders, famili es, and individuals to increase their knowledge and skills related to these issues and to adopt practices and behaviors that will improve their health - and diet-related decisions and practices.

PERFORMANCE GOAL 3.1: Tennesseans will optimize their nutrition and dietary practices.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to improved understanding and practices associated with health and nutritional issues.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to improving nutrition and health.
- Number of training programs designed and presented to imp rove nutritional understanding and practices regarding use of up-to-date information and trends pertaining to nutrition and dietary practices.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to nutrition and health-related issues.

Outcome Indicators:

- Number of participants in programs that aim to improve nutritional practices.
- Number of participants who report increased knowledge of one or more nutritional practices as a result of nutrition-related research and information programs.
- Number of participants who report plans to adopt or adoption of nutritional practices or strategies as a result of nutrition-related research and information programs.
- Number of reports of improved nutrition or reduction of chronic disease that are attributable to nutrition-related research and information programs.

PERFORMANCE GOAL 3.2: Tennessee residents will improve their diets, self-care practices, and lifestyles resulting in improved health.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to health-related nutrition, self-care, and lifestyle factors.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to topics of health-related nutrition, self-care, maternal and child nutrition/health, and/or lifesty le strategies.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to health-related nutrition, self-care, and/or lifestyle strategies.

Outcome Indicators:

- Number of participants participating in health-related nutrition, self-care, and/or lifestyle strategies programs.
- Number of program participants increasing their health-related nutrition, self-care, and/or lifestyle strategies knowledge.
- Number of program participants who adopt recommended health-related nutrition, self-care, and/or lifestyle strategies practices.
- Number of program participants reporting positive change in their health conditions as a result of adopting recommended practices.
- Number of program participants reporting decreases in health care costs that are attributable to adopting recommended practices.

EXPECTED IMPACTS

Through a coordinated, multi-disciplinary effort, the Tennessee Agricultural Research and Extension System will assemble a reliable body of relevant knowledge, develop effective educational programs, and deliver information on nutrition, diet, and healthy lifestyles to the citizens of Tennessee. The impact of these efforts will be a healthier, more well-nourished population. These impacts will be tracked through annual reports that summarize successful extension and research activities.

Nutrition and Diet

- Tennesseans will increase their diet selections based on the Food Guide Pyramid and Di etary Guidelines.
- The use of recommended food shopping practices will increase.
- New knowledge through discovery research on the roles of diet in the causation or prevention of chronic diseases will be generated.
- Incidences of nutrition-related chronic disease will be reduced.
- Knowledge of molecular mechanisms that appear to make some individuals more vulnerable than others to diet-associated chronic diseases will increase.
- Diets that optimize health for indi viduals with specific genotypes will be developed.

Healthy Lifestyles and Health Care

- Tennesseans will decrease high risk behaviors that lead to disability and/or death and engage in healthy alternative behaviors.
- Program participants will adopt healthier lifestyles and self-care practices that reduce risk factors for disease.
- Tennesseans will maintain or improve their health.

KEY PROGRAM COMPONENTS

Principal components of the Tennessee Agricultural Research and Extension System program will consist of research projects organized by scientists to focus on and investigate issues associated with the

issues of nutrition and diet and healthy lifestyles an d health care and extension educational programs to disseminate research-based information, including the following:

Nutrition and Diet

Laboratory and field research projects conducted with public and private resources.

"Expanded Food and Nutrition Education Program (EFNEP)" - a program for adult and youth audiences focused on achieving healthy diets.

"Tennessee Nutrition and Consumer Education Program (TNCEP)" - a program for adult and youth audiences to improve lives of food stamp families.

"Nutrition, Health and Food Safety Priority Program Team" - a multi-disciplinary, multi-institute (UT and TSU) team that will provide leadership and direction in strengthening nutrition, health and food safety programming.

"Base Extension Nutrition Programs" - nutrition education curricula used in conducting programs which address various aspects of nutrition and diet choices

"4-H Food and Nutrition Projects" - projects provide 4-H members with hands-on activities, including food and nutrition judging team activities, related to food choices, meal planning and food preparation.

Healthy Lifestyles and Health Care

Programs that provide health education that focuses on self-care skills, working with the health-care system and community capacity building. Program components include:

"Nutrition, Health and Food Safety Priority Program Team" - a multi-disciplinary, multi-institute (UT and TSU) team that will provide leadership and direction in strengthening nutrition, health and food safety programming.

"Health and Environmental Safety Priority Program Team" - a multi-disciplinary, multi-institution (UT and TSU) team that will provide leadership and direction for programming related to health topics and home and work environmental health and safety.

"Health Self-Care and Healthy Lifestyle," "Healthy Diets ... Healthy Families" (base nutrition program), "Healthy People ... Healthy Communities" (general health program)

"Adolescent Wellness Program" - a health care education program designed for school age youth and conducted through school health fairs and other group activities.
"Women's Wellness Program" - a health wellness program to help women learn about health risk behaviors and how to reduce such behaviors.

"Later-Life Health Promotion Program" - a health wellness program for older adults to help them learn healthy lifestyle behaviors and how to work wisely with the health care systems that older adults often have to deal with on a more frequent basis.

"Promoting Access to Quality Health Care Program" - a program designed to create health care coalitions in communities to address local health care issues and needs.

"4-H LifeLinks Program" - a six-county peer education program funded by the Memorial Foundation to teach high school student leaders to plan and conduct educational programs for their peers and also for younger children related to positive lifestyle choices, including healthy eating habits, alcohol and tobacco use, and exercise.

"4-H Health and Safety projects" - projects provide 4-H members with hands-on health and safety related experiences while completing the project requirements.

"The Tennessee Agricultural Experiment and Extension System Food Safety Initiative" - a broad-based, multi-level and multi-disciplinary effort that aims to assure food safety at every stage from the farm through food preparation, storage, and consumption by consumers.

Primary educational efforts will include:

- on-site applied research demonstrations
- tours, field days, clientele surveys
- videos, publications, computer database, and software development newsletters, Internet publishing, print and electronic media news distribution and programming, and other information distribution techniques.

INTERNAL AND EXTERNAL LINKAGES

Internal Linkages:

Cooperation will continue within the University of Tennessee Institute of Agriculture and Tennessee State University among extension and research activities in appropriate departments and units.

External Linkages:

Cooperation will also continue with many local, state, regional, and national organizations that include, but are not limited to:

- Tennessee Department of Agriculture - provide statistical information on aspects of diet, nutrition, and lifestyle, program collaborator, funding
- Tennessee Department of Education - provide statistical information on aspects of diet, nutrition, and lifestyle, program collaborator, funding

- Tennessee Department of Health (WIC/CSFP, Office of Minority Health, Office of Rural Health, Diabetes Prevention and Control Program, Osteoporosis Program) - provide statistical information on aspects of diet, nutrition, and lifestyle, program collaborator, funding
- Tennessee Department of Human Services - provide statistical information on aspects of diet, nutrition, and lifestyle, program collaborator, funding
- Tennessee Commission on Aging and 11 Area Agencies on Aging - collaborator
- Tennessee Diabetes Coalition - collaborator
- Tennessee Rural Health Association - collaborator
- Tennessee Hunger Coalition - collaborator
- Tennessee Cancer Coalition - collaborator
- Tennessee Restaurant Association - collaborator, recipient of data on aspects of diet and nutrition
- Food and Nutrition Service (Southeast Region) - collaborator
- Head Start - collaborator
- March of Dimes - collaborator
- United States Environmental Protection Agency - cooperator
- United States Department of Agriculture Departments: Family Life and Human Development, Families, 4-H, & Nutrition, and Rural Development - cooperators
- Tennessee and land grant university research affiliates, including the University of Tennessee Memphis College of Pharmacy, Tennessee State University Departments of Sociology/Social Welfare, Psychology, and Health Care Administration, East Tennessee State University College of Medicine, and extension nutrition specialists in other states.

TARGET AUDIENCES

Clientele groups who should be the direct beneficiaries of research and Extension knowledge and programs related to Goal 3 topics include, but are not limited to:

- Consumers of processed food products
- Food service operators
- Public health policy makers
- Health care professionals
- Child care providers
- Long-term care facility operators
- Residents and volunteers of targeted public housing and senior citizen facilities
- County Extension professionals (train-the-trainer inservices)
- Extension paraprofessionals and volunteers in associated areas
- Limited-resource families
- Recipients of public food assistance
- Youth-at-risk
- 4-H members and leaders and those of other youth organizations

- Through multi-state, multi-unit collaborations with research and Extension, residents of other Southern states and in other regions of the U.S. that experience chronic health problems associated with dietary and health-care decisions.

PROGRAM DURATION

The program duration will be intermediate to long range as an ongoing statewide initiative.

ALLOCATED RESOURCES

Estimated Program Cost:

1862 Research

Year	Federal 3(b)&(c)	State and Local	Other
2000	252,540	755,180	212,280
2001	292,540	874,647	245,862
2002	301,340	901,109	253,301
2003	344,655	1,030,635	289,710
2004	390,506	1,167,744	328,251

1862 Extension

Year	Federal 3(b)&(c)	State and Local	Other*
2000	1,018,746	3,284,932	1,910,104
2001	1,018,746	3,416,329	2,005,609
2002	1,018,746	3,552,982	2,105,890
2003	1,018,746	3,695,101	2,211,184
2004	1,018,746	3,842,906	2,321,743

* Includes Smith-Lever 3(d) funds utilized to support programming in this goal.

