2008 University of Tennessee Research and Extension and Tennessee State University Extension Combined Plan of Work

I. Plan Overview

1. Brief Summary about Plan Of Work

Tennessee's two land-grant universities comprise the Tennessee Agricultural Research and Extension System, conducting Research and Extension programs in all 95 counties, serving the state's 5.9 million people. The University of Tennessee Extension and the Tennessee Agricultural Experiment Station (TAES) comprise the 1862 institution and the Tennessee State University Cooperative Extension Program and the Tennessee State University Institute for Agricultural and Environmental Research comprise the 1890 institution. This 2008-2012 Plan of Work represents the combined efforts of the University of Tennessee (UT) Extension, the Tennessee Agricultural Experiment Station, and the Tennessee State University (TSU) Cooperative Extension Program.

Prior to formulating this plan, an extensive statewide needs assessment was conducted involving almost 1,000 Tennesseans in defining and prioritizing issues that should be addressed by Extension. TSU also appointed Program Coordinators in family and consumer sciences, 4-H youth development, agricultural sciences and natural resources, and community resource and economic development to provide linkage with program areas between UT and TSU. These appointees also serve on the newly organized TSU Extension Programming Council to coordinate integrated and interdisciplinary programming efforts.

Almost one of every five dollars generated in the state is associated with agriculture or an industry that generates projects from a natural resource – more than $60 billion annually. In addition, nearly 300,000 Tennesseans are directly employed by agricultural or natural resource industries, making effective research and extension programs critical. TAES research foci include supporting the state's nursery industry; developing agronomic crop varieties to meet consumer and farmer needs; improving the reproductive health of our livestock; concerted efforts to ramp-up biomass production and processing to reduce dependence on foreign oil; and expanding the state's important hardwood lumber processing industry. In addition, we seek to continue our leadership in no-till agriculture and soil erosion modeling; become more adept at using beneficial insects to protect ecosystems in the Great Smoky Mountains and beyond; and contribute to the national public policy conversation through our agricultural and natural policy research centers. We will also continue to safeguard the public with important food safety research; promote technologies to minimize wastewater impact, and develop bio-based sensors to more quickly predict disease patterns in the field.

This plan includes planned programs, stakeholder input, merit/program review, multistate, and integrated research and extension activities. Changes in allocations and FTE assignments between and among planned programs will be made annually to reflect stakeholder input and to reflect the results of statewide needs assessments.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2008	464.6	43.0	306.0	0.0
2009	464.6	43.0	309.0	0.0
2010	464.6	43.0	309.0	0.0
2011	464.6	43.0	309.0	0.0
2012	464.6	43.0	309.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Internal University Panel
- External University Panel
- Expert Peer Review

2. Brief Explanation

All Extension programs initiated in the state of Tennessee, funded in whole or part from Smith-Lever or NARETPA Section 1444 and 14445 funds, require a merit review process. The criteria for a merit review was established in 2000, and in October of 2005, the Department of Extension Evaluation and Staff Development at the University of Tennessee managed a process to update and validate this criteria. The criteria was submitted to an out-of-state panel of seven Extension administrators, program leaders and scholars for their review. The states represented in the review panel were Arkansas, Kentucky, Mississippi and Texas. The review panel found the criteria to be fair, reliable, consistent with the current research-base, and overall a model for merit review of Extension plans of work. The criteria established includes: needs assessment; networking; appropriate delivery methods; clear implementation steps; plans for evaluation (tools/methods); reaches diverse audience; and outcomes clearly defined. After the criteria was established, UT and TSU pursued a coordinated merit review process for all programs. The planned program proposals are initially prepared by state Extension specialists. The proposals are written in a format called "State Action Agendas" which require that a logic model be established that includes proposed inputs, outputs and outcomes. All program proposals are reviewed by department heads and program leaders (UT) and program coordinators (TSU).This input is considered by the State Action Agenda Review Team which consists of the three UT State Program Leaders, one UT specialist in program planning and evaluation, and one TSU Associate Administrator. This review team accepts the program as presented, rejects the program, or accepts the program pending changes.

All proposed research projects that are funded under the Hatch Act of 1887 Multistate Research Fund undergo a rigorous review process for merit and scientific soundness. The research review process begins informally with discussions between the project leader and the department head; research center directors 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 TAES, 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 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.

Multistate project reviews are coordinated on a regional basis, as it is possible for our scientist to “join” a multistate project as our official participant after the project is approved.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Family Economics - Strategies of the National Financial Security in Later Life initiative, of which Tennessee Saves is a part, include (1) far-reaching communications and marketing, (2) insights for and from research, (3) new/adapted educational strategies, (4) comprehensive evaluation, (5) targeted resource development, (6) strategic partnerships and (7) nationwide leadership with local application. Strategies of the Chanaging Workplace multistate program include (1) common marketing materials, (2) collective program planning and evaluation, (3) partnership with human resource professionals, (4) recruitment of employer support of financial education in the work site.

Safe Food for Tennessee - This program will address the behaviors of consumers and foodservice personnel that increase the risk for foodborne illness, which include personal hygiene, preventing cross-contamination, holding and storing foods at safe temperatures, cooking foods to safe internal temperatures, and avoiding food from unsafe sources.

Safety - The educational and outreach component of the Homeland Security and Emergency Preparedness Iniatitive will address emergency preparedness, response and recovery issues for farmers, families, childcare providers, and other caregivers of those at risk. Extension professionals' involvement in the county Local Emergency Planning Committee (LEPC) will position Extension to be a key player in the county's preparedness, response and recovery from a disaster or attack.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

Family Economics - Certain programs in Tennessee will be targeted toward clientele of such partnering groups as Tennessee Housing Development Agency, Tennessee Families First, Tennessee Department of Human Services, Habitat for Humanity and others. Components of the Changing Workplace program will rgeted toward working poor individuals and households.

Safe Food for Tennessee - Two limited resource audiences, the Expanded Food and Nutrition Education Program and the Food Stamp Nutrition Education participants, will be included in Safe Food for Tennessee. Educational efforts also will be targeted to under-served and under-represented ethnic populations, such as Hispanic families.
Safety - Emergency Preparedness programs and information will be disseminated by Extension educators and trained volunteers to communities increasing families' (and in particular those families and individuals most at risk)prepareness for emergencies. Extenion educators are encouraged to be a part of their county's Local Emergency Planning Committee (LEPC) to assure families and farmers are represented and planned for in disaster preparedness, response and recovery plans. Farmers of all types and income ranges must be concerned with prevention of natural and intentional introductions of crop and livestock diseases, as well as post-harvest protection of commodities. Extension agrosecurity/biosecurity education programs will inform all producers of relevant risks and assist with development of emergency management plans.

3. How will the planned programs describe the expected outcomes and impacts?

Family Economics - Outcomes and impacts will include knowledge and skills gains in financial management, motivation and plans to adopt recommended financial practices, increases in savings/investment and reduction in debt. Outcomes and impacts will include knowledge and skills gains in investor and retirement education, motivation and plans to adopt recommended financial practices, increases in savings/investment and reduction in investment risk.
Safe Food for Tennessee - Participants who receive food safety education in a series of sessions will report changes in attitudes and behaviors using a validated instrument.
Safety - Outcomes and impacts will include knowledge and skills gained in emergency preparedness, response and recovery for Extension educators, families, childcare providers, volunteers and others. Other measures include actions taken for emergency preparation, including but not limited to disaster kits placed in homes and cars, communication plans established, emergency contact information posted, and Extensions' involvement with their county LEPC.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

Family Economics - Training programs will strengthen the capacity of Extension personnel to deliver effective financial education programs. The efficiency of community financial education will be increased through networks and partnerships among Extension, government, business, financial institutions and community agencies. Training programs will strengthen the capacity of both Extension personnel and employer representatives to deliver effective financial education programs at the work site. Programs will be coordinated among educators, employers and human resources professionals to realize efficiency gains.
Safe Food for Tennessee - Educational sessions and materials developed for the program will be used to deliver focused messages designed to reduce the incidence of foodborne illness caused by behaviors that increase risk. Data will be collected across the state in a systematic way.
Safety - Emergency Preparedness programs will give consistent and accurate information to community residents so they will be better prepared for emergencies, be able to respond properly and be in a better situation for recovery. Extension educators will be a critical player in the counties' emergency preparedness team, thereby better serving farmers, families, children and the community at large. The planned programs will take advantage of national and regional curricula for efficiency and effectiveness. For example, there are national curricula being developed by various collaborations of land-grant universities, some with online and independent study options and continuing education credits, that can be the basis for the UT Extension programs. These can be supplemented with area-specific or disease specific information as needed.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Targeted invitation to non-traditional stakeholder individuals
- Survey specifically with non-traditional groups
- Other (Local and State Advisory Councils)
- Targeted invitation to selected individuals from general public
- Survey of selected individuals from the general public
- Targeted invitation to traditional stakeholder individuals

Brief explanation.

UT Extension pursued five data collections for the 2008-2012 Plan of Work.
An environmental scan was completed by 14 Extension professionals who considered trends, cycles, research and concerns affecting Tennessee.
All Extension personnel were surveyed, and asked to rate the issues of importance to their county.

The issues were then summarized and submitted to the State Extension Advisory Council. Council membership is composed of UT and TSU representatives and stakeholders. A modified nominal group technique was used to identify priorities.
In addition, 100 state leaders in business, government, agriculture, family and consumer sciences and youth development were surveyed as to which issues should be priorities for Extension from 2006-2011. Individuals surveyed included commissioners of state agencies, experts outside the land-grant university system, and leaders in business, industry and human servcies.
Next, the UT Human Dimensions Lab was employed to conduct phone interviews with all 665 members of the state's 95 County Agricultural Committees. An additional group of 200 minority leaders, idenitified by County Extension Directors, were included in the phone interview so that the sample was representative of the state's ethnic and racila diversity.
In all of these data collection activities, stakeholders were asked which issues should be priorities and which issues should NOT be priorities. The data was analyzed showing four strategic directions for Extension's 2008-2012 Strategic Plan:
Promoting safety, health and health care literacy
Protecting our food, environmental and agricultural resources
Promoting youth and workforce development
Buidling and sustaining personal and family financial skills
Finally, state action agendas were written to address these strategic directions.
Stakeholder input for TAES research includes the following:
Each of our seven research departments has an advocacy/advisory group, which meets once or more per year. Current research activities and plans for future activities are reviewed at each meeting. Reactions and suggestions from the groups are received and factored into the research agenda-setting process. Membership in each group is by invitation of the department head, and typically consists of industry and regional representatives, scientific peers, alumni, and other relevant stakeholders. Some recent stakeholder input for Animal Science included a request for additional applied research, including additional nutrition and forage analysis, as well as vacine studies. In Plant Sciences, the advocacy group joined the faculty during their annual planning retreat, and affirmed the department's move into biofuels and a consequent shift of some research positions.
Our ten Research and Education Centers (the regional field laboratories) have advocate groups, similar in function to the department advisory/advocate groups. While the primary function of these groups is local advocacy for the Center involved, some research advising or feedback occurs. Members serve by invitation of the Center director, and include local leaders, commodity group members, and area farmers or business people. They provide local and commodity-focused feedback to the center directors, who then influence research priorities through semi-annual meetings with the TAES administration, immediate communication, and/or individual contact with TAES faculty conducting research on the centers.
Individual researchers, because of their specialized expertise, are made aware of emerging research needs in the scientific literature and popular press, through attendance and interaction at professional meetings, through RFP's they receive, by their interaction with commodity groups, local associations, through communication with the general public, and in their efforts to continually update coursework (most researchers have a partial teaching appointment; some have a partial Extension appointment).
The TAES research advisory committee consists of a group of senior faculty from various departments with broad, well-developed research backgrounds. This group advises the Dean on research directions and potential areas of interest. One effort underway by this group has been to foster collaborative, cross-disciplinary projects that more closely align with emerging critical real-world issues.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Open Listening Sessions
- Needs Assessments
- Use Advisory Committees

Brief explanation.

UT and TSU Extension will employ their extensive, statewide network of advisory groups for stakeholder input. The State Extension Advisory Council provdies input and direction for statewide initiatives. In addition, county extension agents annually make nearly 10,000 contacts with their program-specific advisory councils. All of Tennessee's 95 counties have a County Agricultural Committee of seven local stakeholders, nominated by the County Mayor and approved by majority vote of the County Commission. Each County Agriculture Committee meets four times each year, and their duties include input into hiring decisions, local funding, and local programming.
The research advisory committees and advocates groups are responsible for identifying additional individual and group stakeholders that may depend on the work of a particular research department or research and education center, respectively.

The geographical dispersion of research and education centers helps in providing a balanced picture of the needs of various populations, regions, and commodity/industry groups. In addition, both our researchers and center administrators conduct informal ongoing needs assessments through literature reviews, monitoring of scientific journals and regional/state news media, attendance at scientific meetings and local conferences, and both solicited and unsolicited communication from the public.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with the general public (open meeting advertised to all)
- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey specifically with non-traditional individuals

Brief explanation

A survey of both traditional and non-traditional state leaders in business, government, agriculture, family and consumer sciences and youth development was conducted. This group of 100 included commissioners of state agencies, experts outside the land-grant university system, and leaders in business, industry and human servcies. Also, a traditional stakeholder group, County Agricultral Committees, were surveyed for their input into this plan. A non-traditional group was surveyed as well through the telephone interview process as a group of 200 minority leaders, idenitified by County Extension Directors, were included in the phone interview so that the sample was representative of the state's ethnic and racial diversity.
On the research side, research and education center field days, held annually at most centers, provide good shareholder input from both the general public and identified stakeholder individual groups and individuals.

3. A statement of how the input will be considered

- In the Budget Process
- In the Staff Hiring Process
- To Set Priorities
- Redirect Extension Programs
- Redirect Research Programs
- In the Action Plans
- To Identify Emerging Issues

Brief explanation.

All of the input received was used to craft the State Extension Strategic Plan. This document is a guide for identifying emerging issues, redirecting extension programs, building state action agendas and setting program priorities. Performance measures were written based on this planning effort and the current research-base. Stakeholder input at the local, regional and statewide level will be used to monitor and adjust deployment of the strategic plan.
For the Experiment Station, stakeholder input is an active part of setting budget priorities and redirecting allocations as critical needs emerge, are addressed, and wane. Stakeholder input directly impacts hiring patterns, faculty equipment budgets, publicity efforts, forward-looking action plans, and grant-writing directions. As an example, the dairy advocacy group that is active with three of our Centers played a significant role in the prominence given to environmental research design at our new Little River dairy facility.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

1. Name of the Planned Program

4-H Positive Youth Development

2. Brief summary about Planned Program

According to the Tennessee Department of Education, many students graduate from Tennessee high schools without the skills and attitudes needed to get and hold a job. Tennessee 4-H Youth Development will address this problem by helping youth to attain the life skills of achieving goals and communicating. The methods used will vary depending on the local situtaion and the needs of the target audience, however, clubs, afterschool and school enrichment programs will be empahsized in at least 50 Tennessee counties over the next five years.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 806 100% Youth Development

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Youth in Tennessee need the skills, experience and confidence necessary to meet the demands of the workplace and succeed in a high-performance economy characterized by high-skill, high-wage employment. According to the Tennessee Department of Education, many students graduate from Tennessee high schools without the skills and attitudes needed to get and hold a job. Tennessee 4-H Youth Development will address the development of skills and personal qualities needed for solid job performance. Youth will attain the life skills of achieving goals and communicating, two life skills essentail for adult success in a job or careers.