1890 Extension

Year	Federal 3(b)&(c)	State and Local	Other
2000	171,000	0	4,750
2001	171,000	0	4,750

2002	171,000	0	4,750
2003	171,000	0	4,750
2004	171,000	0	4,750

Estimated FTE Commitment:

1862 Research SY/PY/TYs

Year	Scientist Years	Professional Years	Technical Years
2000	10.7	22.4	29.9
2001	11.7	24.6	32.8
2002	12.4	26.0	34.7
2003	12.8	26.8	35.8
2004	13.4	28.1	37.5

1862 Extension FTEs

Year	Professional	Paraprofessional
2000	80.0	74.0
2001	80.0	74.0
2002	80.0	74.0
2003	80.0	74.0
2004	80.0	74.0

1890 Extension FTEs

Year	Professional	Paraprofessional
2000	2.0	1.5
2001	2.0	1.5
2002	2.0	1.5
2003	2.0	1.5
2004	2.0	1.5

CURRENT EDUCATION AND OUTREACH PROGRAMS

Educational programs that are currently underway include:

- Expanded Food and Nutrition Education Program
- Tennessee Nutrition and Consumer Education Program
- Home*A*Syst*
- 4-H LifeLinks
- Health Self-Care and Healthy Lifestyle
- Healthy Diets ... Healthy Families
- Healthy People ... Healthy Communities
- Base extension nutrition programs for adult and youth audiences
- Family and Consumer Sciences Program
- Family and Community Policy Institute
- Family and Consumer Sciences Priority Program Teams (Parenting and Child Care)
- Adolescent Wellness Program
- Women's Wellness Program
- Later-Life Health Promotion Program
- Promoting Access to Quality Health Care Program
- 4-H LifeLinks Program
- 4-H Health and Safety projects
- AgrAbility Project
- The Tennessee Agricultural Research and Extension System Food Safety Initiative

GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT

STATEMENT OF ISSUES

Agriculture is the management of water, soil, air, and biological resources for the production of food, fiber, and other biological products. Because of its intimate association with water, soil, and air, agriculture can potentially affect the environment. A steadily growing world population requires the continual development of more efficient agricultural production, processing, and distribution systems in order to feed and clothe more people from a finite natural resource base. The integrity of ecosystems and environmental quality must be balanced with productive agricultural systems for life to be sustained. To strike and maintain this balance requires research to provide knowledge about interactions among agricultural, biological, and ecological systems and to develop strategies and technologies to preserve the viability of each system. Dissemination of this knowledge will help meet the challenges of providing food and fiber for ever increasing populations without diminishing the resource base that supports the production of food and fiber, and will sustain a quality natural environment.

Land Use

- The issue of environmental compatibility with agricultural production is particularly significant in Tennessee, a state blessed with an excellent climate for agriculture, but with more miles of streams than any other state in the U.S., and with some of the most highly erodible loess soils found anywhere in the world. In addition to the special soil and water resources within the state, forests cover approximately half of the land area in the state. Wildlife living in the habitat provided by the forests are sometimes sensitive to certain forestry management systems as well as to management practices employed for crop and livestock production in nearby fields and to encroachment by urban populations. As the human population of Tennessee increases, the proportion of the nonagricultural population of the state living in rural areas traditionally used for agricultural production also increases. This shift in population distribution often blurs the line between residential, commercial, and agricultural land uses; occasionally creating conflict at the urban-rural interface. Frequently, the agricultural industry in Tennessee finds itself with few options in attempts to continue profitable production while matching economic necessity with environmental imperatives. Research is needed to assure adequate options are available for proper decision making, and to ensure that the decision-making of both agriculturists and public-policy makers on matters related to interactions between agriculture and the environment is well informed.

Pesticides

- Pesticides and their usage are constantly being scrutinized by the public and by the media who are concerned about harmful effects on people and on the environment. However, the damage caused by major pests to Tennessee crops costs farmers, and ultimately consumers, millions of dollars each year. In the ornamental and turf industries and in nonagricultural industries and settings,

pest control is also critical to the economy of the state. For example, the greens industry in Tennessee which produces nursery stock, greenhouse products, and turf, contributes nearly $1 billion to the total economy of the state. Reducing reliance on pesticides while protecting the balance that exists between pests, natural enemies of pests, and the environment is necessary to preserve a high quality of life for Tennesseans. Applying research based knowledge and adopting biological controls and the principles of Integrated Pest Management (IPM) will balance the danger of unnecessary exposure to pest control products, the health risk associated with the pests, and the cost of damage to agricultural products.

Water Quality

- A safe, plentiful supply of potable water is essential to the health and well -being of any population. In Tennessee, good quality water in both surface and subsurface water bodies is important to sustain the scenic and recreational uses that are important to the tourism industry in the state. Approximately half of the domestic water supply in Tennessee is from ground water and a significant amount of the ground water withdrawals are from private wells. Poor quality installations and a lack of proper maintenance often places private wells at risk for contamination. Continual efforts to identify and eliminate sources of water supply contamination and education of the population to promote protection of private wells will ensure safe domestic water supplies. Sediment is the most prevalent surface water contaminant throughout the U.S. and is a significant problem in Tennessee because of the large number of stream miles and extensive areas of steep slopes and/or highly erodible soils. Nutrient enrichment from agriculture, from rural residential areas, and from municipalities; and sedimentation from agriculture, construction, and other activities all potentially threaten water quality in the state of Tennessee. Research is needed to provide technologies and strategies to prevent the movement of contaminants into surface and ground water, and educational programs are needed to teach citizens of the state to conserve valuable water (and soil) resources.

Waste Management

- Waste from dairy, swine, and poultry operations require increasingly higher levels of management as production becomes more concentrated on smaller areas of land. The state of Tennessee now requires all large (Class I) Confined Animal Feeding Operations (CAFOs), all new medium-sized (Class II) CAFOs, and existing Class II CAFOs in watersheds impacted by animal wastes to obtain operating permits that include nutrient management and record keeping plans. On-site domestic waste water disposal in rural residential areas also impacts surface and subsurface water when disposal systems are poorly designed, installed, or maintained. Processing of food and fiber frequently produces waste products that require careful management to prevent environmental degradation. However, these processing waste products may contain components that are useful. Reprocessing, conversion, or recycling of waste products has great potential for reducing waste streams while producing economically viable byproducts.

Forestry and Wildlife

- Forest products contribute $15.5 billion dollars annually to the Tennessee economy. However, the biological potential of Tennessee forest land to maximize wood production is not being realized and the quality of the trees remaining after harvest continues to decline. Most non-industrial private forest (NIPF) landowners continue to harvest the highest quality trees, leaving the poorer quality trees to become the next crop. Most NIPFs are growing wood at less than 50% of their potential. Greater benefits can be realized if Tennesseans are provided information that gives an appreciation of the value and diversity of forests and other natural resources and the benefits that will result from their wise management and use. Through improved management, NIPF landowners can improve profitability, reduce erosion, improve wildlife habitat, improve aesthetic quality, and maintain water quality.

The Tennessee Agricultural Research and Extension System (TARES) will address these critical issues and other environmentally related challenges with the following performance goals. Successful achievement of these goals will be measured by the indicators associated with each goal.

PERFORMANCE GOAL 4.1: Ensure a balance between the agricultural industry in Tennessee and the environment through improved management and production practices.

Output Indicators:

- Number of research projects conducted, research grants received, and projects completed that address management and production practices to preserve environmental integrity while ensuring the profitability of Tennessee agriculture.
- Number of refereed or peer-reviewed publications, scientific or professional presentations, trade and popular media, Web sites, and software produced that relate to management and production practices to preserve environmental integrity while ensuring the profitability of Tennessee agriculture.
- Number of workshops, demonstrations, field days, and other educational programs conducted informing producers of management practices to preserve environmental integrity.

Outcome Indicators:

- Number of producers and processors trained in Best Management Practices.
- Number of producers and processors reporting increased knowledge of environmental impacts at the producer and processor levels.
- Number of reported cases of improved environmental quality attributed to adoption of Best Management Practices by producers and processors

PERFORMANCE GOAL 4.2: Promote sustainable management of nonagricultural land uses, rural, residential, commercial, industrial, and urban to ensure environmental integrity of all natural systems in all settings.

Output Indicators:

- Number of research projects conducted, research grants received, and projects completed that address improved land use management.
- Number of refereed or peer-reviewed publications, scientific or professional presentations, trade and popular media, Web sites, and software produced that relate to practices that improve land use management in Tennessee.
- Number of workshops, demonstrations, field days, and other educational programs conducted informing nonagricultural land owners and managers of land use issues.

Outcome Indicators:

- Number of nonagricultural land owners and managers trained in the application of Best Management Practices.
- Number of nonagricultural land owners and managers reporting increased knowledge of Best Management Practices for improved land management.
- Number of reported cases of improved environmental quality attributed to adoption of Best Management Practices by nonagricultural land owners and managers.

PERFORMANCE GOAL 4.3: Enhance Tennessee agriculture by developing and assisting in the adoption of new practices and technologies to utilize and dispose of waste products from agricultural production and processing.

Output Indicators:

- Number of research projects conducted, research grants received, and projects completed that address improved waste management practices and utilization in Tennessee agriculture.
- Number of refereed or peer-reviewed publications, scientific or professional presentations, trade and popular media, Web sites, and software produced that relate to practices that improve waste management practices and utilization in Tennessee agriculture.
- Number of workshops, demonstrations, field days, and other educational programs conducted informing producers of waste management and utilization options.

Outcome Indicators:

- Number of producers trained in Best Management Practices for waste management.
- Number of producers reporting increased knowledge of waste management and utilization options.
- Number of reported cases of improved waste management practices and utilization, and improved environmental quality attributed to adoption of Best Management Practices by producers.

PERFORMANCE GOAL 4.4: Preserve and enhance the quality of surface and ground water supplies in Tennessee.

Output Indicators:

- Number of research projects conducted, research grants received, and projects completed that address management and production practices to preserve and enhance water quality while ensuring the profitability of Tennessee agriculture.
- Number of refereed or peer-reviewed publications, scientific or professional presentations, trade and popular media, Web sites, and software produced that relate to management and production practices to preserve water quality while ensuring the profitability of Tennessee agriculture.
- Number of workshops, demonstrations, field days, and other educational programs conducted that inform the citizens of Tennessee of practices to preserve water quality.

Outcome Indicators:

- Number of citizens of Tennessee trained in Best Management Practices for water quality preservation.
- Number of citizens reporting increased knowledge of practices to preserve and enhance water quality in Tennessee.
- Number of reported cases of improved water quality attributed to adoption of Best Management Practices.

PERFORMANCE GOAL 4.5: Engage the environmental stewardship of all Tennesseans by demonstrating the benefits of wise use of the natural resources of the state.

Output Indicators:

- Number of research projects conducted, research grants received, and projects completed that address environmental stewardship by all the segments of the population of Tennessee.
- Number of refereed or peer-reviewed publications, scientific or professional presentations, trade and popular media, Web sites, and software produced that relate to environmental stewardship in the state of Tennessee.
- Number of workshops, demonstrations, field days, and other educational programs conducted informing the citizens of Tennessee how everyone can be an environmental steward.

Outcome Indicators:

- Number of citizens of Tennessee trained in environmental stewardship.
- Number of citizens of Tennessee reporting increased knowledge of environmental stewardship issues.
- Number of reported cases of improved environmental quality attributed to environmental stewardship education.

EXPECTED IMPACTS - all performance goals

Through a coordinated, multi-disciplinary effort, the Tennessee Agricultural Research and Extension System will assemble a reliable body of relevant information, develop effective educational programs, and deliver environmental and water quality information to the citizens of Tennessee. The impact of these efforts will be a balance among agricultural, biological, and ecological systems that preserves the viability of each system. These impacts will be tracked through annual reports that summarize successful research and extension activities.

Balance between the agricultural industry and the environment

- Movement of sediment and nutrients to water bodies will be reduced by educating agricultural producers regarding benefits of Best Management Practices, e.g., buffer strips.
- Erosion and the associated movement of sediment into streams will be reduced by increasing the number of acres in no-till production.
- Soil erosion will be reduced and energy conserved by reducing row-crop producer use of deep tillage when it is not needed.
- Pest control will be improved and pesticide use will be reduced by implementing IPM in row-crop and specialty crop production.

Sustainable management of nonagricultural land uses to ensure environmental integrity

- Environmental quality will be protected and improved by heightening environmental awareness of managers of public lands to environmental issues.
    - The number of public lands managers conducting site specific audits will increase.
- The number of public lands managers implementing erosion control strategies will increase.
- The number of public lands managers implementing other recommended Best Management Practices will increase.
- The *Tennessee Mosquito Control Handbook* that incorporates IPM into mosquito control measures will be developed and distributed.
- Adoption of IPM practices by landscapers and landscape managers will increase.
- Adoption of IPM practices by gardeners and homeowners will increase.
- Adoption of IPM practices by certified and licensed pest control professionals will increase.

Adoption of new practices and technologies to utilize and dispose of waste products from agricultural production and processing

- Education for operators of Confined Animal Feeding Operations (CAFOs):
- Operators of permitted Class I facilities will receive training leading to certification as waste system operators in Tennessee.
    - Owners/operators of Class II CAFOs requiring permits will prepare and submit operating permit applications to the Tennessee Department of Agriculture.
    - Owners/operators of Class II swine or dairy CAFOs that produce manure in excess of crop land needs will use technologies such as composting to ease off-farm transport of manure.

- The number of poultry, swine, and dairy producers completing a farm nutrient management plan will increase.
- The number of poultry, swine, and dairy producers covering stored poultry litter and manure will increase.
- The number of poultry producers building and operating composting facilities to dispose of dead birds will increase.
- The number of swine producers completing the National Pork Producers Environmental Assurance Program will increase.

Preservation and enhancement of the quality of surface and ground water supplies

- The number of private wells and springs tested for contamination will increase.
- The number of tested wells that are appropriately treated to reduce contamination will increase.
- Agricultural producers and other Tennesseans living and working in priority watersheds (as indicated by 303(d) reporting) will participate in watershed programs to improve water quality.
- Water quality will improve as measured by chemical or biological monitorin g.
- The number of streams included on the 303 (d) list will decrease.

Environmental stewardship

- IPM use will increase from the numbers found in the 1997 Homeowner Landscape Management Survey.
- The percentage of schools using IPM will increase each year.
- Families will use Home*A*Syst and other appropriate educational programs to protect and improve the environment in and around their homes.
- Awareness and understanding of watersheds and of water quality issues will be increased for targeted audiences of youths and adults.

KEY PROGRAM COMPONENTS:

Principal components of the Tennessee Agricultural Research and Extension System programs in Goal 4 will consist of research projects organized by scientists to focus on and investigate issues associated with the preservation of environmental quality and the conservation of natural resources, and educational programs to disseminate that informatio n to target audiences throughout the state.

Land Use

"Farm*A*Syst" - a program to improve the environment by helping farmers assess the farmstead site, private water wells, pesticide storage and handling, fertilizer storage and handling, petroleum product storage, hazardous-waste management, septic systems, livestock waste storage, livestock yard management, poultry litter management and carcass disposal, and milking center wastewater treatment.

"Home*A*Syst" - a program designed to improve the environment by helping homeowners assess storm water management, drinking water well management, yard and garden care, household wastewater disposal, hazardous household products, household trash, liquid fuels, and the home site.

"Vegetable Research Initiative" - research program to encourage producers to adopt vegetable production in an economically and environmentally sustainable manner.

"No-till Agricultural Production" - continued education of agricultural producers about the economic and environmental benefits of no-tillage for the production of row-crops and of some specialty crops.

Pesticides

"Tennessee Pesticide Impact Assessment Program" (also the Regional and National Pesticide Impact Assessment Programs) - obtains critical pesticide use trends and identifies possible alternatives.

"Integrated Pest Management Program (IPM)" - program that teaches and demonstrates a broad range of methods to control pests while reducing the use of chemical pesticides in agriculture, on golf courses, in schools and other public facilities, and in and around homes.

"Landscape IPM Notebook" - a manual to provide guidance for implementation of integrated pest management in landscape design, installation, and management.

"TISMRS" - implementation of a management system to reduce the need for disposal of pesticide rinseate.

Forestry and Wildlife

"Research Initiatives" - multi-disciplinary, multi-agency research focused on migratory bird habitat, black bear populations, sport fisheries management, sustainable forestry.

"FACE" - education to encourage establishment of vegetation to enhance wildlife food production and cover.
"Tennessee Forest Stewardship Program" - an education outreach program for forest land owners including management plan development.

"Tennessee Tree Improvement Program" - a research program designed to improve the productivity, health, and reforestation of forests in Tennessee

"Tennessee Master Logger Program" - a continuing education program for professional timber harvesters.

Water Quality

"Clean Water Priority Program" - an multi-disciplinary environmental improvement educational program designed to provide programming leadership in the area of water quality.

"Water Quality Research Initiative" - a research initiative to study the impacts of agriculture on surface and subsurface water quality and to compare those impacts to impacts from nonagricultural uses of land. The initiative further seeks to provide solutions when agric ultural or nonagricultural activities are found to have detrimental effects on water quality.

Waste Management

"CAFO Training" - education for owners/operators of Class I and Class II animal production facilities.

"Sustainable Dairy Systems" - training and management program to enhance viability of dairies with significant component related to manure and nutrient management.

"Animal Waste Associations" - multi-county groups organized to share pumping and distributions equipment to improve the management of anaerobic animal waste lagoons.

"Bioconversion Research" - research pursuing fungal conversion of food processing and agricultural waste streams to high value products.

"High-rate Anaerobic Digestion" - research to determine the kinetics of high-rate anaerobic digestion to decrease organic loading of conventional treatment systems by quickly reducing the organic strength of the waste stream.

"Animal Waste Management Team" - a multi-disciplinary team assembled to coordinate waste management education and information dissemination for animal producers in Tennessee

"Animal Waste Interest Group" - a multi-disciplinary, multi-institutional group to coordinate research and educational efforts in finding solutions to animal waste problems

Environmental Stewardship

"4-H Environmental Education Programs" - educational programs designed to teach environmental stewardship principles at the 4-H centers during summer camps and through special resident education programs for school groups conducted during the school year.

"4-H Natural Resources Projects" - projects provide 4-H members with hands-on experiences related to a number of natural resource/environmental education topics, including judging team activities.

PROGRAM LINKAGES

Internal Linkages:

Cooperation will continue within the University of Tennessee Institute of Agriculture and Tennessee State University among extension and research activities in appropriate departments and units.

External Linkages:

Cooperation will also continue with many local, state, regional, and national organizations that include, but are not limited to:

- Tennessee Departments of:
- Agriculture - collaborator, funding, information source
- Environment and Conservation - collaborator, information source
- Transportation - collaborator, funding
- Tennessee Agricultural Statistics Service - collaborator
- Multi-county Animal Waste Associations - collaborators
- Northwest Tennessee
- Five Rivers
- Richland Creek
- Plateau-Highland Rim
- Coffee-Franklin-Warren
- Three Rivers
- Tennessee Wildlife Resources Agency - collaborator, funding, information source
- Tennessee Division of Forestry - collaborator, funding, information source
- Tennessee Forestry Association - collaborator
- Tennessee Farmer's Co-op - collaborator
- Tennessee Farm Bureau Federation - collaborator
- Tennessee Nursery and Landscape Association - collaborator, funding, information source
- Tennessee Pork Producers Association - collaborator
- National Pork Producers Council - collaborator

- Tennessee Soybean Promotion Board - collaborator, funding, information source
- Tennessee Commission on Community and Service Learning - collaborator
- Southern Nursery Association - collaborator
- Cotton Incorporated - collaborator, funding
- Horticulture Research Institute - collaborator, information source
- Natural Resources Conservation Service (USDA) - collaborator, funding, information source
- Farm Service Agency (USDA) - collaborator
- Resource Conservation Districts - collaborators
- American Forest and Paper Association - collaborator
- Southern Regional Aquaculture Center - collaborator
- Nature Conservancy - collaborator
- National Council for Air and Stream Quality - collaborator, information source
- The Hobart Ames Foundation - collaborator, funding
- U.S. Environmental Protection Agency - coordinator
- U.S. Forest Service - collaborator, funding, information source
- U.S. Fish and Wildlife Service - collaborator, funding, information source
- U.S. National Park Service - collaborator, funding
- U.S. Geological Survey - information source
- U.S. Department of Energy - collaborator, funding, information source
- Agricultural Research Service (USDA) - collaborator, funding, information source
- Southern Appalachian Field Laboratory - collaborator, information source
- Southern Appalachian Man and the Biosphere Cooperative - collaborator, information source
- National Council for Air and Stream Quality - information source
- Champion Paper - collaborator
- Westvaco - collaborator, funding
- Georgia-Pacific - collaborator, funding
- Bowater - collaborator, funding
- Monsanto - collaborator
- Sparks Companies, Inc. - collaborator
- Oak Ridge National Laboratories - collaborator, information source, funding
- National 4-H Council's Workforce Center - collaborator
- Tennessee Valley Authority - collaborator, information source
- Watershed Associations - program collaborators
- The University of Tennessee Knoxville - collaborators
- Ecology and Evolutionary Biology
- Sociology
- History
- Botany
- Geology

- Geography
- Environmental Engineering
- Civil Engineering
- Institute for Public Service
- Joint Institute for Energy and Environment
- Tennessee and land grant university research affiliates, including Middle Tennessee State University, University of Tennessee Martin, Tennessee Technological University, University of Georgia, University of Kentucky, North Carolina State University, Clemson University, Florida A&M University, Auburn University, Mississippi State University, Louisiana State University, University of Arkansas, Texas A&M University, Texas Tech University, Oklahoma State University, West Virginia University, Virginia Polytechnic Institute and State University, Ohio State University, Penn State University, Purdue University, University of Maryland, University of Nebraska

TARGET AUDIENCES

Clientele groups who should be the direct beneficiaries of research and Extension knowledge and programs related to Goal 4 topics include, but are not limited to:

- Class I and Class II CAFO owners/operators
- Dairy, swine, and poultry producers
- Row-crop producers
- Managers of public lands
- Nontraditional and underserved agricultural producers
- Members of producer organizations
- Home owners
- Extension and outreach personnel (in-service training)
- Private land owners and managers
- 4-H members and leaders and other youth organizations
- Government agency personnel, including regulators
- Public policy makers
- Other researchers

Emphasis will be placed on program efforts to involve minority, low-income, and underserved producers as the Tennessee Agricultural Research and Extension System strives to reach diverse audiences. Eventual beneficiaries will also include the final consumers of food, fiber, forest, plant, and related products across Tennessee, within the U.S., and globally.