2. Scope of the Program

- Multistate Extension
- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Assumption A. It is assumed that Tennessee Extension 4-H Agents and adult volunteer leaders have the necessary skills to collaboaret with local school systems for the dleiver of afterschool and school enrichment programs. Assumption B. It is assumed that the logic model concept, applied to youth development program planning, will yield positive results.

2. Ultimate goal(s) of this Program

Tennessee youth will attain the life skills of achieving goals and communicating, two life skills essentail for adult success in a job or careers. Tennessee youth will possess the skills needed to compete in a diverse and demanding workforce.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	97.0	6.0	0.0	0.0
2009	97.0	6.0	0.0	0.0
2010	97.0	6.0	0.0	0.0
2011	97.0	6.0	0.0	0.0
2012	97.0	6.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Clubs/Project GroupsAt least 50 Tennessee counties will organize over 2,500 4-H clubs where workforce preparation will be the major emphasis. Project work will be emphasized, and the experiential learning model will be used to highlight jobs and careers aligned with 4-H projects. Activity sheets have been developed to empasize practical skills which align with jobs and careers. School EnrichmentVarious school enrichment programs in at least 50 Tennessee counties will focus on workforce preparation. Youth will be exposed to jobs and careers with the goal to set a goal for their future job or career. Media Mass media will be used to inform parents, participants and stakeholders about program opportunities and achievements.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Demonstrations • One-on-One Intervention	• Other 1 (Radio Programs) • Newsletters • TV Media Programs • Other 2 (Exhibits)

3. Description of targeted audience

Tennessee youth in grades 4-12 will be targeted for this program. To encourage participation of underserved and minority youth, the majority of programs will be delievered in public schools.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	5000	0	35000	100000
2009	7500	0	50000	100000
2010	7500	0	75000	100000
2011	10000	0	100000	100000
2012	10000	0	100000	100000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	1
2010	0	1
2011	0	1
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of volunteers utilized in delivering this program.

2008 :250 **2009 :**250 **2010 :** 250 **2011 :**250 **2012 :**250

- Number of exhibits produced.

2008 :10 **2009 :**15 **2010 :** 20 **2011 :**25 **2012 :**25

V(I). State Defined Outcome

1. Outcome Target

Achieving Goals: Number of youth who now put their goal in writing.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :20000 **2009 :** 20000 **2010 :** 20000 **2011 :**20000 **2012 :** 0

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Achieving Goals: Number of youth who now report they set high goals.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :20000 **2009 :** 20000 **2010 :** 20000 **2011 :**20000 **2012 :** 20000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Achieving Goals: Number of youth who report that they now achieve goals they set for themselves.

2. Outcome Type : Change in Action Outcome Measure

2008 :2500 **2009 :** 2500 **2010 :** 2500 **2011 :**2500 **2012 :** 2500

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Achieving Goals: Number of youth who are now making plans to acheive their goals.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
2500	2500	2500	2500	2500

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Achieving Goals: Number of youth who have set a goal for their job or career.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1000	1000	1000	1000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who can express ideas with a poster, exhbit, or other display.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who can now share their ideas through writing.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who can use technology to help themselves express ideas.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who have learned at least five jobs in which communication skills are important.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who are now better listeners.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who haved explored careers in communications.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
200	300	400	500	500

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who report they have improved photography skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating: Number of youth who report they have learned skills in visual communications.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating (Public Speaking): Number of youth who can deal with their nervousness when giving a speech or talk.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
30000	35000	40000	45000	45000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating (Public Speaking): Number of youth who can select a topic for a speech or talk.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25000	30000	35000	40000	40000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating (Public Speaking): Number of youth who can speak loudly enough to be heard when giving a speech or talk.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25000	30000	35000	40000	40000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Communicating (Public Speaking): Number of youth who feel comfortable sharing their thoughts and feelings in a speech or talk.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25000	30000	40000	45000	45000

3. Associated Knowledge Area(s)

- 806 - Youth Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Public priorities

Description

Much of this program will be delivered in Tennessee public schools to reach the target audience which includes underserved youth. If the program is not available to large numbers of public school youth, the outcome targets will be greatly reduced since additional time and effort is required to reach youth through community-based settings. The delivery of 4-H school-based programs targeting workforce preparation has been a priority for Tennessee educational leaders at the local level, but changing accountability demands through standardized testing may alter that priority, and school gatekeepers (i.e. pronciplas, superintendents and local school boards) may have new priorities.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)

Description

The Tennessee 4-H Life Skills Evaluation System will be used to evaluate the 4-H Workforce Preparation program. The after-only or post-program questionnaire is the appropriate method for this program and audience. Instruments have been created and validated for this study Reliability was established by pilot-tests involving over 1,000 Tennessee youth.

2. Data Collection Methods

- Sampling

Description

Intact groups of youth will be randomly selected for the sample; and the sample will be composed of all youth in 20% of local intact groups (clubs, project groups or school enrichment classes) served in this program. The questionnaire will be administered to youth partcipants by Extension 4-H Agents and volunteers, all of whom have received instruction in administering the questionnaire without bias. As this is an evaluation study conducted to account for USDA funds, it is not under the purview of the Institutional Review Board of the University of Tennessee or Tennessee State University.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agronomic Crop Systems

2. Brief summary about Planned Program

Row crops including cotton, soybean, corn, wheat, and tobacco are valued at close to $1.0 billion annually and are grown on about three million acres in Tennessee. Improving profit margins benefits the economy of Tennessee. Crop production also impacts environmental quality. Yield improvements may be obtained with proper variety selection, insect, disease and weed management, appropriate use of fertilizers and irrigation, and other best management practices. These and other factors directly affect the profitability of crop production and environmental quality.
Profit margins are very small in many years and producers must be certain that their production practices are economically sound. Producers need research-based recommendations to insure maximum profitability.
We will continue to develop agronomic crop varieties and genetic lines that provide high-yielding, disease-resistant options for producers, and compare these to commercial standards. This will result in unbiased, research-based information to improve the ability of producers to make sound selections for optimum performance and yields. Optimum production systems will be determined through research which will provide producers with best management practices.
Because growth rates and pest and disease resistance and control are critical to the success of farmers, insect and disease control technologies are continually being created by sources within the University system and outside it. We will continue to develop and utilize new Integrated Pest Management technology for control of existing, invasive, new and re-emerging insect and disease pests of cropping systems.
In many cases, agricultural production research develops new technologies and practices to increase yields while ignoring economic tradeoffs. We will seek to use a multidisciplinary approach to evaluate crop systems for economically optimal production of the agricultural commodities produced in Tennessee.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 201 12% Plant Genome, Genetics, and Genetic Mechanisms
- 205 62% Plant Management Systems
- 211 3% Insects, Mites, and Other Arthropods Affecting Plants
- 212 16% Pathogens and Nematodes Affecting Plants
- 601 7% Economics of Agricultural Production and Farm Management

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Various needs assessment conducted by Extension specialists show that the following practices are key for Tennessee row crops producers:
conservation-tillage
planting insect-tolerant crops
planting herbicide-tolerant crops
spraying with foliar fungicide to manage disease
using recommended varieties of soybeans and corn
Producers of agronomic crops are challenged each year with high costs of production, relatively low profit margins, and a host of other issues such as plant diseases, weather, and competition from other countries in world markets. Because farmers often operate with a relatively low profit margin, economic feasibility as well as efficacy of new genetics or technology for pest and disease control is of paramount importance. Farmers need to be aware of the comparative performance of new technologies in order to make appropriate decisions on pest and disease management. Little information exists about the economics of those technologies and systems under differing production conditions. In addition, the economics of systems vary as the combination of

system and production environment change, and as relative prices and costs change.

2. Scope of the Program

- In-State Research
- Multistate Research
- Multistate Extension
- In-State Extension
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Row crops will continue to be a mainstay of the economy, particularly in the thirty-one West Tennessee counties, for the foreseeable future. The Innovation-Decision Process (Rogers, 1995) is a valid representation of adoption decisions made by Tennessee row crop producers. The level of staff and budget resources for research available from appropriated sources will remain approximately constant. Useable data can be developed from field experiments. Scientists in other disciplines will cooperate in developing and analyzing data. Producers will be willing to adopt technologies and systems that are shown to be economically superior. New pests and diseases will invade the region. Crop genetics will continue to change. Adequate expertise will exist in areas critical to this effort such as molecular, marker-assisted and traditional plant breeding; varietal evaluation, and system development and refinement. The volume and quality of our research work will be increased through substantial extramural funding.

2. Ultimate goal(s) of this Program

The ultimate goal is to improve profitability for Tennessee row crop producers by assisting them to learn and adopt research-based recommendations; by developing and testing technology that will protect commercial agronomic crop systems from existing and invasive pests and disease and provide data in support of new genetics where appropriate; and by developing and selecting improved crop varieties and production systems.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	57.9	10.9	49.0	0.0
2009	57.9	10.9	49.0	0.0
2010	57.9	10.9	49.0	0.0
2011	57.9	10.9	49.0	0.0
2012	57.9	10.9	49.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

The Extension portion of this plan is organized via the Innovation-Decision Process (Rogers, 1995). It is important to organize the agronomic crop systems planned program activity in this way because producers of various row crops, in various locations in the state are in different stages of this process for the array of research-based practices. Based on needs assessments conducted by Extension Specialists, the following pactices will be targeted:
conservation-tillage
planting insect-tolerant crops
planting herbicide-tolerant crops
spaying crops with foliar fungicide to manage disease
using recommended varieties of soybeans or corn (based on UT field trial results)

Knowledge: Newspaper articles, radio programs, websites and newsletters will be used to build awareness of UT Extension resources and practices for more profitable production. Mass media will also highlight pests and pesticides in a timely manner.
Persuasion: Farm visits and group meetings will be used to showcase practices.
Decision: Group meetings and classes will be held in which Extension specialists will deliver detailed instruction to producers.
Implementation: On-farm demonstrations will be conducted, particularly in the 31 West Tennessee counties, to highlight research-based practices. To the extent possible, integrated research and extension will be conducted such as result demonstrations and test plots in all 31 West Tennessee counties.
Confirmation: Farm visits and telephone calls will assist producers to continue use of the practices, respond to environmental factors, and realize greater profits.
From a research perspective, molecular, marker-assisted and traditional breeding techniques will be utilized to develop genetic lines and varieties of corn, soybeans, tobacco, and wheat which are adapted, high-yielding, and disease resistant. Varieties of these crops and cotton will be rigorously evaluated in replicated field research plots at our Research and Education Centers and with producer cooperators in selected counties. Likewise, cropping systems research addressing tillage systems and rotation schemes will be conducted to develop production system information.
We will conduct surveillance for exotic and invasive organisms using both conventional and molecular technologies. We will research the effects of biological, cultural and chemical control technology for efficacy and effect on productivity of cropping systems under study. We will search for new organisms to use in integrated control programs for pests and diseases of those agronomic systems that are predicted to be in danger of severe damage from new, emerging, and re-emerging pests and diseases.
Economic data will be developed from field experiments on agricultural experiment stations, through surveys of producers, and through simulation modeling. Data will be analyzed using standard methods for estimating yield response functions, budgeting, optimization techniques, risk analysis procedures, simulation modeling, and other methods of economic analysis as appropriate.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Education Class • Other 1 (On-site Visits) • One-on-One Intervention • Demonstrations	• Other 1 (Newspaper Articles) • Web sites • Newsletters • Other 2 (Radio Programs) • TV Media Programs

3. Description of targeted audience

The primary audience for this program is Tennessee row crop producers, and the secondary audience is the professionals, business owners/cooperatives, and goverrntment officials who serve row crop producers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10000	15000	1000	0
2009	10000	15000	1000	0
2010	10000	15000	1000	0
2011	10000	15000	1000	0
2012	10000	15000	1000	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	28	0
2009	28	1
2010	28	1
2011	28	1
2012	28	0

V(H). State Defined Outputs

1. Output Target

- Number of exhibits displayed to promote awareness and participation in this planned program.

  2008 :10 **2009 :**15 **2010 :** 20 **2011 :**25 **2012 :**25

- Number of research-based publications distributed as part of this program.

  2008 :2000 **2009 :**3000 **2010 :** 4000 **2011 :**5000 **2012 :**5000

- Local/regional research presentations, workshops, media releases.

  2008 :25 **2009 :**27 **2010 :** 30 **2011 :**30 **2012 :**30

- National/US level research presentations, workshops.

  2008 :3 **2009 :**4 **2010 :** 4 **2011 :**5 **2012 :**5

- Yield gain resulting from regional soybean breeding, tenths of bushels per acre per year.

  2008 :4 **2009 :**4 **2010 :** 4 **2011 :**4 **2012 :**4

V(I). State Defined Outcome

1. Outcome Target

Annual tons of soil erosion prevented due to adopting conservation-tillage encouraged by the availability of herbicide-resistant seed for cotton production in Tennessee.

2. Outcome Type : Change in Action Outcome Measure

2008 :1600000 **2009 :** 1600000 **2010 :** 1600000 **2011 :**1600000 **2012 :** 1600000

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Acres of herbicide-resistant cotton in Tennessee encouraged by the adoption of conservation tillage.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
450000	450000	450000	450000	450000

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm operators with sales over $10K using TAES economic research in decisions.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1020	1040	1060	1080	1100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Row Crops Production: Number of participants who implemented one or more management practices based on data provided by UT (e.g., conservation tillage, plant population, growth retardants, IPM strategies, disease and weed control).

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
100	100	100	100	100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Row Crops Production: Number of producers, farm workers and other ag professionals who received pesticide certification, recertification and pesticide safety training.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
250	250	250	250	250

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants

1. Outcome Target

Row Crops Production: Number of participants who improved their income by following the recommended best management practices for crop production, including plant pest management.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
200	200	200	200	200

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Tennessee soybean production increase attributable to breeding, bushels per year.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
48000	48000	48000	48000	48000

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Adoption rate of bioactive natural products in place of conventional pesticide on cotton, driven by organic cotton price premium.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
2	4	6	8	10

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 601 - Economics of Agricultural Production and Farm Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Competing Programatic Challenges

Description

Corn yields are heavily dependent on available moisture and hot, dry conditions in July can affect pollination and subsequently production for the year. Although sorghum is relatively drought tolerant, yields are still depend on available moisture. Dry conditions in June and July can destroy yield.
The macroeconomics of agriculture may affect the economic environment of specific enterprises and, in turn, affect the applicability of decision-making tools. In addition, Extension and other information providers may have competing demands that prevent effective dissemination of research results. IPM program outcomes will be affected by weather extremes, corporate and academic production of new plant genetics and new chemistries for control.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Other (Third-Party)

Description

End-of-year follow up survey: Agents make one-on-one contacts to interview producers.
End-of-program survey: Used at the Dyersburg Grain Conference.
Third-Party: Interveiws with agri-businesses who sell chemicals and seed (sales records of chemicals and seed varieties used).
Producers will be surveyed at area crop production meetings to determine the percentage of acres planted to varieties developed/recommended by the TAES, and the percentage which follow cropping system practices based on the results of our research. IPM evaluation information will be acquired from Extension agents, direct contact with growers, and area production meetings, where available.