PROGRAM DURATION

The program duration will be intermediate to long range as an ongoing statewide initiative to ensure environmental quality and agricultural profitability.

ALLOCATED RESOURCES

Estimated Program Cost:

1862 Research

Year	Federal 3(b)&(c)	State and Local	Other
2000	965,966	2,888,564	811,971
2001	1,039,968	3,109,856	874,176
2002	1,091,521	3,264,018	917,511
2003	1,158,041	3,462,934	973,426
2004	1,242,518	3,715,548	1,044,435

1862 Extension

Year	Federal 3(b)&(c)	State and Local	Other*
2000	1,020,198	3,621,379	292,000
2001	1,020,198	3,766,234	306,600
2002	1,020,198	3,916,883	321,930
2003	1,020,198	4,073,559	338,027
2004	1,020,198	4,236,501	354,928

* Includes Smith-Lever 3(d) funds utilized to support programming in this goal.

1890 Extension

Year	Federal 3(b)&(c)	State and Local	Other*
2000	219,600	0	6,100
2001	219,600	0	6,100
2002	219,600	0	6,100
2003	219,600	0	6,100

2004	219,600	0	6,100

Estimated FTE Commitment:

1862 Research SY/PY/TYs

Year	Scientist Years	Professional Years	Technical Years
2000	13.2	27.8	37.0
2001	13.9	29.2	39.0
2002	14.7	30.8	41.1
2003	15.3	32.2	42.9
2004	15.9	33.4	44.5

1862 Extension FTEs

Year	Professional	Paraprofessional
2000	62.5	0.0
2001	62.5	0.0
2002	62.5	0.0
2003	62.5	0.0
2004	62.5	0.0

1890 Extension FTEs

Year	Professional	Paraprofessional
2000	2.5	2.0
2001	2.5	2.0
2002	2.5	2.0
2003	2.5	2.0
2004	2.5	2.0

EDUCATION AND OUTREACH PROGRAMS CURRENTLY UNDERWAY

Educational programs that are currently underway include:

- Farm*A*Syst
- Home*A*Syst
- Clean Water Priority Program
- Animal Waste Management Priority Program
- FACE (wildlife food and cover establishment)
- GAP (Good Agricultural Practices)
- Master Gardeners
- field days and demonstrations
- farm, forest, wildlife, fisheries, garden and nursery visits
- forest practice demonstrations on state forests and UT Experiment Stations
- Tennessee Master Logger Training Program
- Tennessee Forest Stewardship Program
- Forest Landowner Initiative
- Tennessee Forest Products Center
- mass media including print publications, newsletters, e-mail updates, training manuals, videotapes, Internet publications, ITV, and CD-ROMs
- pesticide applicator training
- Class I CAFO owner/operator training
- Environmental education programs at 4-H Centers

GOAL 5: ENHANCED ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS

STATEMENT OF ISSUES

Quality of life for communities, families and individuals in Tennessee is impacted by the interactions of financial, physical, mental, and emotional health. The research and extension activities of the Tennessee Agricultural Research and Extension System will identify, develop and disseminate strategies designed to improve economic and quality of life conditions of Tennessee citizens and communities.

Community Economic Development Issues

- Tennessee communities, both rural and urban, are facing significant changes in the coming years. In the past, traditional activities such as production agriculture have aided rural communities in determining a direction of growth and development. The declining economic impact of agriculture and its associated support industries on local economies has left many communities concerned about issues related to community well-being such as: jobs and incomes, adequate workforces for new and existing jobs, and the presence of a stable family environment. Strategic planning support systems will be needed to help community leaders to deal with these issues and develop the infrastructure necessary to adequately supply needed services. Communities will need to know and utilize information that will allow them to: 1) build on existing economic bases through expansion of current businesses and industries or increase revenue through the development of processes that add value to existing products, or 2) develop or attract new businesses and industries. In many cases, the organization of community coalitions will be needed to provide leadership for these efforts.

Quality of Life Issues

- Personal Economic Health - Personal economic health is a major issue facing Tennesseans. The State of Tennessee currently ranks second in the nation in bankruptcy rates (in 1998, one in every forty Tennessee households had filed for bankruptcy). This information indicates that families desperately need information and assistance in dealing with financial management, including the wise use of credit.

- Workforce Preparation - Even though the unemployment rate in Tennessee has remained relatively low overall, there are areas within the state that still have double digit unemployment. Unemployment in these areas has persisted because of plant closings and/or low educational levels. Lack of skills necessary for finding employment can result in financial problems for individuals and families. In some instances, lack of job hunting skills or knowing how to present themselves appropriately to potential employers can prevent individuals from finding jobs for which they are qualified. In some cases, additional job-related training may be needed. Workforce preparation programs that provide job seeking skills, help prepare people for the hiring process, or identify

opportunities for these individuals to acquire necessary job-related training can help address these needs.

- Parenting and Child Care - In 1995 in Tennessee, there were 6,520 children under 18 in foster care. The state ranked 12th in the U.S. in teen birth rate and ranked 48th in collection of child support payments. In 1998, there were 10,045 confirmed cases of child abuse or neglect. Tennessee ranked 4th in the nation in 1995 in the area of divorce rate. The high number of child abuse cases and children in foster care, the high teen pregnancy rate and the high divorce rate indicate that individuals and families are having difficulty navigating the challenges of personal relationships. Improved parenting and child care skills might help to reduce these multiple risks for Tennessee children. Educational programs for youth and adults to help them learn effective decision-making and communication skills could improve those statistics and improve the lives of Tennessee children and families.

- Lifestyle Choices, Character Education, and Life Skills - Violence is a growing public health issue. Though the rate of violence by and against children is declining nationally, recent outbreaks of violent behaviors by teens have pushed this issue to the forefront. In 1996, 944 juveniles were arrested for violent crimes in Tennessee. Much youth violent behavior is associated with use of alcohol and other drugs and with gang involvement. According to the Children's Defense Fund, development of extracurricular and after-school programs that fill the hours when juvenile violent crime peaks (3-7 p.m.) with positive activities and caring adults can limit opportunities for lawbreaking and promote academic and personal achievement of participants. Programs that teach principles of positive lifestyle choices, character education and development of life skills may help reduce the incidences of violent behavior.

- Volunteers - Volunteers have traditionally been used to assist in the development and delivery of Extension programs. While the majority of Extension volunteer usage over time has been associated with youth development programs, specifically 4-H, there has been a growing trend toward using well-trained volunteers to deliver educational programs in a number of other Extension subject matter areas. Extension Family and Community Education (FCE) members provide volunteer services in subject matter areas related to family and consumer sciences. Trained Extension Master Gardeners commit volunteer time to provide answers to requests for home horticulture and gardening questions in county Extension offices. The use of trained volunteers in these and other situations helps stretch Extension resources in delivering effective educational programs.

- Home Environmental Quality - Physical environments found in homes can directly impact personal health. In the U.S., 1 out of 4 adults has allergies or asthma and 1 in 10 children has asthma (the second highest chronic illness among school children). These conditions annually result in 9 million lost work days and individual medical bills that are $600 or higher. Allergies and asthma are related to environmental pollutants, and may be especially exacerbated by poor indoor air quality. A program to help families improve indoor air quality could significantly reduce the physical reactions and costs associated with allergies and asthma.

- Home Safety - According to the "Healthy People 2000" report, approximately 23,000 deaths from unintentional injuries occur in homes annually. Two thirds of all accidental deaths in older adults are attributable to falls. Unintentional injuries in the elderly often are the beginning of serious health problems, resulting in dependency on their families and/or the community. Hip fractures from falls are one of the major reasons for nursing home placement. An intervention program directed at these and other home injuries could significantly reduce home -based injuries.

The Tennessee Agricultural Research and Extension System (TARES) will address issues related to economic development and quality of life through the development and delivery of research -based information that will allow community leaders, families and individuals to increase their knowledge and skills related to these issues and to adopt practices and behaviors that will improve their economic and quality of life situations.

PERFORMANCE GOAL 5.1: Improve the economic viability of Tennessee communities through the use of economic and community development strategies.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to community economic development.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to community economic development.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to community economic development.

Outcome Indicators:

- Number of participants completing community economic development programs.
- Number of program participants increasing their knowledge of community economic development principles.
- Number of program participants who adopt or utilize recommended community economic practices.
- Number of communities developing and adopting community development plans and/or making improvements.

PERFORMANCE GOAL 5.2: Increase the economic stability of individuals and families in Tennessee.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to financial management.

- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to financial management.
- Number of workshops, demonstrations, field days, and other educatio nal programs conducted related to financial management.

Outcome Indicators:

- Number of participants completing financial management programs.
- Number of program participants increasing their financial management knowledge.
- Number of program participants who adopt recommended financial management practices.

PERFORMANCE GOAL 5.3: Improve employment opportunities for unemployed and underemployed Tennessee residents.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to workforce preparation.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to workforce preparation.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to workforce preparation.

Outcome Indicators:

- Number of participants completing workforce preparation programs.
- Number of program participants increasing their workforce preparation knowledge.
- Number of program participants who adopt recommended workforce preparation practices.

PERFORMANCE GOAL 5.4: Increase parenting skills of Tennessee parents resulting in improved family relationships.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to parenting and parenting education.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to parenting and parenting education.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to parenting and parenting education.

Outcome Indicators:

- Number of participants completing parent education programs.
- Number of program participants increasing their parenting knowledge.
- Number of program participants who adopt recommended parenting practices.

PERFORMANCE GOAL 5.5: Improve the quality of care provided to children by child care facilities utilizing improved child care strategies.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to child care.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to child care.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to child care.

Outcome Indicators:

- Number of participants completing child care provider educational programs.
- Number of program participants increasing their knowledge related to aspects of providing child care.
- Number of program participants who utilize recommended child care practices.

PERFORMANCE GOAL 5.6: Improve Tennessee adolescents' lifestyle choices, life skills and character development.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to adolescent lifestyle choices, character education and/or life skill development.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to adolescent lifestyle choices, character education and/or life skill development.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to adolescent lifestyle choices, character education and/or life skill development.

Outcome Indicators:

- Number of youth completing adolescent lifestyle choices, character education and/or life skill development programs.
- Number of youth increasing their knowledge of adolescent lifestyle choices, character education and life skill development.
- Number of youth adopting recommended adolescent lifestyle choice, character education and life skill development behaviors.

PERFORMANCE GOAL 5.7: Increase the training and utilization of volunteers to extend the capabilities of the Tennessee Agricultural Research and Extension System.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to volunteers.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to volunteers.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to volunteers.

Outcome Indicators:

- Number of participants completing volunteer training programs.
- Number of volunteer training program participants increasing their knowledge.
- Number of volunteers in Agriculture and Natural Resources programs.
- Number of volunteers in Family and Consumer Science programs.
- Number of volunteers in 4-H and Youth Development programs.
- Number of volunteers in Resource Development programs.

PERFORMANCE GOAL 5.8: Improve the quality of life of Tennessee residents through improved home environmental quality and safety.

Output Indicators:

- Number of research projects conducted, research grants received and research projects completed related to home environmental quality and safety.
- Number of refereed or peer reviewed publications, scientific or professional presentations, trade and popular media, Web sites and software produced that relate to home environmental quality and safety.
- Number of workshops, demonstrations, field days, and other educational programs conducted related to home environmental quality and safety.

Outcome Indicators:

- Number of participants completing home environmental quality and safety programs.
- Number of program participants increasing their knowledge of home environmental quality and safety.

EXPECTED IMPACTS - all performance goals

As a result of a coordinated multi-disciplinary research and extension effort, the Tennessee Agricultural Research and Extension System will assemble a reliable body of relevant knowledge and deliver effective educational programs to clientele in the areas of economic development and quality of life issues. The following expected impacts of these programs will be tracked through annual reports that summarize successful extension and research activities.

Community Economic Development:

- Coalitions/collaborative groups will address community economic development issues.
- New businesses will start up or existing businesses will be expanded by owners/managers participating in programs.
- New jobs will be created as a result of new or expanded businesses.
- Communities or counties will develop or revise economic and community development plans after participating in programs.

Quality of Life:

Personal Financial Management

- Individuals and families will report reduced debt load and the dollar amount of debt reduction reported.
- Individuals will open savings/investment accounts and the dollar amount of increased savings/investment.

Workforce Preparation

- Workforce preparation program participants will obtain job interviews.
- Program participants will find employment.
- Program participants will maintain employment for at least 6 months.

Parenting and Child Care

- Parents will report using non-violent, situation-appropriate guidance techniques with their children.
- Parents will report communicating with their children using techniques recommended in parenting programs.
- Child care providers will report more frequent interaction with children using techniques that express respect and affection for the children in their care.
- Child care staff will report using positive techniques of guidance to correct or avoid undesirable behaviors by the children in their care.

Lifestyle Choices, Character Education and Life Skills Development

- Youth will report positive change in their lives as a result of utilizing life skills learned in program.
- Youth will participate in service learning/community improvement projects.

Volunteers

- Volunteers will contribute volunteer hours to programs and activities and the dollar value of those contributed hours.

Home Environmental Quality and Safety

- Home*A*Syst assessments will be completed by program participants.

- Program participants will take action to correct a problem identified through the Home*A*Syst assessment.
- Program participants will report positive changes in their home's environmental quality and/or safety.
- Partnerships will be formed with local community groups or agencies to address home accessibility issues.

KEY PROGRAM COMPONENTS

Community Economic Development:

"Sparks Project" - research project in cooperation with the Tennessee Department of Agriculture and the Sparks Companies, Inc. to identify comparative advantages available in various geographic regions of Tennessee for development of agribusiness industries utilizing raw agricultural commodities produced in Tennessee.

"Community Strategic Planning Assistance" - program will provide selected Tennessee communities or counties with information and assistance in economic development strategic planning, help in analyzing current trends, and assistance to community resource development committees.

"Small Business Program" - program that will provide knowledge and skills for small business owners and managers to aid startup of new small businesses or expansion of existing businesses.

Quality of Life:

Personal Financial Management:

"Money 2000+ Program" - a comprehensive financial management program that teaches financial management skills and improved consumer skills to adults and youth audiences.

"Financial Management Priority Program Team" - a multi-disciplinary, multi-institutional (UT and TSU) team providing leadership and direction to education for family resource and financial management as well as gaining employability skills.

Workforce Preparation:

"Preparing for the World of Work" - workforce preparation program that will teach participants knowledge and skills needed for entry into the workforce or advancement into more economically rewarding employment.

"Youth Workforce Preparation Program" - workforce preparation program that will be presented through 4-H events, 4-H camps and other special youth programs to increase the development of five identified workforce competencies.

"Prison Job Preparation Program" - a TSU Extension workforce preparation program for prison inmates to increase their job attainment capabilities upon release.

"Financial Management Priority Program Team" - a multi-disciplinary, multi-institutional (UT and TSU) team providing leadership and direction to education for family resource and financial management as well as gaining employability skills.

Parenting and Child Care:

"Healthy Children Ready to Learn" - program designed to increase parents' knowledge and skills as they relate to raising children. Areas addressed will include use of non-violent, situation-appropriate guidance techniques and techniques that will improve child-parent communications.

"Grandparents Raising Grandchildren" - TSU Extension program that will teach parenting education concepts and techniques to grandparents who have been placed in situations where they are acting in the parental role for their grandchildren.

"Healthy, Happy Children: Childcare Provider Education" - program that will provide knowledge and skill training for childcare providers of all types (i.e., centers, in-home, relatives, and after-school).

"Human Development Priority Program Team" - a multi-disciplinary, multi-institute (UT and TSU) team that will provide leadership and direction in the areas of adolescent development, parenting and child care, including community and coalition development.

Lifestyle Choices, Character Education and Life Skills Development:

"Character Education" - efforts will focus on initiating and supporting CHARACTER COUNTS™ programs in Tennessee communities based on the six pillars of the CHARACTER COUNTS™ curriculum.

"4-H LifeLinks" - a lifestyle choices education program that will address adolescents and their choices related to potentially negative lifestyle activities (e.g., alcohol, tobacco, driving, etc.) and positive preventative behaviors (e.g., healthy diet and nutrition, exercise, etc.). Older teens will serve as peer educators for younger youth participating in the program.

"Dramatic Action Response Troupe (DART)" - program held at TSU for teen 4-H members to learn how to become better role models for their peers and to use the performing arts to deliver messages that will help youths and adults to address issues facing today's teens.

"4-H Out-of-School Credit Program" - TSU Extension program that allows students to earn up to two units of high school credit by participating in after-school 4-H programs approved by the local school board.

"4-H Youth Leadership Program" - designed to help youth develop competency in seven life skill areas: understanding self; communicating; getting along with others; learning to learn; making decisions; managing; and working with groups.

"Human Development Priority Program Team" - a multi-disciplinary, multi-institute (UT and TSU) team that will provide leadership and direction in the areas of adolescent development, parenting and child care, including community and coalition development.

Volunteers:

"Master Gardener Program" - a program that will teach volunteers knowledge and skills necessary to respond to client requests related to home lawn and horticulture problems. Trained volunteers, in turn, provide a set amount of service time to Extension in return for the training.

"Developing 4-H Volunteer Leaders using ISOTURE" - model of volunteer management that will be used with 4-H adult volunteer leader development. ISOTURE equals: Identification of needs, Selection of individuals to meet the needs, Orientation to the program, Training to do the job, Utilization, Recognition and Evaluation.

"Family and Community Education (FCE)" - FCE members will learn knowledge and skills necessary for them to serve as volunteers to assist Extension faculty to plan and present Family and Consumer Education programs.

Home Environmental Quality:

"Healthy Indoor Air for Tennessee's Homes" - a program to increase knowledge of indoor air pollutants and their health impacts, emphasizing allergies and asthma.

"Radon Program" - a program to increase knowledge of radon and how to detect and ameliorate radon problems in the home.

"Home*A*Syst*" - a program that will help people conduct a self-assessment of their home environment and provides information as to how to reduce or eliminate those problems.

"Health and Environmental Safety Priority Program Team" - a multi-disciplinary, multi-institution (UT and TSU) team that will provide leadership and direction for programming related to home and work environments from a health and safety perspective.

Home Safety:

"Home Safety Program" - safety program will focus on home falls and burns prevention for older populations.

"Disaster Education Program" - will focus on emergency preparedness for special needs populations and child care providers and the development of disaster materials specific to Tennessee.

"Universal Design/Accessibility" - program will focus on housing accessibility for disabled individuals and aging persons. Efforts will be made to educate housing industry professionals and develop partnerships with community agencies and groups concerned with housing accessibility.

"Health and Environmental Safety Priority Program Team" - a multi-disciplinary, multi-institution (UT and TSU) team that will provide leadership and direction for programming related to home and work environments from a health and safety perspective.

PROGRAM LINKAGES

Internal Linkages:

Internal program linkages will include research and Extension faculty cooperation across multi-unit and multi-disciplinary components of the University of Tennessee Institute of Agriculture and Tennessee State University.

External Linkages:

Community Economic Development:

Tennessee Department of Agriculture - project collaborator and resource provider
Sparks Company, Inc. - project collaborator
Tennessee Department of Economic and Community Development - project collaborator
Local Chambers of Commerce - program collaborators
Regional Development Authorities - program collaborators
Rural Development-USDA - program collaborator
Small Business Administration - program collaborator
Tennessee Valley Authority - program collaborator
Small Business Development Centers - program collaborator
Economic Development Districts - program collaborator

Quality of Life:

Personal Financial Management

- Bankruptcy Trustee offices - program collaborators

- University of Tennessee - Knoxville (UTK) College of Human Ecology - program collaborator

Workforce Preparation
- Tennessee Department of Human Resources, Workforce Development Board - program collaborator and resource provider
- Tennessee Department of Corrections - program collaborator
- National 4-H Council Workforce Center - information source

Parenting and Child Care
- Participating local judicial systems - program collaborators
- Tennessee and county Departments of Human Services - program collaborators
- Subsidized housing authorities - program collaborators
- Tennessee Association for the Education of Young Chil dren - program collaborator
- UTK College of Human Ecology - program collaborator
- American Association of Retired People
- Tennessee State Commission on Aging

Lifestyle Choices, Character Education and Life Skills Development
- Tennessee Farm Bureau Federation - resource provider
- Bridgestone/Firestone Trust Fund - resource provider
- Memorial Foundation - resource provider
- Participating local public school districts - program collaborators

Volunteers
- National 4-H Council - information source

Home Environmental Quality and Home Safety
- UTK College of Human Ecology, Department of Health and Safety - program collaborators
- East Tennessee State University College of Medicine - program collaborators
- Tennessee Department of Health - program collaborators
- Tennessee Department of Human Services - resource provider
- Tennessee Department of Environment and Conservation - resource provider and information source
- U. S. Environmental Protection Agency - resource provider and information source
- Easter Seal Society - resource provider and program collaborator