2. Data Collection Methods

- Whole population
- On-Site
- Structured
- Sampling

Description

End-of-year follow up survey: sample of participanting producers, stratified by county.End-of-program survey: population of producers in attendance at the Used at the Dyersburg Grain ConferenceThird-Party: structured inteviews with third parties

V(A). Planned Program (Summary)

1. Name of the Planned Program

Animal Systems

2. Brief summary about Planned Program

Our research and extension programs will seek ways to increase the health and productivity of livestock through strategies that reduce disease pathogens and stress factors, optimize livestock nutrition, and increase reproduction.
Research in disease prevention and therapy of lactating dairy cattle will be conducted using established challenge models, allowing the comparison of treatments. Research to determine genetic factors that impact response to stress and disease as well as those that optimize production in cattle, swine and poultry will constitute a significant component. Additional research will be conducted to find more rapid and reliable identification methods for disease pathogens. Research to determine optimal nutritional regimens and least cost inputs, including byproducts for cattle, swine, and poultry will also be conducted, in the context of modern genetics and current commercial production settings.
Work to determine ways to increase reproductive rates in cattle will constitute another significant component of this program. Identification of physiological factors that impact embryo development and viability, as well as sperm and oocyte longevity will allow for the development of practical and economical techniques that producers can implement at the farm level, which will ultimately result in increased meat and milk production and sustainability of livestock farms. Research for domestic animals includes development of faster disease diagnostic methods for livestock.
With 2.17 million cattle and calves in the state, beef cattle remains the number one agricultural enterprise for Tennessee farmers. Cash receipts for 2004 exceeded $514 million, representing 20% of the state's total cash receipts from agriculture. UT Extension will provide producers with in-depth and comprehensive education on production, management, and marketing of beef cattle, and especially feeder cattle, through its Master Beef Producer Program.
Some disease organisms normally found in animals can be transmitted to humans by the bites of mosquitoes and ticks. The environmental and temporal elements of this transmission will be studied with in order to develop better means of disease prevention. Blood-feeding flies attacking livestock will be studied for the same reason.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 301 16% Reproductive Performance of Animals
- 302 5% Nutrient Utilization in Animals
- 303 5% Genetic Improvement of Animals
- 307 57% Animal Management Systems
- 311 17% Animal Diseases

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Animal health, efficiency, and performance are critical factors for the profitability and sustainability of livestock systems impacting the ability of farms to remain profitable. Livestock producers and their families are directly impacted economically by these factors and consumers are ultimately affected through costs of food and other farm goods.
The market for beef cattle, like many other agricultural commodities, is becoming increasingly competitive due to consumer demands for safe and wholesome products, international market influences on prices, and escalating energy, fertilizer, and feed prices. Tennessee feeder cattle have been discounted in the past due to perceived inadequacies related to health and management. To ensure future viability of the industry, producers need in-depth and comprehensive education on these priorities: production, management, and marketing of beef cattle, and especially feeder cattle. Such education is not suited for one to two hour county meetings, but rather must be delivered in the form of a multi-week, multi-disciplinary educational program.
Johne's disease affects numerous ruminants (including cattle) in which it is characterized as a chronic wasting disease. Losses are estimated at $250 million annually in the U.S. alone.

Vector-borne diseases of man and animals (zoonotic diseases) and blood-feeding arthropods have a negative impact on human activities and human development. Agricultural production is decreased when either humans or livestock are affected by an infectious disease agent.

2. Scope of the Program

- In-State Extension
- Integrated Research and Extension
- Multistate Research
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

County Extension Agents have the knowledge and skills to collaborate with county livestock associations, cattlemens' associations, local agribusinesses and other local stakeholders to conduct the Master Beef Producer program. Adequate scientific and technical personnel will remain in place so that changes in the research-base will be reflected in the Master Beef Producer curricula and other publications necessary for this program. Research funding will remain static or increase. New vectors and/or diseases will emerge. We will be able to maintain sufficient personnel to continue our research programs.

2. Ultimate goal(s) of this Program

Our research and extension efforts will result in information that producers can use to increase animal health, efficiency, and productivity, thus increasing profits of those enterprises.
The Master Beef Producer Program is an educational program designed to educate Tennessee cow-calf producers to help them be the very best in the country, improve their profitability and position the industry to be competitive with other states.
We hope to ameliorate the impact of vector-borne diseases or blood-feeding by arthropods on vertebrates and to provide data on the epidemiology of arthropod-borne infectious diseases in Tennessee. We will work to develop faster, more specific tests for diseases of livestock.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	43.5	1.2	63.0	0.0
2009	43.5	1.2	63.0	0.0
2010	43.5	1.2	63.0	0.0
2011	43.5	1.2	63.0	0.0
2012	43.5	1.2	63.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

We will conduct applied and basic research in animal health, nutrition, physiology and genomics to address high priority problems of the livestock industries. We will disseminate information gained from these studies to producers, veterinarians, and others associated with the animal industries through outreach programs and publications.
The Master Beef Producer Program will be led by a team of University of Tennessee Extension specialists and agents, with the support and involvement of representatives of state agencies, businesses and organizations that have an interest in the state's cattle industry. Master Beef Producer programs may only be taught by agents that have completed the comprehensive training curriculum. During this training, agents are exposed to each session of the program, and are provided on-screen presentations, speaker notes, evaluation instruments, and instructions about the most effective strategies for teaching this curriculum. Industry professionals, veterinarians, and other local industry leaders may be included as a part of the teaching team, provided that they are

familiar with the subject matter content included in the Master Beef Producer manual that is related to the subject they will address. The Master Beef Producer Program will:1. Include a series of 12 educational sessions that focus on cow-calf production and issues facing the beef industry. These are conducted at various off-campus locations accessible to Tennessee beef producers. These sessions include hands-on demonstrations, mini-lectures, discussions, question and answer sessions, etc.2. Enhance the profitability and competitiveness of cow-calf operations by providing essential, technical information.3. Provide participants with a beef production reference manual that covers in detail the educational information presented in the sessions.4. Allow producers to interact with trained facilitators and encourage sharing of ideas with other producers.
Surveillance of possible disease vectors will be maintained throughout the insect season, suspected vectors will be tested for appropriate viruses. Risk factor analysis test results will be compared between sites where disease risk is high vs. those where disease risk is low. Larval development habitats of stable flies will be characterized for seasonal and moisture preference, and the ability of flies to provide surveillance data for E.coli 015747 will be tested.
Mastitis susceptible and resistant dairy cows will be used to identify potential genes, immune components, and other factors associated with and responsible for mastitis resistance. Virulence factors that allow mastitis pathogens to invade the udder, multiply there and produce harmful substances that result in inflammation, reduced milk production and altered milk quality will be determined.
A series of trials will use pigs to test various feeding regimens and feed additives to determine effects on the number of antibiotic resistant foodborne pathogens occurring in those animals and their environment. Additional studies will detect the prevalence of antibiotic resistant bacteria associated with cattle and surrounding environments. These studies should help determine strategies to limit such foodborne risks.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Education Class • Demonstrations • One-on-One Intervention • Other 1 (On-Site Visits)	• Other 2 (Radio Programs) • Other 1 (Newspaper Articles) • Newsletters • TV Media Programs • Web sites

3. Description of targeted audience

Producers, veterinarians, and others associated with the animal industry.
Tennessee cattle producers are primarily cow-calf operators. All of the state's cow-calf operators compose the target audience for this planned program.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10000	15000	5000	0
2009	10000	15000	5000	0
2010	10000	15000	5000	0
2011	10000	15000	5000	0
2012	10000	15000	5000	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	37	0
2009	37	1
2010	37	1
2011	37	1
2012	37	0

V(H). State Defined Outputs

1. Output Target

- Number of exhibits displayed to promote awareness of and participation in this planned program.

2008 :5 **2009 :**5 **2010 :** 5 **2011 :**5 **2012 :**5

- Number of research-based publications distributed as part of this program.

2008 :5000 **2009 :**5000 **2010 :** 5000 **2011 :**5000 **2012 :**5000

- Improved summer pregnancy success in dairy cattle due to heat stress management, pregnancy rate.

2008 :10 **2009 :**11 **2010 :** 12 **2011 :**13 **2012 :**14

V(I). State Defined Outcome

1. Outcome Target

Percentage of livestock producers that adapt prudent use guidelines for antibiotic use in their herds based on information derived and disseminated.

2. Outcome Type : Change in Condition Outcome Measure

2008 :10 **2009 :** 15 **2010 :** 20 **2011 :**22 **2012 :** 25

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems
- 311 - Animal Diseases

1. Outcome Target

Percent of cattle producers using preventative treatments.

2. Outcome Type : Change in Action Outcome Measure

2008 :0 **2009 :** 20 **2010 :** 22 **2011 :**24 **2012 :** 25

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems
- 311 - Animal Diseases

1. Outcome Target

Beef Production and Marketing: The added value of calves marketed that were managed according to BQA guidelines (dollars).

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
200000	300000	400000	500000	500000

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems

1. Outcome Target

Beef Production and Marketing: The increase in value of feeder calves as result of cooperative marketing or marketing through an alliance.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
100000	100000	100000	100000	100000

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems

1. Outcome Target

Beef Production and Marketing: Number of beef producers who utilized improved sires, artiifcial insemination or other genetic improvement methods.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
350	350	350	350	350

3. Associated Knowledge Area(s)

- 303 - Genetic Improvement of Animals

1. Outcome Target

Beef Production and Marketing: Number of beef producers who have improved knowledge about genetic improvement, nutrition, health, reproduction and other topics covered by Master Beef Program.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases

1. Outcome Target

Adoption of reproduction-enhancing media additive for cattle embryo transfer, annual uses in Tennessee.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
0	10000	20000	30000	40000

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 307 - Animal Management Systems

1. Outcome Target

Tennessee cattle industry savings due to use of tall fescue toxicosis management strategies, millions of dollars.

2. Outcome Type : Change in Condition Outcome Measure

2008 : 40	**2009 :** 40	**2010 :** 40	**2011 :** 40	**2012 :** 40

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems

1. Outcome Target

Reduction in mastitis in Tennessee dairy cattle by genetic marker screening, percent reduction.

2. Outcome Type : Change in Condition Outcome Measure

2008 : 1	**2009 :** 2	**2010 :** 3	**2011 :** 4	**2012 :** 5

3. Associated Knowledge Area(s)

- 303 - Genetic Improvement of Animals
- 311 - Animal Diseases

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Competing Programatic Challenges
- Economy
- Populations changes (immigration,new cultural groupings,etc.)
- Public Policy changes

Description

Drought could greatly inhibit the beef program's effectiveness at achieving the stated outcomes. Significant changes in the economic environment or demographics will impact the user adoption of our research efforts.Appropriations changes will greatly affect outcome, the possible loss of one faculty member may be critical. Policies regarding antibiotic use in animals may change over time and would thus impact the direction and implications of this research.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Other (Ongoing)
- Time series (multiple points before and after program)
- Before-After (before and after program)
- Retrospective (post program)

Description

Before-After: Both pre and post program survey instruments are to be used for each Master Beef Producer participant.
During: In addition, evaluation instruments will be administered for each session of the program, to evaluate the quality of the material presented and the instructor(s). These instruments will assess knowledge gains as a result of the training.
Retrospective: Three years after the completion of the program, participants will be surveyed to determine the extent of the changes in practices that they have adopted. This information will be used to assess the impact of the program on producer behavior.
Ongoing: Disease transmission rates will be monitored by state and regional health officials.

Disease transmission will be monitored by state and regional health officials.

2. Data Collection Methods

- Tests
- Whole population
- Telephone
- On-Site
- Mail

Description

The entire population of Master Beef Producer graduates will be surveyed.
Data collection methods include diagnostic tests (for Johne's disease in livestock, and cortisol stress in catfish).

V(A). Planned Program (Summary)

1. Name of the Planned Program

Biomass Utilization

2. Brief summary about Planned Program

Economic research will estimate the capacity of U.S. agriculture to generate a supply of feedstock to sustain a bioenergy and bioproducts industry. Expansion curves for the growth of the bioenergy and bioproducts industries will be developed by estimating a national bioenergy and bioproducts demand for agricultural feedstock, the agricultural resources demanded, and the price and income impacts on the agricultural sector. The economic and land use impacts of alternative sizes of the bioenergy and bioproducts industries and the corresponding economic feasibility to generate feedstock from agricultural sources will also be estimated.
Through the BioWeb project, UT researchers hope to introduce a dynamic, online, world-class technical resource of peer-reviewed content to support the rapidly changing bioenergy research field.
Engineering research objectives are to develop a knowledge base and/or equipment related to the influence of droplet and particle size on spray application and biomass densification, to identify the most economical ways of size-reducing, separating and transporting biomass feedstocks, and to improve existing approaches and develop new approaches to produce valuable chemical products from common agricultural sources such as seed oils, proteins, and carbohydrates.
Funding is anticipated for a research-oriented biorefinery to study the full range of processes involved in converting cellulosic biomass to ethanol.
UT Extension will continue to conduct needs assessment activities that will influence the biomass utilization research agenda.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 402 28% Engineering Systems and Equipment
- 501 10% New and Improved Food Processing Technologies
- 511 18% New and Improved Non-Food Products and Processes
- 601 10% Economics of Agricultural Production and Farm Management
- 603 16% Market Economics
- 605 10% Natural Resource and Environmental Economics
- 606 4% International Trade and Development
- 711 4% Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Domestic production of energy in the U.S. lags behind growth in demand, resulting in increasing energy prices. U.S. dependence on imported sources of energy has also created international difficulties for our country including contributing to our large trade deficit. The production of important chemicals from agriculture rather than from petroleum will decrease U.S. dependence upon foreign oil and provide additional income for U.S. farmers. Government at all levels has endorsed research to identify and develop new domestic sources of energy.
Sound information on the extent of energy production capacity in agriculture, costs per unit, benefits to agricultural producers, and impacts on production of other products and the environment is not readily available.
While some research has been reported on the handling of forest residue, reported experimental work on collection, transportation, and primary processing of crop residues is scarce. Biomass must generally be fractioned into small droplets or particles prior to use. Atomization of sprayed materials affects spray distribution, and granulation of biomass influences input energy. As an example, corn stover has been suggested as an ideal strategic feedstock for the bioenergy program because of its abundance and proximity to existing grain-to-ethanol conversion facilities. However, corn stover is a low-value product with a high moisture content at the time of grain harvest. As such, it is difficult to handle, spoils readily, is prone to spontaneous combustion, and is a safety

hazard when moldy. In addition, the leaf and stalk fractions have different mechanical and chemical properties, affecting size reduction, handling, and ultimate direction of very different feedstocks.

2. Scope of the Program

- Multistate Research
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Appropriated and extramural funding and personnel resources will remain adequate to support the research. Energy prices will remain "relatively high" for the foreseeable future. Agriculture will continue to have excess capacity that will enable it to support energy production. Reported experimental work on collection, transportation, and primary processing of crop residue will continue to be limited. New approaches in atomizing and granulating biomass will be environmentally friendly and energy-efficient.

2. Ultimate goal(s) of this Program

This research seeks to provide information that will enable wise private investment and public policy decisions regarding the development of new domestic energy sources from agriculture, to deliver premium quality feedstocks at a low cost to bioconversion facilities, and to improve existing technologies and develop new technologies for cost-effective, inexpensive, and environmentally-friendly downstream purification and processing of lipid and protein feedstocks.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	0.0	0.0	17.0	0.0
2009	0.0	0.0	20.0	0.0
2010	0.0	0.0	20.0	0.0
2011	0.0	0.0	20.0	0.0
2012	0.0	0.0	20.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Our economic research will develop national ethanol, biodiesel, electric, and bioproduct demand quantities and incorporate them into an existing dynamic agricultural sector econometric simulation model (POLYSYS). Regional feedstock supply curves necessary to meet national bioenergy and bioproduct demand quantities will be estimated by modifying POLYSYS to include cellulose feedstock in addition to existing agricultural grain and oilseed crops. Regional bioenergy and bioproduct supply curves will be developed using regional feedstock supply curves, representative transportation costs, and representative costs for each feedstock-technology-product combination considered. A national expansion curve for the bioenergy and bioproduct industry will be estimated. Key indicators of agricultural sector performance including net farm income, agricultural prices, and government cost in meeting national bioenergy and bioproduct demand quantities will be evaluated.

As part of our engineering research, we will document drying rates and methods for corn stover, and quantify the distribution and quality of the above ground biomass. For existing biomass densification systems, we will identify relations between particle size, biomass type, final density, compression pressures and energy, and other engineering factors. We will then determine optimum particle sizes based on a balance between expended energy, final density, and integrity of compressed pellet or wafer. We will use the optimum particle sizes to identify or invent technologies to achieve the size based on theoretical cutting lengths due to speed of feed, cutter speed, and other engineering factors. We will apply the developed technologies in laboratory-scale granulation tests to verify sizes using laser, image analyzer, sieve, or manual methods. We will then compare the developed methods in particle size reduction to existing technologies.

In terms of downstream processing, we will conduct a fundamental study on the fractionation of various free fatty acid (FFA) mixtures to test whether the mathematical modeling approach used by us for rapeseed oil is more widely applicable. Additionally, the food safety of the purified FFA products will be assessed. The next step will be to complete the cost analysis of this fractionation process using results predicted by the mathematical model using chemical plant design software. A bench-scale continuous reactor will be assembled and we will attempt to maintain the same productivity (moles of product per time per mass of enzyme) as achieved for batch-mode experiments from previous experiments. We will also attempt the further development of microemulsion-based protein extraction as a rapid low-cost and scalable means of selectively isolating and purifying proteins of interest from aqueous media.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Other 1 (Research-only program)	• Other 1 (Research-only program)

3. Description of targeted audience

This is currently a research-only targeted program, so the target audience is weighted toward basic/applied research clients.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 : 0 **2009 :** 0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	0
2009	10	0
2010	10	0
2011	10	0
2012	10	0

V(H). State Defined Outputs

1. Output Target

- Compilation of biomass monograph.

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

- Peer-reviewed technical resource pages in online BioWeb resource.

2008 :600 **2009 :**1000 **2010 :** 1400 **2011 :**1700 **2012 :**2000

- Reduced average biomass harvest cost (current $10-15), dollars per dry ton.

2008 :13 **2009 :**12 **2010 :** 12 **2011 :**11 **2012 :**11

- Reduced grinding cost of fiber-rich biomass, dollars per dry ton.

2008 :14 **2009 :**14 **2010 :** 13 **2011 :**13 **2012 :**12

- Remove undesirable components from size-reduced biomass using low-cost, physical means, percent reduction.

2008 :0 **2009 :**5 **2010 :** 10 **2011 :**15 **2012 :**20

- Development of a rapid biomass compositional analysis method.

2008 :0 **2009 :**1 **2010 :** 0 **2011 :**0 **2012 :**0

- Yield increase of switchgrass varieties in Tennessee, percent increase.

2008 :0 **2009 :**0 **2010 :** 2 **2011 :**2 **2012 :**2

V(I). State Defined Outcome

1. Outcome Target

Number of growers producing bio-mass for commercial sale as "energy crops".

2. Outcome Type : Change in Action Outcome Measure

2008 :7 **2009 :** 9 **2010 :** 12 **2011 :**15 **2012 :** 18

3. Associated Knowledge Area(s)

- 511 - New and Improved Non-Food Products and Processes
- 605 - Natural Resource and Environmental Economics

1. Outcome Target

Acreage producing dedicated energy crops in Tennessee.

2. Outcome Type : Change in Action Outcome Measure

2008 :500 **2009 :** 1000 **2010 :** 2000 **2011 :**4000 **2012 :** 8000

3. Associated Knowledge Area(s)

- 511 - New and Improved Non-Food Products and Processes
- 605 - Natural Resource and Environmental Economics

1. Outcome Target

Research-oriented biorefinery to test range of processes for biomass to cellulosic ethanol.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 : 0	**2009 :** 1	**2010 :** 0	**2011 :** 0	**2012 :** 0

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

1. Outcome Target

Improve truck loading rates by in-field ambient and solar drying, average pounds per truck.

2. Outcome Type : Change in Action Outcome Measure

2008 : 65000	**2009 :** 66000	**2010 :** 67000	**2011 :** 68000	**2012 :** 69000

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Public Policy changes
- Appropriations changes
- Competing Public priorities
- Natural Disasters (drought,weather extremes,etc.)
- Other (International conflict)
- Competing Programatic Challenges
- Economy

Description

Changes in the relative prices of energy or agricultural commodities beyond those included in the economic modeling may lessen the applicability of research results. International conflicts may intensify usefulness of the research. Available funding, the success of biomass research, the degree to which conversion processes can be optimized, and the availability of alternate energy sources will greatly affect the rate of increase of cellulosic biomass growers, the market price for resulting products, and the extent to which various processes are scaled-up.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)
- After Only (post program)
- Retrospective (post program)

Description

Many of the anticipated outputs are easily measured research parameters that will be evaluated in the course of conducting the

research. In the case of the BioWeb, web content and adoption will be measured using web logs. Outcome evaluation will consist of publicly-available or Extension-generated acreage and grower numbers.

2. Data Collection Methods

- Observation

Description

Increases in the numbers of bio-mass producers and dedicated biomass acreage will be determined by observation through contacts with local County Agents.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economic Infrastructure and Commerce

2. Brief summary about Planned Program

The economic viability of rural areas is crucial to the welfare of rural residents.
Research will estimate the impacts that changes in agricultural and forest products industries have on the state's economy and identify growth opportunities for existing and new agri-industry products. Given the severe cost-price squeeze and uncertainties about markets, economic conditions, and agricultural and environmental policies currently facing producers, they need risk, financial, and enterprise management information to help them improve profitability and avoid financial stress. Our research will assess impacts of exogenous changes and will produce management information and decision tools that will help producers develop optimal management strategies for their operations to improve survivability.
We will also investigate food consumer awareness and perceptions regarding safe food choices, factors affecting the consumption of risky foods, and the roles of government programs in improving nutrient intakes and food security. The purpose is to inform public policy decisions about how to influence consumer choices affecting food safety and security.
Our Extension planned program will target small and limited resource farmers. A special target will be farmers transitioning from tobacco to other crops.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 601 30% Economics of Agricultural Production and Farm Management
- 602 4% Business Management, Finance, and Taxation
- 603 4% Market Economics
- 604 26% Marketing and Distribution Practices
- 607 6% Consumer Economics
- 608 10% Community Resource Planning and Development
- 609 10% Economic Theory and Methods
- 610 10% Domestic Policy Analysis

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Rural areas do not offer the same potential level of income as more metropolitan areas. This situation can be partially attributed to lack of employment opportunities in agri-business industries and to low returns to resources employed in agriculture.
Improvements in income levels can be directly affected by additional agribusiness employment opportunities and by reducing risk and increasing profitability for agricultural enterprises. Agri-businesses also offer markets for local agricultural commodities resulting in increased farm incomes.
Food safety and security is a growing issue in both rural and urban areas.Small farm research, extension and education are multi-disciplinary and diverse. They include plant and animal production, farm profitability, marketing, farm and economic sustainability, environmental issues, minority farmer issues, farmland preservation, retaining young farmers, and rural communities.The plight of small and limited resource farmers coupled with their significant economic contributions to Tennessee and the South justifies the need for small farm revitalization and profitability.Tennessee small-scale and limited resource farmers need education to take advantage of niche markets and consumer demand. Enterprises which hold great promise for increasing profits for the small-scale farmer include goat production and organic farming.According to the 2002 Census of Agriculture, there were 87,595 farms in Tennessee. There were 836 Spanish-origin or Hispanic farmersand 107 Asian farmers operating farms. There were 1,266 African American farmers in Tennessee operating 1,117 farms. Land ownership tied to farming in general has decreased greatly. This is reflected best within the African American communities where the ownership of farm propoerties has drastically declined. The exodus from the land has been caused by a number of factors, many of then economic, institutional and

legal. Many obstacles have been faced by black farmers in their efforts to remain in farming and to retain ownership of their land. The loss of land points to the need for an intensive educational program that will address estate planning, making wills, getting legal help, and property ownership rights and responsibilities.
One key to a successful business start-up and expansion is the ability to obtain and secure appropriate financing. Rasing capital is the most basic of all business activities. But as many new entrepreneurs quickly discover, raising capital may not be easy; in fact, it can be a complex and frustrating process. The process of developing a business plan will help in thinking through some important issues that entrepreneurs may not have yet considered.

2. Scope of the Program

- In-State Research
- Multistate Research
- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Both UT Extension and TSU Extension have adequate personnel trained in farm financial management. Federal, state and county resources needed for this Extension program will continue over the next five years. Resources available for research will be approximately constant or growing over the life of this research process.

2. Ultimate goal(s) of this Program

The ultimate goal of the Extension component is to revitalize the economies of Tennessee's rural communties and help small farmers to earn a living wage. The research component seeks to enhance income in rural areas through agri-business development, to increase incomes to agricultural producers, and to improve public policy regarding food safety and security.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	72.6	5.9	11.0	0.0
2009	72.6	5.9	11.0	0.0
2010	72.6	5.9	11.0	0.0
2011	72.6	5.9	11.0	0.0
2012	72.6	5.9	11.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research analysis will include assessment of market potential, market feasibility studies for new agri-industry ventures, buyer and consumer preferences studies, market segmentation analysis and buyer profiling, analysis of new product acceptance, analysis of marketing alternatives, and analysis of valuation of product attributes. To evaluate the impacts of various policies, management strategies, or economic conditions on a farm's bottom line and financial strength, we propose to develop a set of representative farms that encompass major segments of agriculture in Tennessee. Methods for evaluating risk include risk-based econometric models, risk-based mathematical programming models, generalized stochastic dominance criteria, dynamic optimization, and subjective probability assessment criteria.
The Extension MANAGE program helps families analyze their total farming business so they can make informed decisions regarding their future. Extneison staff trained in farm and financial management help families to:
review their current financial situation
capitalize on strengths and reduce weaknesses in the farm business
develop individualized farm and financial plans

explore alternatives both on and off the farm
evaluate capital investment opportunities including land and/or machinery purchases
analyze likely consequences of changing the scope of enterprises
determine appropriate production practicesIn addition to individualized farm and financial planning assistance, Extension is will offer hundreds of of workshops to help farmers improve their financial situation. For example, workshops will be offerde in improved marketing, goal-setting, and strategic planning.Although the MANAGE program will not remove uncertainty of the future, it will provide farm families with a clear understanding of their current financial situation and help them evaluate their alternatives for the future. Making informed decisions today may be the best way to prepare for tomorrow's opportunities. The educational program is offered at no cost to participating farm families in all 95 Tennessee counties.
Food safety and security research will be conducted using advanced econometric methods to analyze national consumer survey data.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• One-on-One Intervention • Other 1 (On-Site Visits) • Demonstrations • Education Class	• TV Media Programs • Web sites • Other 2 (Radio Programs) • Other 1 (Newspaper Articles) • Newsletters

3. Description of targeted audience

Limited-resource and small farmers
Farmers transitioning from tobacco to other crops

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10000	25000	5000	0
2009	10000	25000	5000	0
2010	10000	25000	5000	0
2011	10000	25000	5000	0
2012	10000	25000	5000	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	8	0
2009	8	1
2010	8	1
2011	8	1
2012	8	0

V(H). State Defined Outputs

1. Output Target

- Number of exhibits displayed to promote program awareness and participation.

2008 :10 **2009 :**15 **2010 :** 20 **2011 :**25 **2012 :**25

- Numer of research-based publications distributed as part of this program.

2008 :5000 **2009 :**5000 **2010 :** 5000 **2011 :**5000 **2012 :**5000

- Provide analysis of Tennessee watersheds to determine suitability for water quality trading.

2008 :1 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

- Widespread availability of report on spurring economic development by attracting retirees to rural communities.

2008 :1 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

V(I). State Defined Outcome

1. Outcome Target

Land Ownership Information Program: Number of African-American landowners who increased their knowledge of property rights and responsibilities.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :80 **2009 :** 80 **2010 :** 80 **2011 :**80 **2012 :** 80

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 607 - Consumer Economics

1. Outcome Target

Land Ownership Information Program: Number of African-American landowners who developed farm management plans.

2. Outcome Type : Change in Action Outcome Measure

2008 :80 **2009 :** 80 **2010 :** 80 **2011 :**80 **2012 :** 80

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 607 - Consumer Economics

1. Outcome Target

Land Ownership Information Program: Number of African-American landowners who developed estate plans to reduce the

financial and legal risks farm family businesses face as they transition betwen generations.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
80	80	80	80	80

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 607 - Consumer Economics

1. Outcome Target

Farm Financial Analysis and Planning: Number of farmers and rural business operators who gained new knowledge and skills through the Quickbooks, fIRM and other record keeping workshops.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Analysis and Planning: Number of farm families and rural business operators who implemented partial budgeting decisions (examples include sell calves now or later, evaluating equitable leasing arrangements and mach

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Analysis and Planning: Number of farm families and rural business operators implementing improved record systems.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Analysis and Planning: Number of farm families who used FINPACK for developing and implementing whole farm plans.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Management: Number of farmers who increased their knowledge and skills in farm and financial planning.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Management: Number of farmers who developed financial plans for their farms.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Management: Number of farmers who increased their potential cash income from their farming operation.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farm Financial Management: Amount (in dollars) that farmers increased their potential cash income from implementing a farm plan.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
50000	50000	50000	50000	50000

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Farmer-owned biomass cooperative to help capture economic advantage of bioenergy production.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
0	0	0	0	1

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics
- 604 - Marketing and Distribution Practices
- 608 - Community Resource Planning and Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Competing Programatic Challenges
- Government Regulations
- Public Policy changes
- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities
- Economy

Description

In the event of natural disasters, the program focus will change to assist producers with basic needs. In that event, outcome measures will be changed to measure the success of the recovery effort. Changes in the U.S. economy may affect the number of firms expanding and locating new facilities in rural areas. The general farm economy will affect risk and returns to agricultural enterprises across a broad spectrum. Federal funding for food safety and security programs may affect consumers' willingness and ability to adopt improved food safety practices.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Time series (multiple points before and after program)

Description

Before-After questionnaires and time-series evaluations will be used to evaluate adoption/success of economic infrastructure and commerce programs.