TARGET AUDIENCES

Community Economic Development:
- Tennessee Department of Agriculture

- Tennessee Department of Economic and Community Development
- Potential agribusiness firms interested in locating in Tennessee
- Local officials and citizens interested in businesses locating in their areas
- Rural Tennessee community leaders and citizens
- Small business owners and managers

Quality of Life:

Personal Financial Management
- Families or individuals experiencing financial stress
- Elderly
- Residents in housing projects

Workforce Preparation
- Tennessee "Families First" participants
- Prison inmates
- 4-Hers and other youth grades 4-12 participating in career or other job-related programs, with special emphasis on 7th grade and 10th grade 4-H members.
- Unemployed/underemployed individuals desiring jobs or higher salaried jobs

Parenting and Child Care
- Parents under court order (child abuse)
- Divorcing parents
- Low-income/low-literacy parents
- Parents of young children (ages birth-10)
- Teen parents
- Grandparents in parenting roles with their grandchildren
- Childcare providers of all types (centers, in-home, relatives, after-school)

Lifestyle Choices, Character Education and Life Skills Development
- Youth 4-12 grades with special emphasis on teens
- 4-H members and adult volunteer leaders

Volunteers
- Adults with basic horticulture knowledge and a desire to learn more and volunteer their expertise back through the Master Gardener program
- Potential and current 4-H adult volunteer leaders
- Extension Family and Community Education club members

Home Environmental Quality/Home Safety
- Homeowners/residents in radon susceptible locations
- Homeowners/residents with home environmental quality concerns
- Health care professionals

- Real estate professionals, architects and designers, home builders and subcontractors, insurance companies, building inspectors
- Elderly
- Limited resource individuals and families
- Day care providers, teachers and long-term care facility operators

Emphasis will be placed on program efforts to involve minority, low-income, and underserved audiences as the Tennessee Agricultural Research and Extension System strives to reach diverse audiences.

PROGRAM DURATION

Intermediate term (2 to 3 years): Home Environmental Quality: Radon Program, Home*A*Syst*
Long term (5 years+): All other programs

ALLOCATED RESOURCES

Estimated Program Cost:

1862 Research

Year	Federal 3(b)&(c)	State and Local	Other
2000	315,675	943,975	265,350
2001	344,489	1,030,140	289,571
2002	375,001	1,121,380	315,218
2003	406,693	1,216,149	341,858
2004	461,507	1,380,061	387,933

1862 Extension

Year	Federal 3(b)&(c)	State and Local	Other*
2000	2,706,829	8,386,672	245,500
2001	2,706,829	8,722,139	257,775
2002	2,706,829	9,071,024	270,664
2003	2,706,829	9,433,865	284,197
2004	2,706,829	9,811,220	298,407

* Includes Smith-Lever 3(d) funds utilized to support programming in this goal.

1890 Extension

Year	Federal 3(b)&(c)	State and Local	Other
2000	657,000	0	33,250
2001	657,000	0	33,250
2002	657,000	0	33,250
2003	657,000	0	33,250
2004	657,000	0	33,250

Estimated FTE Commitment:

1862 Research SY/PY/TYs

Year	Scientist Years	Professional Years	Technical Years
2000	7.6	16.0	21.3
2001	7.9	16.5	22.0
2002	8.3	17.4	23.3
2003	8.7	18.2	24.3
2004	9.0	19.0	25.3

1862 Extension FTEs

Year	Professional	Paraprofessional
2000	143.0	8.5
2001	143.0	8.5
2002	143.0	8.5
2003	143.0	8.5
2004	143.0	8.5

1890 Extension FTEs

Year	Professional	Paraprofessional
2000	8.5	5.0

2001	8.5	5.0
2002	8.5	5.0
2003	8.5	5.0
2004	8.5	5.0

EDUCATION AND OUTREACH PROGRAMS CURRENTLY UNDERWAY

Educational and outreach programs currently underway include:
Community Economic Development:

Exploring Entrepreneurship
Total Quality Partnerships
Quality Communities.

Quality of Life:

Personal Financial Management
- Attaining Affordable Housing
- Building Financial Management Skills
- Improving Consumer Skills

Workforce Preparation
- Preparing for the World of Work
- Out-of-School Credit for 4-H

Parenting and Child Care
- Parenting Apart: Effective Co-Parenting
- Child Care Provider Training

Lifestyle Choices, Character Education and Life Skills Development
- Dramatic Action Response Troupe (DART)
- 4-H LifeLinks
- Character Counts

Volunteers
- Master Gardeners
- Taking Anybody to Expanded Involvement (TAXI) - 4-H volunteer leader training
- Family and Community Education

Home Environmental Quality/Home Safety

- Home*A* Syst*
- Healthy Indoor Air for Tennessee's Homes
- Radon Program
- Indoor Air Quality
- Universal Design/Accessible Housing

2. STAKEHOLDER INPUT PROCESS

1862 Research

The 1862 research program solicits and collects stakeholder input through a number of processes that occur at varying levels of the organization and in collaboration with the 1862 Extension program.

Stakeholder input is integral to the research program. Such input:

- informs individual and collaborative research programs;
- identifies problems that need to be addressed through research;
- points to systemic needs among target audiences that require multi-partner, multi- disciplin

water quality;

- leads to collaborative interactions with 1862 Extension to ensure efficient and effective transmission of r
- and provides measures to ensure that outreach activities intended to disseminate research findings

• Field days held at 11 branch experiment stations, parks, and other sites across the state relate research findings from specific areas of the 1862 research programming and provide targeted clients, as well as area residents and community and civic leaders, with opportunities to comment, ask questions, and interact with station research personnel and administrators. Input is collected formally through registration material and participant surveys and informally through individual interactions and factored into planning and work by both branch station superintendents and staff and by research faculty and administrators.

• Stakeholder meetings are organized around specific topics, generally in connection with issues viewed as pressing for Tennesseans. Examples include food safety and the exploration of new market options for Tennessee tobacco producers. Meetings are organized to solicit input, identify problems , needs, and concerns, and explore options. Participants are sought by public call and in collaboration with county Extension offices.

• Internet-based stakeholder data collection formally began in 1999 and is expected to increase during the Plan of Work five-year cycle. Internet-based material and solicitation of comments is being conducted by the joint research-Extension food safety initiative and planning is underway to develop a stakeholder database accessible through the Internet to represent all areas of 1862 research.

• Statewide stakeholder input processes conducted by Extension sections have traditionally also served as a source for stakeholder input to research. Joint collaboration among research and Extension with respect to stakeholder inputs is expected to increase during the Plan of Work five-year cycle.

• 1862 research faculty and administrators interact with Tennessee agricultural commodity organizations formally and informally, including participation in the non-profit Tennessee Forest and Farm Families, Inc., organized by the state governor's office. These interactions, along with contacts and exchange with agriculture committee members of the Tennessee General Assembly, provide opportunities for stakeholder input by legislators and commodity organizations.

• Commodity groups are also involved in quarterly meetings of the 11 branch station superintendents, research department heads, and research administrators, which are held at locations across the state. The quarterly meetings allow both informal interactions and presentations by commodity groups on issues of concern.

1862 Extension

The stakeholder input process to provide direction for 1862 Extension programming involves a number of different activities which provide broad-based sources of information. The activities can be divided into two somewhat unique categories, statewide input and county input.

Statewide Input - statewide stakeholder input processes are those conducted by Extension sections and/or priority program teams and Extension administration.

Agriculture and Natural Resources (ANR) and Resource Development (RD) Section/Priority Program Team Efforts

- ANR and RD section and priority program team faculty conducted preliminary environmental scans to identify potential program issues and identify possible programs to address those issues. The environmental scanning process involved the collection of information from existing databases as well as meeting with appropriate commodity groups, related public agencies and private organizations and through formal data collection activities, such as the Sparks Project. After the preliminary program proposals were developed, key leaders and individuals familiar with the concerns and problems in a particular subject matter area were sent the proposed plans and asked for their feedback, including recommendations for modification of the program plans. Feedback indicated that most of the proposed plans were very acceptable to the reviewers. Suggestions that were made included several recommendations for additional program linkages that would facilitate the impacts of the programs. Several of these linkages were added to the final program plans.

Family and Consumer Sciences (FCS) Section/Priority Program Team Efforts

- Focus group interviews were conducted in communities throughout Tennessee related to FCS program issues and needs. Seven focus groups were conducted and reported. The audience selected for the sessions focused on limited resource and middle class family members since most of our FCS programming is targeted to this audience. Participants included those who have been in our classes and those who have never utilized Extension educational programs or information. Results of the focus groups provided a list of areas in which the participants had interests, topics they wanted to learn, and the ways that they preferred to have the programs presented.

- Each priority program team also conducted a focus group with their external advisors. There are four teams and they were given feedback relating to the importance of our programming, and if it meets the needs of Tennessee families. The priority program teams used the feedback to change the teams' names to easier to remember titles that include the scope of programming in each area. Each team also received information that will help the team focus on the growing issues in each area.

4-H and Youth Development Section/Priority Program Team Efforts

- Citizens Input was obtained in three ways as the 4-H Plan of Work was developed.

  1. Input from 4-H members elected by their peers as members of the State 4-H Council - A session with 22 4-H Council members allowed them to suggest what the focus of 4-H Program should be for the planning cycle. According to their expressed needs, the program should focus on citizenship and service learning, youth leadership, animal related learning experiences and computers. They also felt that communications skills were an important focus. They suggested the program retain opportunities for youth to have social experiences and learning experiences, opportunities for travel and recognition. According to council members district and state events are critical to youth staying involved in the program.

  2. Input from Volunteer State 4-H Leaders - A listening session with 16 volunteers at State 4-H Volunteer Leader Forum allowed volunteers to suggest the focus for the program and to react to the focus areas that had been suggested by the state 4-H staff. The volunteers thought it was important to focus on programs that would involve families and that would interest youth. They were very interested in livestock related programs and in opportunities for volunteers to be involved in the program. They also felt that citizenship opportunities were imp ortant for youth. The volunteers were interested in maintaining a traditional focus to the program but agreed that up-to-date technology such as web sites should be used for communication purposes and to attract youth to 4-H. Although they did not suggest the idea of a workforce focus, the idea was presented, they thought it was important.

  3. Reactions to Plan of Work by Users of the Program - The completed Plan of work was mailed to 10 individuals for their critique and suggestions. The consensus wa s that all parts of the 4-H Plan were important to the development of today's youth. The components -- Citizenship, natural Resources and the Environment, Youth Leadership, Volunteer

Development, Workforce Preparation and Health and Wellness and Enhanced Quality of Life--were all deemed and important. It was felt that all could be integrated with ongoing projects such as 4-H animal projects, home economics projects, engineering projects, etc.

- Changes Made because of Input - Our first draft of the 4-H youth development plan had a component for Volunteer Leadership. Because of input from youth and volunteers, a component for Youth Leadership development was developed with a different focus from the Volunteer Development component.

  Both communications skills and use of technology were addressed through the Workforce Preparation component.

  Although the Animal projects are not a program focus, it is felt that workforce preparation skills, youth leadership skills, citizenship skills and stewardship for the environment can be integrated very successfully with animal programs.

1862 Extension Administration Efforts

- In 1999, a new State Extension Advisory Council was formed to provide advice and feedback to Extension administration on matters related to programming, as well as other topics. The 21 members of the Council were nominated as representatives of one of four Extension districts or as at-large representatives. Demographics of the 21 Council membership includes ten white males, six white females, four black males, three black females. The chair of the 1890 Cooperative Extension Program's advisory committee serves as an at-large member of the Council and the Administrator of the 1890 Cooperative Extension Program serves as an ex-officio member. The Extension Advisory Council will meet twice a year. Members of the Council are in the process of meeting with and surveying county Extension staff to identify programming efforts and concerns.

  County-Level Input - Extension stakeholder input is collected at the county level through county Extension advisory committees and specific needs assessment activities conducted in the development of the county plan of work.

County Extension Advisory Committees

- County advisory committees are formed to assist county Extension faculty in analyzing county situations, identifying problems and needs, setting program priorities, and evaluating program results. Guidelines for the formation of Extension advisory committees are found in the publication, "An Agent's Guide for Building Effective Extension Advisory Committees" (E12-2015-00-000-95). Specific criteria for level of advisory committee involvement are found in the "Tennessee Agricultural Extension Service Performance Appraisal for County Extension Faculty." The performance appraisal includes the criterion that, "The program advisory committee was representative of

county's population, geographic area, socioeconomic levels, racial-ethnic groups, gender and commodity groups."

- In 1999, a total of 833 distinct advisory committees were reported by counties in Tennessee. A total of 11,359 people served on these committees. (NOTE: Duplications of individuals who may have served on more than one committee in a county are included in that number.) The breakdown of county advisory committees by base program area follows:

- Agriculture and Natural Resources (ANR) - A total of 294 county-level advisory committees (with 3,065 total membership) were reported as providing input for some aspect of Extension ANR programs. Of that total, 174 committees (1,796 members) were formed to deal exclusively with ANR programs. The other 122 committees deal with ANR programs in addition to one or more other program area.

- Resource Development - A total of 256 county-level advisory committees (with 3,580 total membership) were reported as providing input for some aspect of Extension resource development programs. Of that total, 142 committees (2,351 members) were formed to deal exclusively with resource development programs. The other 114 committees deal with resource development programs in addition to one or more other program area.

- Family and Consumer Sciences (FCS) - A total of 343 county-level advisory committees (with 4,744 total membership) were reported as providing input for some aspect of Extension FCS programs. Of that total, 265 committees (4,129 members) were formed to deal exclusively with FCS programs. The other 78 committees deal with FCS programs in addition to one or more other program area.

- 4-H and Youth Development - A total of 224 county-level advisory committees (with 2,661 total membership) were reported as providing input for some aspect of Extension 4-H and youth development programs. Of that total, 126 committees (1,776 members) were formed to deal exclusively with 4-H and youth development. The other 98 committees deal with agricultural and natural resources programs in addition to one or more other program area.

County Plans of Work Needs Assessments

- County Extension units in Tennessee will begin the development of county unit plans of work in the Fall of 1999. District in-service training has been conducted to provide guidance to county faculty in conducting needs assessment processes that will allow opportunities for county stakeholder input that includes feedback from a cross section of the counties. Recommended methods will include, but are not limited to focus group interviews, use of nominal group techniques and use of surveys to collect data. Results from the stakeholder input activities will be used to develop county plans of work that will be submitted in the Spring of 2000. The plans will cover

fiscal years 2001-2004. The county plans of work will be reviewed and utilized in updating the state plan of work where appropriate.

1890 Extension
In early 1997, a subcommittee of the Association of Extension Administrators (AEA) reviewed 1990 strategic plan--Setting the Pace in a Time of Change and began the process for developing a new strategic plan. The committee began the process by sending a survey to the system ascertaining opinions on the mission, vision, core values and beliefs, a nd internal and external trends affecting the system. Secondly, an interactive satellite conference was conducted July 1997. This conference engaged the 1890 system, including research partners, in a process to define Extension's future. Preliminary results from the survey were presented and discussed during the conference. Using the data collected from the survey and satellite conference, the strategic planning committee developed and circulated a draft copy of the strategic plan to the system and made it available on the AEA home page. In June 1998, a system-wide conference was held where some 325 participants representing the membership of the entire system, developed critical components of the strategic plan. A small writing team developed a final draft. This draft was reviewed shared with stakeholders prior to printing -- Setting the Pace for the Next Millennium.

In September 1998, a community-based organization capacity building roundtable forum was held in Nashville to discuss issues facing small , limited-resource and minority farmers. About 30 people participated.

In November 1998, over 125 people participated in a small farm conference in Nashville. Feedback on workshops and future needs were obtained from the participants.

Also in November, over 300 people participated in the Farm, Home and Ministers' Institute at Tennessee State University. Participants completed evaluation surveys and provided verbal feedback on educational needs.

In February, 1999 our 20 person Extension Advisory Council was asked to identify issues in the four program areas which we should address in our next five year plan.

This stakeholder input was summarized and shared with Extension specialists and incorporated in the 5 year Plan of Work.

3. **PROGRAM REVIEW PROCESS**

Merit Review

1862 Research

- All proposed research projects in the Tennessee Agricultural Research and Extension System (TARES) that are funded under the Hatch Act of 1887 Multistate Research Fund undergo a rigorous review process for merit and scientific soundness.

- Initially the merit of a proposed research project is determined by the project leader in consultation with the department head. The proposed research is examined for compatibility with the department's and the TARES's missions and for the potential for successful completion. The scientific peer review panel (described at section's end) also evaluates the proposed research for merit. As a final step in the review process, the proposal is reviewed within the office of the Dean of the Tennessee Agricultural Experiment Station for completeness and for compatibility with the mission of the Institute of Agriculture of the University of Tennessee.

1862 Extension

- The initiation of new Extension programs or significant modifications of existing Extension programs that are funded with agricultural research or extension formula funds will require the completion of a merit review of the program. Criteria for merit rev iew will include: the program addresses key issues identified by an appropriate needs assessment process (including stakeholder input); the target audience(s) are identified; the program has appropriate and realistic goals and objectives; the implementation plan for the program is appropriate for achieving the goal(s) of the program and meeting needs of the target audience of the program; estimated resources necessary to conduct the program will be identified; and a program evaluation plan will be provided.

- The University of Tennessee Agricultural Extension Service Director will appoint an ad hoc Program Merit Review Team to review new program proposals and/or proposed major revisions of existing programs. The review team will consist of the following members:
  - a UT Extension specialist familiar with the subject matter of the program, but not involved in the program (if there is no specialist who meets this criteria, a UT faculty member external to the Institute of Agriculture who is familiar with th e subject matter, but not involved in the program or an 1862 Extension specialist from another state may be appointed).
  - a Tennessee State University Extension specialist familiar with the subject matter of the program, but not involved in the program (if there is no specialist who meets this criteria, a TSU faculty member external to the 1890 Cooperative Extension Program who is familiar with the subject matter, but not involved in the program or an 1890 Extension special ist from another state may be appointed).
  - a researcher with the Tennessee Agricultural Experiment Station who is familiar with the subject matter, but not involved in the program (if there is no Experiment Station researcher who meets this criteria, a UT faculty member external to the Institute of Agriculture who is familiar with the subject matter, but not involved in the program or an 1862 researcher from another state may be appointed)

- a member of the UT Agricultural Extension Service program and staff development faculty

- The ad hoc Program Merit Review Team will provide the UT Extension Director its recommendation for the reviewed program. The possible responses will be: accepted a s presented, acceptable subject to recommended modifications, and rejected. If the "acceptable subject to recommended modifications" response is given, the Merit Review Team will provide recommendations to the program proposer(s). The Merit Review Team c an appoint a member of the team to review the program after the recommended modifications have been made to ensure compliance with the Team's recommendations.

1890 Extension

- All new TSU Cooperative Extension Program curriculum and programs will be reviewed by an ad hoc Program Merit Review Team. Criteria for merit review will include: the program addresses key issues identified by an appropriate needs assessment process (incl uding stakeholder input); the target audience(s) are identified; the program has appropriate and realistic goals and objectives; the implementation plan for the program is appropriate for achieving the goal(s) of the program and meeting needs of the target audience of the program; estimated resources necessary to conduct the program will be identified; and a program evaluation plan will be provided.

- A TSU Cooperative Extension Program Merit Review Team will consist of the following members:
  - an 1862 research specialist (in-state)
  - an 1890 research specialist (in-state)
  - an 1862 Extension specialist (out-of-state)
  - an 1890 Extension specialist (out-of-state)
  - another professional from an appropriate discipline

- The ad hoc Program Merit Review Team will provide the TSU Cooperative Extension Program Administrator its recommendation for the reviewed program. The possible responses will be: accepted as presented, acceptable subject to recommended modifications, and rejected. If the "acceptable subject to recommended modifications" response is given, the Merit Review Team will provide recommendations to the program proposer(s). The Merit Review Team can appoint a member of the team to review the program after the recommended modifications have been made to ensure compliance with the Team's recommendations.

Scientific Peer Review

1862 Research

- The review process begins informally with discussions between the project leader and the department head; branch station superintendents are frequently consulted at this stage of project development. After a draft of the research proposal is completed, the department head reviews the proposal. If the department head believes the proposal has potential merit, s(he) either suggests modifications or appoints a panel of scientific peers with expertise and knowledge in the area of the proposed research to review the proposal. The review panel consists of three to five scientists; these scientists are typically from within the researcher's department, but if the department head deems it appropriate, peers from other departments within the TARES, or from other institutions, may also review the proposed research.

- The review panel evaluates the proposal to determine if it is editorially appropriate, to determine if the protocol outlined is of sufficient clarity and quality to ensure a sound scientific effort (that should lead to publishable data), and to make a recommendation to the department head about the priority the proposed research should receive relative to the requested resources and the appropriateness of the effort relative to the departmental mission. Upon receiving a recommendation from the panel, the department returns the proposal to the author for responses to the reviewer's comments, and if appropriate, for revision of the proposal.