2. Data Collection Methods

- On-Site
- Whole population

Description

All individuals served directly will be contacted for at least one evaluation study.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Environmental and Water Quality Impacts

2. Brief summary about Planned Program

Our economic and policy research will examine the various ways in which agriculture is affecting, and being affected by, the natural environment, and the implications of this changing relationship for agricultural producers, consumers, and rural communities.
Given the impacts of farm management practices on water quality, we will assess the economic impact of water quality regulations on individual producers and the agricultural industry in Tennessee. Sustained economic growth, coupled with population and income growth, have brought about rapid changes in land use at the rural-urban interface. We will examine development patterns and their estimated effects on natural resource conditions under different policy scenarios to forecast the effects of local policies, including direct land use planning and regulation and indirect land use policies such as provision of public infrastructure or other public services, for land areas in transition in Tennessee.
From an engineering and soils perspective, we will explore various means of reducing the environmental impact of agricultural production and other land uses while not only maintaining but improving water quality. The effectiveness of various best-management practices will be evaluated. New interpretive soil uses will be cataloged as they are added each year to insure proper soil classification and evaluation of landscape position. Studies will be conducted to help determine septic systems compatible with the limitations of available soil resources.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 101 12% Appraisal of Soil Resources
- 102 22% Soil, Plant, Water, Nutrient Relationships
- 112 25% Watershed Protection and Management
- 131 10% Alternative Uses of Land
- 133 20% Pollution Prevention and Mitigation
- 403 11% Waste Disposal, Recycling, and Reuse

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Agriculture’s effects on the natural environment and the effects of urbanization on surrounding agriculture are becoming more pronounced as both population and per capita wealth grow. Public concern about the impacts of agricultural production practices on water quality continues to increase. Conflicts about land use, odors, and chemical use abound as urban land uses expand into rural areas. Agricultural producers are also constrained by regulation and legal action against production management decisions, thus increasing production costs. Producers, residents of transition land areas, and downstream water users are directly affected by these issues.
Proper soil classification and evaluation of landscape position are crucial to understanding environmental impacts and assessing their effects on water quality. Continuing technical assistance is needed to catalog and communicate the new interpretive uses being added each year.
The 2002 draft of the U. S. EPA 303(d) list for Tennessee shows 32 stream segments that are impaired due (in part) to failing or leaking septic systems. Systems fail because the design, installation, operation and/or maintenance were not compatible with the limitations of available soil resources.
Manures are a problematic P source. Many soil test extractants do not adequately quantify organic P compounds in soil. This results in underestimating the amount of P available to a growing crop. Elevated phosphorus and potentially hazardous trace element concentrations in biosolid-amended soils pose a risk to human health and the environment through off-site.
Atrazine is widely used in weed control and consequently often detected in environmental media.

The implementation of best-management practices to improve the health of watersheds is widely promoted, but these BMP's are not always effective.

2. Scope of the Program

- In-State Research
- Multistate Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Environmental conflicts and issues will continue to grow in importance. Additional detrimental chemical residues in water supplies will be detected. Urban growth will demand better septic system solutions. There will continue to be a gap between best practice knowledge and best practice application. Resources will be available for our research efforts.

2. Ultimate goal(s) of this Program

We want to provide information to help producers and the public better understand environmental issues and potential solutions, and to enable them to make superior public policy decisions. We plan to develop, improve, and evaluate watershed models; supply more accurate rainfall data for decision-makers; provide technical assistance to soil survey updates in Tennessee; reduce the number of failed onsite wastewater disposal systems; determine available, total, and bioavailable P on P-limited and P-excess sites; and isolate and characterize novel atrazine degrading bacteria from soils and wetland sediments.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	0.0	0.0	29.0	0.0
2009	0.0	0.0	29.0	0.0
2010	0.0	0.0	29.0	0.0
2011	0.0	0.0	29.0	0.0
2012	0.0	0.0	29.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

We will develop economic and policy data by accessing existing sources, generating data from computer models, and surveying market participants. This data will be analyzed using appropriate statistical and econometric methods. Watershed scale model assessments will be conducted utilizing biophysical farm (field) level estimates of alternative management practices (AMPs). Changes in water quality in impaired watersheds resulting from the evaluation of AMPs will be measured. The cost of meeting different water quality standards at different points within a watershed and the potential impact of different environmental policies on Tennessee's agriculture will be evaluated using a regional economic model. A model used to project land use change will estimate the probability of land development of individual parcels as a function of parcel-level attributes.
The erosion, sediment transport, and contaminant transport capabilities of the RUSLE2 soil erosion model will be developed and introduced.
Hourly rainfall data for selected watersheds will be obtained and from the nearest tipping bucket gauge and concatenated into a 5-year time series for each pixel in satellite and radar data to overlay on watershed maps.
Soil samples will be thoroughly characterized in terms of elemental composition, particle size, mineralogy, and other soil chemical characteristics using standard techniques to define the P reservoirs in the soils. The expense of measuring soil hydraulic properties by agricultural producers and fellow researchers will be decreased.
Septic tank effluent from three adjacent houses will be connected to a common accumulation tank and then applied to test plots.
A high-intensity soil survey and a depth to the restrictive layer survey will be conducted to assist with placing test plots in nearly

homogeneous soil conditions.
Background information on the water quality in various watershed areas, including one containing an Animal Agriculture Environmental Research Unit will be collected. This collection of baseline environmental data will be used to evaluated the impact of a dairy production unit on the area.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Other 1 (Research-only program)	• Other 1 (Research-only program)

3. Description of targeted audience

This is currently a research-only targeted program, so the target audience is weighted toward basic/applied research clients.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	30	0
2009	30	0
2010	30	0
2011	30	0
2012	30	0

V(H). State Defined Outputs

1. Output Target

- Reduce water-flux measurement error of heat-pulse probe, percent error.

2008 :	2009 :	2010 :	2011 :	2012 :
20	15	10	5	5

- Proof of concept of biodegradable polymer mulch from lactic acid as bioproduct of making ethanol from cellulosic materials.

2008 :	2009 :	2010 :	2011 :	2012 :
0	1	0	0	0

V(I). State Defined Outcome

1. Outcome Target

Approximate RUSLE2 modeling software runs (per day) for conservation planning, new USDA programs, construction site erosion, and other natural resource conservation issues (e.g., nutrient management planning, carbon sequestration).

2. Outcome Type : Change in Condition Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
14000	16000	15000	15000	15000

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation

1. Outcome Target

Percent of Tennessee row-crop acreage under some form of no-till or conservation tillage.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
84	84	85	85	85

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation

1. Outcome Target

Greenhouse and nursery crop use of bioactive natural products in place of conventional pesticide on tomato, percent of operators adopting.

2. Outcome Type : Change in Action Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
1	2	3	4	5

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 133 - Pollution Prevention and Mitigation

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Public priorities
- Public Policy changes

Description

Public policies regarding water quality and land use may change causing the research results to be more or less useful. Changes of public perceptions and concerns about environmental issues and land use would alter the usefulness of results.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)

Description

Water quality and land use workshop participants will be surveyed pre and post workshop to determine their change in behavior.

2. Data Collection Methods

- Observation
- Sampling
- Other (Public data sources)

Description

Data collection will include experimental results, anecdotal USDA office software usage, publicly-available agricultural data, and personal communication from nursery and greenhouse operators.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Family Economics

2. Brief summary about Planned Program

Because they spend too much and save too little, many Tennesseans will not have enough money to live securely throughout life. This program will help Tennesseans to build and protect wealth, plan for a secure financial future, pay down debt, and protect themselves against financial fraud. This is one of our planned programs because Tennessee is a national leader in personal bankruptcy, and the State Extension Advisory Council and numerous stakeholders have indentified financial education as one of the top needs in our state.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 801 100% Individual and Family Resource Management

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Because they spend too much and save too little, many Tennesseans will not have enough money to live securely throughout life. The priority of family economics programs in Tennessee is saving - building wealth hroughout the life span. The percentage of retirement-age Tennesseans is expected to almost double over the next 30 years. In addition, they are expected to live 20 years after retirement, in contrast to 15 years after retirement in 1940 (Social Security Administration). During two of the past five years, Tennessee has led the nation in personal bankruptcy American Bankruptcy Intstitute).

2. Scope of the Program

- Multistate Extension
- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Assumption A. This program plan assumes that Tennessee's banks and credit unions will continue their support Extension's efforts in family economics education.
Assumption B. This program plan assumes that existing Tennessee Saves county and regional coalitions will be maintained or strengthened over the next five years.

2. Ultimate goal(s) of this Program

The ultimate goal of this program is that Tennesseans will save the necessary funds to live securley throughout their lives. This will be shown by the state's bankruptcy rate being at or below national levels. Tennesseans will:
build and protect wealth,
plan for a secure financial future,
pay down debt, and
protect themselves against financial fraud.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	29.0	3.4	0.0	0.0
2009	29.0	3.4	0.0	0.0
2010	29.0	3.4	0.0	0.0
2011	29.0	3.4	0.0	0.0
2012	29.0	3.4	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension will support at least 10 regional and local social marketing campaigns organized by UT and TSU Extension and supported by coalitions of volunteers across Tennessee. The Tennessee toolkit for savings lesson plans and activities for teaching financial and savings education will be used in schools, workplaces, community centers and other locations to teach youth and adults. Extension will maintain a partnership with national Extension "Finanacial Security in Later Life" initiative and with the "America Saves" national organization and other national and state partners with the TN Jumpstart Coalition. Extension will host a bi-annual partnership training conferences to strengthen the capacity of educators to teach financial and savings education. Extension will deploy its On My Own curriculum and youth TN Saves in over 100 financial education simulations annually throughout the state to reach 30,000 youth with savings and financial education. Additional classes, newletters, news releases and community events will be conducted for adult audiences.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Demonstrations • Other 1 (On-site visits) • One-on-One Intervention • Education Class	• Newsletters • Other 2 (Radio Programs) • Web sites • TV Media Programs • Other 1 (Newspaper Articles)

3. Description of targeted audience

Youth and adults will be targeted for this program. UT Extension is a national leader in creating, testing and validating family economic programs for reaching different target audiences, such as youth ages 9-18, young adults, coalition members and consumers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10000	50000	20000	50000
2009	10000	50000	20000	50000
2010	10000	50000	20000	50000
2011	10000	50000	20000	50000
2012	10000	50000	20000	50000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	1
2011	0	1
2012	0	1

V(H). State Defined Outputs

1. Output Target

- Number of exhibits displayed to promote program awareness and participation.

2008 :15 **2009 :**20 **2010 :** 25 **2011 :**30 **2012 :**30

- Number of research-based publications distributed as part of this program.

2008 :10000 **2009 :**20000 **2010 :** 25000 **2011 :**30000 **2012 :**30000

V(I). State Defined Outcome

1. Outcome Target

TN Saves: Number of participants who analyzed their readiness for home ownership.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :10000 **2009 :** 10000 **2010 :** 10000 **2011 :**10000 **2012 :** 10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who determined their net worth.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who estimated their retirement income needs.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who gained a better understanding of their options for financing health care.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who identified more effective strategies for dealing with reductions or gaps in income.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who identified ways to avoid being victimized by predatory practices or fraud.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants identified ways to increase savings.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants identified ways to reduce debt.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who increased their financial management skills.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who set financial or retirement goals.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who felt more confident that they could build wealth.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Finanacial Education Simluation: Number of participants who better understood their parent's concerns about money.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Finanacial Education Simluation: Number of participants who felt more strongly that they needed to get a good education.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned better how to plan their spending.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how education will affect the kind of job they can get.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how having a family can affect their lifestyle.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how much money it takes to get by.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how occupation and income will affect their lifestyle.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how payroll deductions are taken from gross pay.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how to keep a checkbook register.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who learned how to write a check.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who planned to change their career goals.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who followed a spending plan.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who planned to get more education after high school.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who initiated or increased savings.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Participants began or increased savings an average of $ ___ per month.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
30	30	30	30	30

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Participants initiated or increased savings an average of $ ___ per month.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
75	75	75	75	75

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who made a change in career plans.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who kept a record of spending.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who made a change in financial behavior.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who made a change in a financial practice to avoid being a victim of fraud or predatory practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who made a spending plan.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Number of participants who reduced debt.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Youth Financial Education Simulation: Number of participants who talked over the simulation with their parents.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

TN Saves: Participants reduced debt an average of $ ___ per month.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
75	75	75	75	75

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Programatic Challenges
- Competing Public priorities

Description

Either competing public priorities or competing programs may influence attainment of family economics outcome targets. Programs require local and state resources (volunteers, public funds, private funds, etc.) in addition to Smith-Lever funds, and if local and state resources change, the outcome targets may not be met.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)

Description

State Extension Specialists have created 35 reliable, validated instruments to collect data on the outcome indicators. Reliable, validated instruments will be used to collect data on the outcome indicators. The data will be used to report to our funders and other stakeholders as well as to improve the Tennessee Saves effort to help Tennesseans better manage their financial resources.

2. Data Collection Methods

- Sampling

Description

Family Economics programs are typically evaluated via questionnaires from a random sample of participants.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food Safety, Quality, and Nutrition

2. Brief summary about Planned Program

Obesity has reached epidemic proportions in Tennessee with two of three adults and four of ten school age children overweight or obese. This program will reduce obesity rates in the state and help Tennesseans live healthier lives.
The Centers for Disease Control estimates that 76 million people get sick, more than 325,000 are hospitalized, and 5,000 Americans die each year from foodborne illness. This program will improve consumer practices for safe food handling.
Our microbiological food safety program seeks to improve detection of, and develop physical and chemical intervention methods for, bacterial and fungal foodborne pathogens. In addition, we want to develop education and monitoring programs for at-risk populations or those who serve food to at-risk populations.
Improving food safety is a collaborative effort between scientists in the microbiological food safety and food biopolymer chemistry research groups. Proteins and polysaccharides will be studied for their potential to serve as carriers to help improve the availability of bioactive food antimicrobials and other components in food matrices or in the human gastrointestinal tract, or for their direct antimicrobial effects in packaging, on surfaces or in foods.
We are also active in nutrition-related cancer research. A common mechanism of modifying tumor growth and cancer risk may lie in the ability to alter intracellular calcium levels, and by doing so, we may be able to develop nutritional therapies to combat cancers.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 501 10% New and Improved Food Processing Technologies
- 502 5% New and Improved Food Products
- 702 5% Requirements and Function of Nutrients and Other Food Components
- 703 40% Nutrition Education and Behavior
- 712 40% Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Obesity has reached epidemic proportions in Tennessee with two of three adults and four of ten school age children overweight or obese. Obesity is the leading risk factor for many chronic diseases such as diabetes, arthritis, heart disease, hypertension, and some types of cancer. The economic and psychosocial costs of obesity and the underlying health issues are impacting all of society. Medical care costs are esclating and creating an economic burden for families, employers, and insurance entities. It is important for Extension to implement programs to reverse this trend.
The Centers for Disease Control estimates that 76 million people get sick, more than 325,000 are hospitalized, and 5,000 Americans die each year from foodborne illness. In 2000, the Economic Research Service (ERS) estimated the cost from five bacterial foodborne pathogens as $6.9 billion, which includes medical costs, productivity losses from missed work, and an estimate of the value of premature death. Safety of food products is a primary concern of consumers, and confidence in our agricultural food products is critical for the acceptance of such products and the ultimate well-being of livestock farms and farm families.
Child care providers serve one of the segments of our population which is most vulnerable to foodborne illness. In the US, children under five years of age account for 21% of the cases of food poisoning. Education of child care providers and children may go a long way to reducing foodborne illness.
Nutritional and metabolic disorders, including obesity hypertension, and nutrition-related cancers impact a large portion of consumers and their families. For example, colorectal cancer is the second leading cause of cancer deaths in the United States. Research-based information to help consumers optimize nutrition and reduce health risks is needed.

Biopolymers, i.e., polysaccharides and proteins, are major components of food products. Improvement of functional properties of biopolymers is important for improving the quality of foods which is of interest to the food industry. Additionally, biopolymers may be used for food, pharmaceutical, agricultural, and biotechnological applications such as carrier-delivery systems for food additives or 'release-on-demand' systems for drugs and other bioactive compounds which would be of benefit to all people.

2. Scope of the Program

- Integrated Research and Extension
- In-State Research
- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Extension Family and Consumer Sciences Agents have the necessary skills to build partnerships that will enage individuals, families and institutions for community-level change in diet quality and safe food handling practices. Consumers will rely on a wide range of outreach programs to provide up to date information that will help them formulate healthier lifestyles. A combination of applied and basic research can address food safety and nutrition issues. Directed funding for this research will remain level or increase.

2. Ultimate goal(s) of this Program

The ultimate goals of this planned program are to:
reduce obesity among Tennesseans to redce the prevalence of many chronic diseases such as diabetes, arthritis, heart disease, hypertension, and some types of cancer.
improve consumer food handling practices to lower foodborne illnesses.
provide consumers with reliable information to allow them to lead healthier lifestyles.
improve food safety to reduce foodborne illness.
provide opportunities for food processors to produce safe, high quality, shelf-stable food products.
improve food safety education to child care providers and school children.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	43.5	2.5	38.0	0.0
2009	43.5	2.5	38.0	0.0
2010	43.5	2.5	38.0	0.0
2011	43.5	2.5	38.0	0.0
2012	43.5	43.5	38.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension will use the Power of Choice curriculum in Tennessee schools and afterschool programs. Extension personnel and volunteers will use the curriculum to teach diet quality to young adolescents. The program will be delivered through 10 interactive lessons.
Extension will deliver the Walk Across Tennessee program in over 25 communities in the state. This eight-week walking program organizes teams for walking, jogging, or biking. Instruction is delivered in the prevention of obesity-related diseases such as cancer, diabetes and heart disease. Also, physical activity and weight management are taught.
In the Safe Food for Tennessee initiative, lessons will be delivered in homes, schools, community centers, churches, and other accessible locations to consumers. The lessons in "Cook's Corner" and "Safe Food for You" are designed to change attitudes,

skills and behaviors in regards to safe food handling practices.
Youth participants will receive food safety education using Fight BAC and other curricula through their school classroom, community center, after-school program, or other locations to reach youth. Direct methods (group meetings, classes, demonstrations, and on-site visits) and indirect methods (newsletters, TV media programs, web sites, newsppaer articles and radio programs) will emphasize the following:
how to use MyPyramid.gov and followng Dietray Guidelines.
how to use the Healthy Plate Method.
decreasing consumption of high-fat foods like fried foods, bologna, hot dogs, etc.
increasing consumption of fruits, vegetables and whole-grains.
using a thermometer to check the internal temperature of food.
using a thermometer to check the internal temperature of the refrigerator.
We will conduct applied and basic research in foodborne risks and nutrition to address high priority issues for consumers of food products. We will disseminate information gained from these studies to food industries and consumers through outreach programs, including workshops and educational events at the county level, and through a variety of publications.
Research projects in food safety are multi-pronged in their objectives. A major thrust is characterization of the antimicrobial activity of novel natural (i.e., plant-, animal- or microbial-based) compounds and better targeting through controlled-delivery encapsulation systems and incorporation into nanofibers and packaging films. Encapsulation strategies include micelles, liposomes, chitosans, supercritical carbon dioxide, high pressure homogenization and ultrasound. Novel molecular biology strategies will be used to identify stress mechanisms in bacteria that allow them to resist interventions.
Processed meat products will be surveyed for the presence of Listeria monocytogenes and physical and chemical methods to control it will be investigated.
Child care facility personnel and school children will receive education on food safety.
Studies will be done on how nonthermal processing (high pressure, ultrasound, solvents) affect the functional properties of proteins for food and non-food applications. Supercritical carbon dioxide will be used to produce biopolymers encapsulation systems for flavors and nutraceuticals and to modify functional properties of proteins.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Other 1 (On-Site Visits) • Education Class • One-on-One Intervention • Demonstrations	• Other 1 (Newspaper Articles) • Newsletters • Other 2 (Radio Programs) • Web sites • TV Media Programs

3. Description of targeted audience

Tennesseans targeted include consumers and youth. Because of the prevalence of obesity in the state, all consumer are potentially members of the target audience. However, the TNCEP and EFNEP programs will be targeted to the state's limited resource population. In addition, the TSU Food Nutrition Education Program will targeted to eligible food stamp recipients.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	100000	300000	100000	0
2009	200000	300000	100000	0
2010	200000	300000	100000	0
2011	200000	300000	100000	0
2012	200000	300000	100000	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :1 **2009 :**1 **2010 :** 1 **2011 :**1 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	14	0
2009	14	0
2010	14	1
2011	14	1
2012	14	1

V(H). State Defined Outputs

1. Output Target

- Number of exhibits displayed to promote program awareness and participation.

  2008 :15 **2009 :**20 **2010 :** 25 **2011 :**30 **2012 :**30

- Number of research-based publications distributed as part of this program.

  2008 :15 **2009 :**20 **2010 :** 25 **2011 :**30 **2012 :**30

- If petroleum prices continue to increase, we may identify several applications for chitosan to replace cellulose in the pharmaceutical or plastics industries.

  2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**1

- Achieve five-log (99.999%) micro-organism reduction (including E coli) on fresh vegetables at reduced temperature, pressure, and time of treatment.

  2008 :0 **2009 :**0 **2010 :** 0 **2011 :**1 **2012 :**0

- Provide proof-of-concept for using casein micelles as controlled release carriers for antimicrobials in food.

  2008 :1 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

V(I). State Defined Outcome

1. Outcome Target

Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in their attitude about keeping the temperature in the refrigerator at 40 degrees F or below.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Safe Food Handling Practices for Consumers: Number of participants surveyed more often washed items that came in contact with raw meat, chicken or seafood with hot, soapy water before continuing to cook.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Safe Food Handling Practices for Consumers: Number of participants surveyed who more often washed their hands with soap and warm running water before eating.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Safe Food Handling Practices for Consumers: Number of participants surveyed who more often washed their hands with soap and warm running water before preparing food.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Safe Food Handling Practices for Consumers: Number of participants surveyed who used a thermometer to check the internal temperature of food.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Safe Food Handling Practices for Consumers: Number of participants who washed their hands with soap and warm running water after working with raw meat, chicken, or seafood.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of medium or large food processing companies using an anti-microbial strategy developed through the food safety program.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
0	0	3	5	5

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Diet Quality: Number of participants who learned how to use the Healthy Plate to balance their diet.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
15000	15000	15000	15000	15000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who decreased consumption of high-fat foods such as chips, fast food, fried foods, sausage, bacon, bologna, hot dogs, etc.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who decreased consumption of high-sugar foods and sweetened beverages, such as soft drinks, Kool Aide type beverages, sweetened tea, etc.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who increased consumption of dairy foods.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who increased consumption of fruits.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who increased consumption of vegetables.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants increased consumption of whole grains.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who improved their blood sugar.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Diet Quality: Number of participants who improved their cholesterol levels.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
6000	6000	6000	6000	6000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Pending chitosan being granted GRAS (Generally Recognized As Safe) status, our research will lead to applications in edible films and food additives with anti-microbial and thickening properties.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
0	0	0	1	0

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products

- 702 - Requirements and Function of Nutrients and Other Food Components
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Adoption of a homogenization pasteurization process as an alternative to thermal processing by small or mid-sized juice processors.

2. Outcome Type : Change in Action Outcome Measure

2008 : 0	**2009 :** 0	**2010 :** 0	**2011 :** 1	**2012 :** 0

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Competing Programatic Challenges
- Appropriations changes
- Public Policy changes

Description

If Federal formula funds (Smith-Lever, Hatch and NARETPA) are reduced over the next five years, Extension's response to Tennessee's obesity epidemic and safer food handling will be greatly hindered. Food safety surveillance statistics and federal regulation changes may alter outcomes by forcing alterations in research plans.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- After Only (post program)
- Retrospective (post program)

Description

Tennessee Shapes Up: After Only (Post-Program): The Tennessee Shapes Up short-term knowledge gained checklist will be administered to participants at the end of each session. Retrospective (Post-Program): The Tennessee Shapes Up intermediate behavior checklist will be administered at the end of the multi-session program. During the Program: Extension Family and Consumer Sciences Agents will document participant and third-party testimonials and observations.
Safe Food for Tennessee: Adult participants who receive food safety education using lessons in "Cook's Corner" and "Safe Food for You" will complete survey questions on "Your Opinions About Food Safety" (short term attitude/knowledge outcomes) or (not both) "Food Handling and Eating Preferences Questionnaire" (intermediate outcomes) before and after education.Impacts from EFNEP adult and youth programs will be reported through the national EFNEP Reporting System.
Evaluation of outreach program events will be conducted to determine baseline knowledge of participants before and after the event. Evaluation of our programs will occur through participant surveys following outreach programs.
Child care facilities that have instituted a designed food sanitation plan and food safety educational training will be compared with control facilities that have not used the plan. The effectiveness will be determined by monitoring the microbiology of facility food service areas.
Educational programs will be evaluated by conducting examinations of participants before and after training and at some period following training to evaluate behavior changes.

2. Data Collection Methods

- Sampling
- On-Site
- Whole population
- Observation

Description

Extension Family and Consumer Science Agents work in 94 Tennessee counties. In conducting this program, they will note observations, third-party or other sources of information about the impact of the program on participants' lives.
Microbiological survey projects will utilize collection of samples from retail outlets, transportation to the laboratory and analysis. Survey of surfaces at child care facilities will involve swab sampling and laboratory microbiological analysis along with use of rapid sanitation assay methods.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Forestry, Wildlife, and Fishery Systems

2. Brief summary about Planned Program

The Extension portion of this planned program will encourage and educate Tennesseans to balance productivity and profitability with environmental stewardship, and pass on healthy and sustainable forestry, wildlife and fisheries systems to future generations.
Planned forestry research programs have several principal emphases:
To develop and use data on the fauna living on Eastern Hemlock to provide protection against the Hemlock Woolly Adelgid.
To create innovative tools to characterize key parameters associated with the formation of durable, high-performance composite materials, and establish new statistical methods to advance intelligent manufacturing practices.
To explore new methods to produce carbon fibers from low-quality raw materials and develop technology to evaluate drying behavior of red oak.
To develop techniques for increasing re-forestation by establishing genetic variation in nursery and field characteristics of native hardwood and coniferous forest tree species.
To identify environmental and physiological factors having the greatest effects on the survival and growth of tree species native to Tennessee.
To develop an objective understanding of innovative forest policy tools and the forest policy environment in Tennessee.
To examine the influence of drought conditions on micorrhizal fungi and their benefical symbioses, leading to a better understanding of what we can expect regarding the impact of drought, such as would be expected as a result of global warming, on the health of forests in the Southeast.
Wildlife research includes biology and ecology of non-game bird species, the assessment and evaluation of agricultural crop damage due to wildlife, and the management and distribution of large game species (such as bear and elk) in the Southeast.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 123 38% Management and Sustainability of Forest Resources
- 125 7% Agroforestry
- 135 12% Aquatic and Terrestrial Wildlife
- 311 33% Animal Diseases
- 605 5% Natural Resource and Environmental Economics
- 610 5% Domestic Policy Analysis

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

In Tennessee the agroforestry complex includes the primary industries of agriculture and forestry, the input supply industry, the value-added subsectors, food and kindred products, apparel and textiles, and forest products. Tennessee's agriculture and forest products account for 18% of the state's economy and generates more than $60 billion in output. About 292,000 Tennesseans are employed by the agroforestry complex, with 126,000 employed in agricultural production. Leading value-added industries include food manufacturing, paper manufacturing, beverage and tobacco products manufacturing, furniture and related products manufacturing, and wood products manufacturing. These subsectors account for more than 85% of the value-added to agriculture and forest products. Agroforestry can be a win-win situation for small wood landowners. It provides opportunities to balance productivity and profitability with environmental stewardship, and pass on healthy and sustainable agricultural systems to future generations. Agroforestry can provide a diversified income and increase farm productivity. Tennessee merchandise exports from agriculture and forestry production and manufacturing, including fishing, hunting and trapping contributed to close to $2 billion, or 17% of the state's total export base of $11.6 billion. Also, agroforestry provides conservation buffer systems against runoff, soil loss, and pollution from heavy rains. Agroforestry can be used to address human needs by improving quality of life, health,

comfort, enjoyment, security and recreation.
The Hemlock Woolly Adelgid is an invasive insect pest that first arrived in Tennessee in 2002. The insect has devasted hemlock forests in the northeastern U.S. The U.S. Forest Service and the Great Smoky Mountains National Park are concerned that the loss of major parts of the hemlock forest would permanently damage the local forest ecosystem. Simultaneous urgent needs for release of predatory beetles and studies of the affects of those releases on the adelgid populations go together with studies of non-target effects of chemical controls used on the adelgids and searches for new predators.
We are faced today with unique opportunities to further the effective and efficient use of renewable resources like wood and wood fiber. The elimination of key natural disturbances in TN hardwood forests and the addition of human disturbances have resulted in a lack of oak regeneration needed to replace valuable oak trees. Research is extremely critical at the present time due to the pressures faced by Tennessee's landowners, which include rising demands for timber and recreational opportunities, which calls for policies to enhance environmental services from forests, and increasing land values from non-forest uses. Forest landowners and policy makers often lack information to evaluate the economic returns associated with managing public and private lands for a range of goods and services.
Greenhouse gasses in our atmosphere are increasing, and this phenomenon is expected to increase average global temperature and drought. Forests in the Southeast are particularly vulnerable to decreasing precipitation. A decline in forest health has numerous implications for timber and biomass production, wildlife habitat, and overall ecosystem stability. Micorrhizal fungi form beneficial plant symbioses and are a critical natural resource of healthy forests. Benefits of these symbioses include improved soil structure and, therefore, the ability of soils to support tree root growth and resist erosion; and protection of trees from stresses related to salinity, herbicides, and infection by pathogens. Changes in our atmosphere such as increased greenhouse gasses, elevated temperature and drought can affect mycorrhizal associations. Our ability to predict and react to climate changes, as to their effects on forest health, requires an understanding of how these changes affect mycorrhizal symbioses.
Certain bird species utilize Tennessee habitat during their annual migratory activities; ecosystem habitat alterations may affect their population numbers and distribution along those migratory routes. Interactions of wildlife large game species, both existing and re-introduced, may result in crop damage, ecosystem alterations, or human-animal conflicts. The loss of tobacco as a revenue source in Tennessee has farmers looking for an extra source of income, such as aquaculture.
There is concern that amphibians may serve as wildlife reservoirs for the human pathogen E coli. Human health implications of this hosting include possible direct human uptake through swimming or open wounds, vegetable contamination water via irrigation water, or indirect transmission via cattle and meat contamination.

2. Scope of the Program

- Multistate Research
- In-State Extension
- Multistate Extension
- In-State Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Tennessee's County Foresty Associations will remain viable organizations over the next five years for the delivery of research-based information on best management practices. The resources needed to implement this statewide planned program will be secured as needed. External research funding will continue to grow. Appropriately skilled staff can be recruited. Projected building projects for which private funds exist will be completed. Sufficient field research sites will be available.