4. MULTISTATE RESEARCH AND EXTENSION ACTIVITIES

1862 Research

Hatch Multistate Research

- The TARES employs a multi-disciplinary, multistate approach to solving research problems. Researchers within the TARES lead and participate in research efforts with universities and agricultural experiment stations in other states. A complete summary of these activities are listed at the web site of the Southern Association of Agricultural Experiment Station Directors (<http://www.msstate.edu/org/saaesd/>).

1862 Extension

Goal 1.

- Tall Fescue Endophyte Demonstrations - GA, AL, MS, AR, KY, VA, NC, SC
- Grazing School for the American Association of Bovine Practitioners - NC
- Pasture Aeration Research - Information exchange with surrounding states.
- Southern Regional Project on Precision Agriculture - Southern region states
- Cooperative work on no-till tobacco - KY, NC
- Southern Conservation Tillage Conference, SERA-IEG-20 - Southern region states
- Certified Crop Advisor Program - national program
- HERB-SOY Weed Control Program - Southern soybean states

- Applied corn and soybean varieties evaluation research - KY
- UT-UK Regional Tobacco Program - KY
- Regional Tobacco Growth Regulator Committee - VA, NC, SC, GA, FL, KY,
- Virginia Burley Program - VA
- Regional Apple Program - NC, SC, GA, AL
- Regional Peach Program - NC, SC, GA, AL
- Southeastern Professional Fruit Workers Group - AL, AR, OK, GA, SC, NC, FL, MS
- Multi-State Applied Research for Weed Management in Turf - neighboring states
- Multi-State Applied Research for Weed Management in Vegetables - Southern region states
- Southeastern Small Fruit Pest Management and Cultural Guide - Southern region states
- Annual revisions of Southern region publications on apples and peaches - NC, SC, GA, AL
- Plastic Usage in Vegetable Production, Mechanical Equipment for Harvesting Greens, Greenhouse Tomato Production and Fertigation in Commercial Vegetable - Southern region states
- Southern Soil Fertility Conference - 12 Southern states
- Herb-Cotton Weed Control Program - Cotton producing states
- COTMAN Crop Monitoring System - AR
- Southeastern Boll Weevil Eradication Program - Southern cotton producing states
- National Pork Producers Council Swine Education Advisory Group - national
- National Swine Registry - national
- National Swine Improvement Fact Sheets - IA, MI, IN, OH, MO, MN, NE, NC
- Precision Agriculture Technology Project (Subject to approval) - AR, MS
- Beef Systems Project - GA
- Dairy Systems Project - KY and Southern region states
- Southern Region Farm Management Committee - Southern region
- Managing Change in Agriculture - Southern region states
- Cotton Incorporated Project - TX, NC
- Risk Management Project - TX, MS
- American Society of Agricultural Engineers Machinery Standards Committee - national
- Farm Information Systems Regional Research Project - TN and North Central Region states
- USDA Beginning Farmer Committee - national
- USDA Small Business Innovation Research Panel - national
- Southern Extension Marketing Committee - Southern region states
- Livestock Marketing Information Center - Technical Advisory Committee - national
- Agricultural Marketing Workshop - USDA and LA, AR, MS, KY, MO, AL
- National Small Farms Conference - national
- National Certification and Training Assessment Group - national
- Pesticide Regulatory Education Program - national, EPA, USDA

- National Exam Validation and Training Group - national
- Blue Mold Control Information Program - KY, NC
- Agricultural Pest Survey Program - national
- Seedling Disease Control Committee - Cotton growing states
- Cotton Nematode Control Committee - Cotton growing states
- Cotton Disease Loss Estimate Program - Cotton growing states
- Cotton Internet Project - Cotton growing states
- Soybean Disease Loss Estimate Committee - Southern region states
- Cotton Insect Losses Estimates Program - Cotton growing states
- Insecticide Resistance Action Committee's Cotton Bollworm/Tobacco Budworm Monitoring Program - southeastern and mid-south states
- Cotton Bollworm/Tobacco Budworm Resistance Monitoring Program - USDA-ARS
- Southeastern Boll Weevil Eradication Foundation Boll Weevil Monitoring Program - southeastern cotton producing states
- Oil Strip Cooperative Mite Study - PA
- SERA-TF11 Committee on Value-Added Development Centers - Southern region states
- National Sweet Sorghum Producers and Processors Association - AL, KY
- Southeast Greenhouse Conference and Trade Show - VA, NC, SC, GA, AL, FL

Goal 2.

- Multi-State HACCP Training Program - KY, AL
- Food Safety Issues in Fresh Fruits and Vegetables Grant (Subject to approval) - Midwest states
- Food Quality and Safety Proposal for workshops and development of management practices for vegetable production (Subject to approval) - NE
- Reduction of Microbial Contamination in Fresh Produce Program - NE, GA, DE
- HACCP Training for Apple Cider Producers - KY

Goal 3.

- Implementation of a Food Stamp Nutrition Education Program - PR
- Appalachian Diabetes Coalition - 13 Appalachian states
- SERA Rural Health Program - MS

Goal 4.

- Joint Institute for Energy and the Environment Initiative - national
- Waste Management System Design Short Course - WI
- Southern Region Extension Water Quality Planning Committee - Southern region states
- Biology and Integrated Pest Management of the Asian Ambrosia Beetle Regional Fact Sheet - Southern region states

- Regional Medical/Veterinary IPM Recommendations for the WorldWide Web Project - Southern region states

Goal 5.

- USDA Small Business Innovation Research Panel - national
- Empowerment Zone/Enterprise Community/Champion Community Program - KY
- Southern Region CRD Committee - Southern region states
- Southern Region Volunteer Leader Forum (4-H) - Southern region states
- Master Gardener Program - Southern region states
- SERA Welfare Reform Group - Southern region states
- National Experiential Learning Design Team (4-H) - national
- National 4-H Congress - national
- National 4-H Impact Assessment Project - national
- Cooperative Citizenship Program - PR
- Southern Region Character Counts Program - Southern region states
- Mid-South Fair 4-H Day Program - MS, AR
- National 4-H Fashion Review - national
- SERA-IEG-10 Housing Program - Southern region states and PR

1890 Extension

The multi-state collaborative efforts of the TSU Cooperative Extension Program will be with the other 1890 universities' Extension programs.

Goal 1.

- Small Farm Programming
  - Alternative Enterprises
  - Model Farm
- Sustainable Agriculture
- Land Loss, Estate Planning and Tax Incentives

Goal 2.

- Food Safety Education
  - Food Handlers

Goal 3.

- Nutrition Education
  - FF NEWS and Food Stamp Education
- Health Education
  - Healthy Start
  - Wellness Center
  - Health Care Checklist

Goal 4.

- Natural Resource Management
- Forestry

Goal 5.

- Economic and Small Business Development
- Small Business Development in Rural Communities
- Financial Management for Youth
- Leadership Development Programs

5. INTEGRATED MULTI-DISCIPLINARY RESEARCH AND EXTENSION ACTIVITIES

Goal 1.

- Wood Technology Research and Extension Activities in Forestry, Wildlife and Fisheries Department
- Agricultural Development Center in Agricultural Economics Extension and Research
- Soybean Systems Project - Plant and Soil Science and Ag. Economics Extension and Research Faculty
- Cotton Systems Project - Plant and Soil Science and Ag. Economics Extension and Research Faculty
- Beef Cattle Decision Tool Project - Integrated project to design a beef cattle system decision making tool to assist producers in making production and marketing decisions - Animal Science-Beef and Ag. Economics Extension and Research
- Fescue Toxicosis Project - Plant and Soil Science and Animal Science - Beef Extension and Research
- Integrated Forage Management and Utilization Program - Research and education program to assist livestock producers increase quantity and quality of forage crops. Plant and Soil Science, Animal Science and Ag. Economics Extension and Research
- Crop Variety Trials and Demonstrations - Plant and Soil Science Extension and Research faculty
- Tennessee Blue Mold Task Force - Plant and Soil Science Extension and Research faculty
- TenneSelect - Program to promote production and sale of selected ornamentals - Extension and Research faculty in Ornamental Horticulture and Landscape Design
- Dogwood Improvement Program - Dogwood selection program to increase resistance to dogwood anthracnose and powdery mildew. Extension and Research faculty in Ornamental Horticulture and Landscape Design
- Vegetable Initiative - A multi-disciplinary effort to encourage adoption of best management practices in vegetable production - Plant and Soil Science, Ag. and Biosystems Engineering and Ag. Economics Research and Extension faculty

- No-Till Agricultural Production - A program that demonstrate the importance of soil and water conservation
- Sustainable Agriculture for Limited Resource and Small Farm Producers - Research and Extension cooperation - University of Tennessee and Tennessee State University

Goal 2.

- Institute of Agriculture Food Safety Initiative - Involving Research and Extension faculty from Food Science and Technology, Animal Science, FCS- Food Nutrition, Ag. Economics, and Plant and Soil Science
- Nutrition, Health and Food Safety Priority Program Team - UT and TSU cooperation to strengthen nutrition, health, and food safety programming

Goal 3.

- Expanded Food and Nutrition Education Program (EFNEP) - Program for youth and adult audiences focused on achieving healthy diets
- Nutrition, Health and Food Safety Priority Program Team - UT and TSU cooperating to strengthening nutrition, health, and f ood safety programming
- Health and Environmental Safety Priority Program Team - Provides leadership and programming related to health topics and home and work environmental health and safety
- Later-Life Health Promotion Program - A health wellness program for older adults

Goal 4.

- Vegetable Initiative - A multi-disciplinary effort to encourage adoption of best management practices in vegetable production - Plant and Soil Science, Ag. and Biological Engineering and Ag. Economics Research and Extension faculty
- No-Till Agricultural Production - A program to demonstrate the importance of soil and water conservation
- Sustainable Agriculture for Limited Resource and Small Farm Producers - Research and Extension cooperation - University of Tennessee and Tennessee State University
- Tennessee Pesticide Impact Assessment Program - Obtains critical pesticide use trends and identifies possible alternatives
- Tennessee Forest Stewardship Program - Outreach program for forest land owners including management plan development
- Clean Water Priority Program - Environmental improvement program designed to provide programming leadership in water quality
- Animal Waste Management Team - Coordinates waste management research and education information for animal producers in Tennessee

Goal 5.

- Community Strategic Planning Assistance Program - Provides community assistance in economic development, strategic planning help in analyzing current trends, and community resource development committees
- Financial Management Priority Program Team - UT and TSU provide leadership and direction to education for family resource and financial management
- Master Gardener Program - Provides volunteers with research-verified information and skills to respond to clients requests related to home lawn and horticulture problems
- Health and Environmental Safety Priority Program Team - Provides leadership and programming related to health topics and home and work environmental health and safety