2. Ultimate goal(s) of this Program

We seek to educate and inform Tennesseans to preserve, protect and enhance Tennessee's forestry, wildlife and fisheries systems.
From a research perspective, we want to:
provide data and technological advances as part of a regional effort to prevent the eradication of hemlock by the Hemlock Woolly Adelgid;
predict effects of elevated temperatures/other environmental changes to Tennessee forests by understanding tree physiological mechanisms;
re-establish chestnut trees in forest ecosystems;
genetically improve selected hardwood/coniferous species;
understand the role of the wood/polymer interface in composites;
develop patentable software for real-time prediction using advanced statistical systems;

determine the influence of drought, such as could be expected as a result of global warming, on the beneficial mycorrhizal symbioses in mature temperate forests;
refine methods to evaluate deer damage to agriculture;
develop wildlife-based indicators of sustainability to help managers identify forests where sustainability is threatened;
evaluate non-intrusive DNA sampling techniques to determine population densities of black bears in the Great Smoky Mountains National Park;
develop faster, more specific tests for fish diseases.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	24.2	4.7	49.0	0.0
2009	24.2	4.7	49.0	0.0
2010	24.2	4.7	49.0	0.0
2011	24.2	4.7	49.0	0.0
2012	24.2	4.7	49.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

UT and TSU Extension will partner with the Tennessee Forestry Association to plan and conduct group meetings to inform forest landowners of issues pertaining to forestry and wildlife. Topics will include management and marketing. Volunteers will be recruited and trained to present at group meetings, provide information, demonstrate equipment and provide materials for demonstrations. UT and TSU Extension will provide education at local, regional and statewide events, such as the Tennessee Forest Festival to inform the general public about forest management issues. Demonstartions will be provide for landowners and forestry workers. Extension Agents and Specialists will educate attendees at County Forestry Landowners Association. UT and TSU Extension will work closely with private consultants, Tennessee Wildlife Resources Agency employees,
Tennessee Division of Forestry and others in forestry related industries to develop educational programs and activities for professionals and landowners.UT and TSU Extension will continue one-on-one contacts with landowners throughout the year and use mass media and newsletters to inform the general public on issues and educational opportunities related to natural resources. Both UT and TSU Extension will provide leadership for conducting programs that target limited resource landowners with TSU providing specialist leadership for this effort.
Research efforts will include the following:
Research biological control of Hemlock Woolly Adelgid by known predators and new species and release technologies. Present seminars and lectures on control of HWA.
Seek to create innovative tools to characterize key parameters associated with the formation of durable, high-performance composite materials, and establish new statistical methods to advance intelligent manufacturing practices.
Explore new methods to produce carbon fibers from low-quality raw materials and develop technology to evaluate drying behavior of red oak.
Seek to patent a process for bonding plastic or polymer to lignocellulosic fibers (using ultrasonic vibration) as a replacement for toxic wood preservatives.
Evaluate methods of increasing oak seedling success and techniques for increasing reforestation. Genetic variation in nursery and field characteristics of native hardwood and coniferous forest tree species will be exploited; different strategies will be used to address exotic forest tree pests and corresponding forest restoration.
Establish a collection of woody plants, including species and cultivars, and plants having potential commercial value as forest species or for landscape development, from which materials may be obtained for breeding/propagation.
Identify approaches and services to landowners that would enable them to realize a wide range of expected benefits of landownership while fostering stewardship and sustainability of private forest lands in Tennessee; a review of the research

literature, forest management textbooks, and landowner assistance information as well as interviews with a group of resource managers will be used to verify our understanding of what resource professionals consider to be management. Both qualitative (e.g., personal interviews and focus groups) and quantitative (e.g., survey responses) data will be collected and analyzed to better understand landowners understanding of management.
Although manipulative studies of tree seedlings and saplings are cost effective and quick, recent research has shown that they may not allow for valid predictions on mature trees. Therefore, direct experiments on large trees or forested catchments have been developed. Experiments will be conducted on two local forest research sites developed by the Department of Energy (DOE). Each are large-scale, multi-year, multi-investigator experiments.
Evaluate and quantify the effects of deer on agricultural production and identify associated land-use patterns and biological and ecological factors that could be used for reducing the impact of deer on agricultural production.
Monitor target avian species and relate specific population parameters to factors affecting forest health and sustainability, and develop new forest management prescriptions that promote sustainability.
Develop prediction methods using cortisol level as an indicator of stress induced mortality in cultured catfish. Selected aquatic species, other than traditionally cultured catfish and trout, will be evaluated in existing production systems adapted to Tennessee's climate and geography.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• One-on-One Intervention • Other 2 (Field Days) • Workshop • Education Class • Other 1 (On-site Visits) • Demonstrations	• TV Media Programs • Web sites • Other 1 (Newspaper/Radio) • Other 2 (Publications) • Newsletters

3. Description of targeted audience

The target audiences for this program are forest landowners and the professionals and volunteers who serve them.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10000	20000	10000	20000
2009	10000	20000	10000	20000
2010	10000	20000	10000	20000
2011	10000	20000	10000	20000
2012	10000	20000	10000	20000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 : 1 **2009 :** 0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	40	0
2009	40	1
2010	40	1
2011	40	1
2012	40	0

V(H). State Defined Outputs

1. Output Target

- Number of exhibits built and displayed to promote program awareness and participation.

  2008 :5 **2009 :**5 **2010 :** 5 **2011 :**5 **2012 :**5

- Release of Hemlock Woolly Adelgid predators reared in Tennessee.

  2008 :200000 **2009 :**200000 **2010 :** 200000 **2011 :**150000 **2012 :**150000

- Golden-winged warbler conservation strategy in place for the Cumberland Mountains of Tennessee.

  2008 :0 **2009 :**0 **2010 :** 1 **2011 :**0 **2012 :**0

- Identify whether or not amphibians are suitable hosts of E coli, and determine aquatic factors that contribute to infectivity.

  2008 :0 **2009 :**0 **2010 :** 1 **2011 :**0 **2012 :**0

- Engage in discussions with TVA to consider advancing reservoir drawdowns, as a means of increasing mudflat habitat and slowing population loss of migrating shorebirds.

  2008 :1 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

- Deploy tree-scale field cages for evaluation of introduced natural enemies against Hemlock Woolly Adelgids, number of cages.

  2008 :20 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

V(I). State Defined Outcome

1. Outcome Target

Agroforestry for Underserved Landowners: Number of underserved landowners who are now alley cropping with annual crops and high-value hardwoods due to technical assistance provided by specialists.

2. Outcome Type : Change in Action Outcome Measure

2008 :15 **2009 :** 15 **2010 :** 15 **2011 :**15 **2012 :** 15

3. Associated Knowledge Area(s)

- 125 - Agroforestry

1. Outcome Target

Agroforestry for Underserved Landowners: Number of underserved landowners who began pursuing forest farming operations of high-value speciality crops such as herbs, medicinal plants or mushrooms due to technical assistance provided by specialists.

2. Outcome Type : Change in Action Outcome Measure

2008 : 15	**2009 :** 15	**2010 :** 15	**2011 :** 15	**2012 :** 15

3. Associated Knowledge Area(s)

- 125 - Agroforestry

1. Outcome Target

Agroforestry for Underserved Landowners: Number of underserved landowners who planted riparian buffer strips along waterways due to technical assistance provided by specialists.

2. Outcome Type : Change in Action Outcome Measure

2008 : 15	**2009 :** 15	**2010 :** 15	**2011 :** 15	**2012 :** 15

3. Associated Knowledge Area(s)

- 125 - Agroforestry

1. Outcome Target

Forest Landowner Education: Number of landowners who now understand the ecology of forest development and succession (using forest management plans or contacting a professional forester.)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 : 100	**2009 :** 100	**2010 :** 100	**2011 :** 100	**2012 :** 100

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources

1. Outcome Target

Forest Landowner Education: Number of landowners who improved profitability (marketing) of forest ownership.

2. Outcome Type : Change in Action Outcome Measure

2008 : 100	**2009 :** 100	**2010 :** 100	**2011 :** 100	**2012 :** 100

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources

1. Outcome Target

Scientists employing our findings on forest health, including resilience to drought stress, and the role of beneficial soil organisms in modeling environmental changes to drought.

2. Outcome Type : Change in Condition Outcome Measure

2008 : 0	**2009 :** 10	**2010 :** 30	**2011 :** 50	**2012 :** 50

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 125 - Agroforestry
- 605 - Natural Resource and Environmental Economics

1. Outcome Target

Acres of production of freshwater prawn in Tennessee as an alternative income source.

2. Outcome Type : Change in Action Outcome Measure

2008 : 0	**2009 :** 250	**2010 :** 250	**2011 :** 250	**2012 :** 250

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Government Regulations
- Appropriations changes
- Competing Programatic Challenges
- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities
- Public Policy changes

Description

A number of environmental factors could change the direction and outcomes of programming in forestry, wildlife and fisheries. These include insect infestation and forest fires. Other natural disasters, such as hurricanes and tornadoes, may significantly alter forested and riverine habitat which ultimately may affect game and non-game population densities.
Outcomes may also be affected by governmental regulations and public policy changes regarding wildlife populations, economic changes affecting the hardwood industry, state and government funding for public lands, government regulations and/or public policy changes that affect forest policy and the sustainability of forest lands research, and possible appropriations changes within DOE.
Natural events such as drought and extreme weather conditions may affect studies designed to identify environmental and physiological factors affecting the survival and growth of tree species native to Tennessee.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Case Study
- Time series (multiple points before and after program)
- Other (Observation)
- After Only (post program)
- Comparison between locales where the program operates and sites without program intervention
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Description

After Only (post program): Post-program questionnaires will be used to ascertain the degree of knowledge and attitude change.
Observation: County Extension Agents will observe landowners before and after programs to determine the level of practice adoption.
Time series as well as comparisons between groups/programs with and without program intervention: Deer damage to agricultural production.
Case study: Bear monitoring using DNA technology.
Comparison between sites where various treatments were made. Tree improvement programs are generally long-term activities with monitoring throughout the study and summary evaluation after a designated period of time; forest policy studies often use the case study approach.
Due to the nature of this research, evaluation studies planned are the actual data collection and observations which will reveal the influence of drought on micorrhizal symbioses and the health of sample trees.

2. Data Collection Methods

- Whole population
- Sampling
- Other (Diagnostic tests)
- On-Site

Description

After Only (post program): Post-program questionnaires will be used to ascertain the degree of knowledge and attitude change.

Whole population: Black bear distribution, avian populations.
On-site survey: Deer damage in agricultural crops.
Diagnostic tests: For cortisol stress in catfish.
Sampling: for Hemlock Woolly Adelgids and predator species.
Sustainability of forest lands research will utilize a combination of data collection methods, including personal interview and focus groups, mail and phone surveys, and literature review.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Health and Safety

2. Brief summary about Planned Program

The state of Tennessee spends over 37.5% of its state budget on health care, in part due to the costs incurred by patients who do not understand medical information, chronic disease self-care, the health care system and health provider information. This public health crisis is called low health literacy, which threatens every person in Tennessee, regardless of age, race, education, or income level. Our Extension program will build the health literacy of Tennesseans by helping them to read, understand, and act on health information for personal health decisions.
Since 9-11-01, Tennesseans, like all Americans, have greater need and interest in homeland security and emergency preparedness. Our Extension program will emphasize disaster preparedness for food safety and family finances.
We are conducting research in two areas related to health and safety:
There is a need to develop new materials and composites for textile systems for protective and medical applications with enhanced resistance (or, in some cases, susceptibility) to environmental degradation. One project focuses on expanding the uses for agricultural commodities and by products in the manufacture of these textiles.
A new ASAE Engineering Standard includes a lateral upset test for front drive, self-propelled, ride-on lawnmowers. Wwhether or not a particular model will meet the new standard can be determined by either conducting an actual vehicle roll or using a simulation model. We will be evaluating the validity of the computer model used for this purpose.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 402 5% Engineering Systems and Equipment
- 511 5% New and Improved Non-Food Products and Processes
- 724 70% Healthy Lifestyle
- 805 20% Community Institutions, Health, and Social Services

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Health care costs are rising in Tennessee, with the state spending over 37.5% of its state budget on health care. Reasons suggested for the rising health care costs include technological advances, new drug therapies, malpractice costs, and a growing aging population. A reason that is less recognized is the costs incurred by patients who do not understand medical information, chronic disease self-care, the health care system and health provider information. This public health crisis is called low health literacy, which threatens every person in Tennessee , regardless of age, race, education, or income level. Health literacy refers to the ability to read, understand, and act on health information to make personal health decisions. Diabetes is the sixth leading cause of death in Tennessee. One in three Tennesseans have arthritis.
Disaster can strike quickly and without warning. It can force evacuations or confine people to their homes. Basic services, such as water, gas, electricity and phones can be cut off. Natural disasters cost the United States more than $50 billion per year. Since 9-11-01, Tennesseans, like all Americans, realize we face threats posed by hostile governments and extremist groups. These threats incldue acts of terrorism and acts of war.
Environmental sustainability, security, and emergency preparedness are increasingly important to citizens because of limited resources leading to environmental pressure, and significant worldwide disease and terror threats. The textiles used in Personal Protective Equipment (PPE) are an important tool in dealing with these emerging and ongoing threats. There is a need to develop new materials and composites, and ways of disposing of used textiles, in ways that are more environmentally friendly. The economic, personal protection, comfort, and degradation properties of cotton-enhanced protective apparel appear attractive to a broad range of end-users in the industrial and medical sectors, as well as populations at risk of chemical and biological harm.
Personal safety is an issue as hobbies, work patterns, and disposable income bring individuals into contact with machinery for

which they have little operational training, or only occasionally use. One major area of concern is riding mowers. Overturn of riding mowers is a significant source of injury and death in the United States. Mower design and testing must evolve as accident mechanisms are identified.

2. Scope of the Program

- In-State Research
- Multistate Research
- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The Tennessee Department of Health will continue to its stewardship of 95 County Health Councils in the state, and Extension Family and Consumer Sciences Agents will continue to educate and involve local councils for community health outreach. The resources needed to conduct this program over the next five years will be available as needed.
Agricultural commodities and by-products will continue to be available for protective apparel uses. We will be able to develop value-added products from renewable and recyclable resources. Petroleum prices will remain relatively high to enhance the attractiveness of such alternate products. We will be able to engineer fabrics that have the appropriate combinations of properties.
The ASAE Engineering Standard will continue to be the leading standard adopted for front-drive, self-propelled, ride-on lawnmowers. Industry compliance with this standard will continue. Simulation modeling will be an adequate surrogate for conducting actual vehicle rolls. We will be able to construct and refine a model that accurately replicates actual behavior.

2. Ultimate goal(s) of this Program

The ultimate goals of this planned program are to improve the health and safety of Tennesseans:
To stabilize or lower health care costs in Tennessee by helping the state's citizens to read, understand, and act on health information to make personal health decisions.
To help Tennesseans be more secure through disaster preparedness.
To develop value-added protective apparel products from by-products, and renewable and recyclable agricultural resources in an environmental friendly manner.
To investigate, model, develop, and evaluate rollover protective structure (ROPS) designs for agricultural vehicles for which approved ROPS are not currently available.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	48.4	3.9	5.0	0.0
2009	48.4	3.9	5.0	0.0
2010	48.4	3.9	5.0	0.0
2011	48.4	3.9	5.0	0.0
2012	48.4	3.9	5.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Dining with Diabetes is a three-session course which will be offered throughout the state. This course is taught by Extension Family and Consumer Sciences Agents who coordinate with local health officials to taregt people with diabetes and/or thier caregivers.
Arthritis Self-Help is a program delivered in six sessions. Each session is two-hours in length. Participants are provided with the book, The Arthritis Helpbook, written by Kate Lorig and James Fries. This evidence-based program is designed to increase the

self-confidence of participants to manage their arthritis. It will be deleivered by Extension, in partnership with the Tennessee Chapter of the Arthritis Foundation, the Tennessee Department of Health's Arthritis Control Program, and the University of Tennessee Medical Center's Department of Family Medicine. Specific efficacy-enhancing strategies used in this program include:
Contracting: Weekly contracting helps participants master something new.
Feedback: Opportunity is provided to report and record progress and explore different behaviors.
Modeling: People learn more and try harder when they are motivated by people whom they perceive to be like themselves. Program participants and the trainer serve as models. The course has an emphasis on modeling.
Reinterpreting Symptoms and Changing Beliefs: People are pretty rational. They act based on beliefs. If people believe arthritis is a wear and tear disease, then they may not think they can exercise. If they think that nothing can be done for their arthritis, they are probably right. Throughout this program, there is a great emphasis on changing such beliefs.
Persuasion: By seeing others in the class contract and succeed, even the most reluctant participant will often choose to take part. It is hard not to go along with others. The facilitator urges participants to do a little more than they are doing now, such as walking four blocks instead of two.
Tai Chi will also target arthritis sufferers. Extension will offer this exercise instructional program to individuals throughtout the state. Research indicates that this regimen builds strength and is helps those with arthritis to reduce pain and increase mobility.
Agrosecurity: Extension will collaborate with state and local agencies to review and update community emergency management plans that are required by the Tennessee Emergency Mangement Agency. Producers and agribusinesses will be assessed as to their level of adoption of recommended agrosecurity/biosecurity measures, and these practices will be taught through group meetings and farm visits. The EDEN Plant Biosecurity Management Plan will be used for agricultural and natural resource programs in the state, and GIS systems will be used to report and analyze data. Workshops will be conducted for producers and agribusinesses to educate them on agro/biosecurity and develop local collaboartions for reducing bioterrorism threats.
Homeland Security/Disaster Preparedness: Consumers, families and individuals will be taught through various group meetings, visits and mass media. Key practices to be taught are disaster preparedness for family finances and food safety.
The protective apparel uses for agricultural commodities and by products will be expanded. Investigations will continue to produce lyocell from agrifibers and consumer wastes. Undervalued cellulose sources such as hardwoods and softwood pulps, recycled newsprint, bagasse, and kudzu will be explored as starting materials for lyocell solutions. Solution properties will be measured and related to processing. Value-added products from sugarcane bagasse fibers will be further developed. Needlepunched nonwoven mats will be produced and evaluated. The effects of different delignification and post treatments on dyeability of bagasse fibers will be determined. Carded fiber webs will be further processed into sliver and spun into yarns and yarn characteristics determined. Optimal bonding conditions will be determined for cotton core nonwovens. Hand properties of the nonwovens will be evaluated.
An examination and inventory of available lawnmower ROPS will be conducted. The ease of rollover will be determined. ROPS currently available for a full-size front drive lawnmower will be tested. The modeling aspect of the standard will be evaluated to determine the accuracy of simulating a vehicle rollover. Model parameters, including ROPS height, mass moment of inertia, and rollover test slope surface strength properties will be investigated. Angular velocities at critical vehicle positions will be compared to simulation results to evaluate model accuracies. ROPS test results for the currently available ROPS will be reported to the manufacturer. Following the roll-over tests, recommendations and concerns relative to the application of the ASAE S547 Standard will be developed.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• One-on-One Intervention • Other 1 (On-site visits) • Education Class • Demonstrations	• Newsletters • TV Media Programs • Other 2 (Radio Programs) • Other 1 (Newspaper Articles) • Web sites

3. Description of targeted audience

The target audience is inclusive of consumers and limited resource individuals and families. The Dining with Diabetes program targets individuals with this chronic disease and the caregivers, health profesionals and volunteers who serve them. The Agrosecurity program targets producers and agribusinesses.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	20000	80000	20000	40000
2009	20000	80000	20000	40000
2010	20000	80000	20000	40000
2011	20000	80000	20000	40000
2012	20000	80000	20000	40000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	4	0
2009	4	0
2010	4	1
2011	4	1
2012	4	1

V(H). State Defined Outputs

1. Output Target

- Number of exhibits built and displayed to promote program awareness and participation.

  2008 :25 **2009 :**25 **2010 :** 25 **2011 :**25 **2012 :**25

- Number of research-based publications distributed as part of this program.

  2008 :800 **2009 :**800 **2010 :** 800 **2011 :**800 **2012 :**800

- Test market production of cotton-enhanced spun-melt fabric hospital gowns through a major textile and medical appliances company.

  2008 :0 **2009 :**1 **2010 :** 0 **2011 :**0 **2012 :**0

V(I). State Defined Outcome

1. Outcome Target

Disaster Preparedness for Food Safety: Number of participants surveyed who know how much food they need on hand in case of an emergency.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1000	1000	1000	1000

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

1. Outcome Target

Disaster Preparedness for Food Safety: Number of participants and their families who now have an adequate supply of safe water and food in case of an emergency.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1000	1000	1000	1000

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

1. Outcome Target

Arthritis Self-Help Course: Number of participants surveyed who have improved their mental health regarding difficult emotions (sadness, frustration and anger).

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1000	1000	1000	1000

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Arthritis Self-Help Course: Number of participants surveyed who have less pain from their arthritis.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
500	500	500	500	500

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Arthritis Self-Help Course: Number of participants surveyed who have less stiffness from their arthritis.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
500	500	500	500	500

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Arthritis Self-Help Course: Number of participants surveyed who take fewer medications for their arthritis pain.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
500	500	500	500	500

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who reduced weight.

2. Outcome Type : Change in Action Outcome Measure

2008 : 800	**2009 :** 800	**2010 :** 800	**2011 :** 800	**2012 :** 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who reduced A1c.

2. Outcome Type : Change in Action Outcome Measure

2008 : 800	**2009 :** 800	**2010 :** 800	**2011 :** 800	**2012 :** 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who reduced blood cholesterol.

2. Outcome Type : Change in Action Outcome Measure

2008 : 800	**2009 :** 800	**2010 :** 800	**2011 :** 800	**2012 :** 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who reduced blood pressure.

2. Outcome Type : Change in Action Outcome Measure

2008 : 800	**2009 :** 800	**2010 :** 800	**2011 :** 800	**2012 :** 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who better manage their diabetes as a result of this program.

2. Outcome Type : Change in Action Outcome Measure

2008 : 800	**2009 :** 800	**2010 :** 800	**2011 :** 800	**2012 :** 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who eat at least five servings of fruits and vegetables each day.

2. Outcome Type : Change in Action Outcome Measure

2008 : 800	**2009 :** 800	**2010 :** 800	**2011 :** 800	**2012 :** 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who eat three meals a day.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who eat three servings of low-fat dairy foods each day.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who gat an A1c test.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who now use artificial sweeteners.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Dining with Diabetes: Number of participants surveyed who use spices and other seasonings to cut back on fat, sugar, and salt.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Tai Chi: Number of participants surveyed who continue doing the Tai Chi after the Tai Chi program ends.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Tai Chi: Number of participants surveyed who have less stiffness from their arthritis as a result of Tai Chi.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Tai Chi: Number of participants surveyed who have no pain from arthritis.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Tai Chi: Number of participants surveyed who improved balance, body posture and joint flexibility.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
5000	5000	5000	5000	0

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Tai Chi: Number of participants surveyed who now practice Tai Chi every day.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
800	800	800	800	800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Sanitary Operating Procedure adoption by daycare programs in Tennessee pending grant funding, centers involved.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
0	0	60	120	180

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Programatic Challenges
- Competing Public priorities

Description

Public perception, as well as new health and safety crises, may affect governmental policy, priorities, and funding for individual research areas.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Other (Surveillance Data)

Description

To evaluate the Dining with Diabetes and Arthritis Self-Help Course, surveillance data from TN Department of Health will be employed. After Only (post program) questionnaires will be used with various other health programs including Dining with Diabetes, Arthritis Self-Help and Tai Chi.

2. Data Collection Methods

- Sampling
- Observation
- Case Study
- Whole population
- Other (Experimental results)

Description

Research data collection methods will include experimental results, case studies, and sampling/observation of cooperating sites.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Horticultural Systems

2. Brief summary about Planned Program

Tennessee's horticultural crop industry is an important, growing sector of our agricultural economy. Health conscious consumers are purchasing more fruits and vegetables, and an increasing value is being placed on beautification of residences and businesses via use of annual and perennial plants, many of which are grown in Tennessee. Horticultural production in Tennessee is increasing, partially due to diversification of agronomic crop and beef cattle farms.
Our research involves searching out profitable and marketable products to supplement or replace existing crops. Insect and disease resistant cultivars of ornamental and food plants will be located and tested to determine their ability to contribute to financial improvement in the growing horticultural industry. New Integrated Pest Management technologies will be tested to determine the degree of increased control efficacy they offer.
The U.S. environmental horticulture industry, also known as the “Green Industry”, is comprised of wholesale nursery, greenhouse, and sod growers; landscape architects, designers/builders, contractors and maintenance firms; retail garden centers, home centers and mass merchandisers with lawn and garden departments; and marketing intermediaries such as brokers and horticultural distribution centers (re-wholesalers). The Green Industry is one of fastest growing sectors in agriculture. Economic impacts for the U.S. Green Industry in 2002 were estimated at $147.8 billion in output, 1,964,339 jobs, $95.1 billion in value added, $64.3 billion in labor income, and $6.9 billion in indirect business taxes, with these values expressed in 2004 dollars. Many challenges face this industry including marketing, integrated pest management, sustainable cultural practices, environmental and human health risks, invasive species, regulations, and profitability.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 203 10% Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 20% Plant Product Quality and Utility (Preharvest)
- 205 28% Plant Management Systems
- 211 8% Insects, Mites, and Other Arthropods Affecting Plants
- 212 12% Pathogens and Nematodes Affecting Plants
- 213 8% Weeds Affecting Plants
- 216 14% Integrated Pest Management Systems

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Many producers are searching for viable and profitable alternative crops. 95% of the vegetables and fruits consumed in-state are imported from other states. Fruits and vegetables also have the potential for considerably more income per acre than row crops. Greenhouse and horticultural operations in Tennessee need to have technology for control of plant diseases in order to take advantage of state-wide, national and international markets that require healthy plants. There are several ways to improve plant health, including plant genetics and Integrated Pest Management technology -- strengths of the TAES.
Production and marketing of horticultural crops in Tennessee is a rapidly expanding portion of Tennessee's agricultural income. Part of the reasons for recent expansion and interest in horticultural crop production is the diversification of agronomic crop and beef cattle farms across the state. These "high value" crops are also crops which have relatively high costs of production. It essential that our producers are provided with the research-based information they need to manage their operations for profit. This information includes selection of crops/varieties which will appeal to consumers, and management methods which reduce labor expenses, pest infestations, pesticide use, and risk of frost damage.

2. Scope of the Program

- Multistate Extension
- In-State Extension
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Fruits and vegetables have the potential for considerably more income per acre than row crops. Production information for growers will reduce risk and increase profitability. Infrastructure, expertise, and staffing are appropriate. Extramural funding will remain the same or increase with the addition of competitive grants.

2. Ultimate goal(s) of this Program

The overall objective of this research is to facilitate the production of the vegetable and ornamental crops that have been identified as feasible for production in Tennessee. We want to prevent plant diseases from damaging plants that are grown for commercial or ornamental purposes, and to develop new plants that will increase Tennessee and mid-south grower profitability. We hope to develop horticultural production systems which will lead to an improvement in profit and, therefore, the economic sustainability of Tennessee's horticultural crop production units.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	5.0	2.0	45.0	0.0
2009	5.0	2.0	45.0	0.0
2010	5.0	2.0	45.0	0.0
2011	5.0	2.0	45.0	0.0
2012	5.0	2.0	45.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Variety evaluation of several different vegetable crops will be conducted to determine suitability to climate, soils and cultural practices for state producers. Yields, quality and market potential will be evaluated to assess potential production by growers seeking additional crops or alternative crops. Crops suitable for greenhouse production in farmers tobacco transplant greenhouses will be evaluated for profitability and product quality with respect to local and state markets.
Experimental research will be carried out to determine the effectiveness of various control technologies. New genetic cultivars of plants will be developed from in-house breeding programs or, in some cases, finding naturally resistant populations of plants by searching the southeast U.S. (i.e. for anthracnose resistant dogwoods).
Research will be conducted at selected Research and Education Centers across Tennessee, and at selected farmer-cooperator locations in key areas of horticultural production in Tennessee. Substantial investments are being made in construction and renovation of greenhouse facilities on campus and at certain Research and Education Centers. These will be utilized extensively in the conduct of our research.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Workshop • One-on-One Intervention • Education Class • Demonstrations	• Other 1 (Radio Programs) • TV Media Programs • Newsletters • Web sites

3. Description of targeted audience

Farmers/producers who have traditional livestock and tobacco operations, but are looking to improve income through the Green Industry
Master Gardeners who volunteer to provide community service through horticulture
Business owners who need research-based information to start, maintain or expand their greenhouse, landscaping or nursery buisness.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	15000	50000	1000	0
2009	15000	50000	1000	0
2010	15000	50000	1000	0
2011	15000	50000	1000	0
2012	15000	50000	1000	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	8	0
2009	8	1
2010	8	1
2011	8	1
2012	8	0

V(H). State Defined Outputs

1. Output Target

- Horticultural workshops and conferences.

2008 :4 **2009 :**4 **2010 :** 4 **2011 :**4 **2012 :**4

- Annual Vegetable Initiative Report summary of research results.

2008 :1 **2009 :**1 **2010 :** 1 **2011 :**1 **2012 :**1

- Pilot production of spun-melt agricultural row covers impregnated with phase-change oils for freeze-protection of crops.

2008 :0 **2009 :**0 **2010 :** 1 **2011 :**0 **2012 :**0

V(I). State Defined Outcome

1. Outcome Target

Projected licenses for dogwood cultivars.

2. Outcome Type : Change in Action Outcome Measure

2008 :50 **2009 :** 55 **2010 :** 60 **2011 :**65 **2012 :** 70

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 212 - Pathogens and Nematodes Affecting Plants

1. Outcome Target

Target number of research laboratories using our reverse-genetic tool for Phytophthora gene function analysis.

2. Outcome Type : Change in Action Outcome Measure

2008 :10 **2009 :** 20 **2010 :** 30 **2011 :**40 **2012 :** 40

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants

1. Outcome Target

Horticulture: Number of nursery, greenhouse, turf, landscape, and associated Green Industry entrepreneurs who adopted and implemented business management and marketing practices profitably.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :100 **2009 :** 100 **2010 :** 100 **2011 :**100 **2012 :** 100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Horticulture: Number of Green Indutsry entrepreneurs who developed marketing plans for their business.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 **2009 :** 100 **2010 :** 100 **2011 :**100 **2012 :** 100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Horticulture: Number of nursery, greenhouse and turf producers who improved profits through innovative marketing practices (group or individual) and/or value-added practices or services.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
20	20	20	20	20

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Consumer Horticulture: Number of consumers who used the results of their soil test to properly amend their soil.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
100	100	100	100	100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Consumer Horticulture: Number of consumers who applied fewer fertilizers and pesticides due to a better understanding of landscape best management practices.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
100	100	100	100	100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems

1. Outcome Target

Annual Tennessee economic contribution of Encore azaleas based on TAES research, dollars.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300000	300000	300000	300000	300000

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 212 - Pathogens and Nematodes Affecting Plants

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Government Regulations
- Competing Programatic Challenges

Description

Unfavorable weather conditions, unexpected diseases, and natural disasters can affect cultivar evaluations. Changes in the economy may affect grower practices, priorities, and product mixes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)

Description

Variety evaluation of several different vegetable crops will be conducted to determine suitability to climate, soils and cultural practices for Tennessee producers. We will evaluate the number of cultivars developed and sold. Yields, quality and market potential will be evaluated to assess potential production by growers seeking additional crops or alternative crops. Crops suitable for greenhouse production in farmers tobacco transplant greenhouses will be evaluated for profitability and product quality with respect to local and state markets.

Both commercial and consumer horticulture questionnaires will be developed and used with targeted audiences after educational programming has taken place (post program).

2. Data Collection Methods

- Sampling
- On-Site

Description

Our progress during, and success of, this program will be evaluated utilizing questionnaires completed by growers at selected educational meetings/conferences and at on-site visits to their farms.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Human Development

2. Brief summary about Planned Program

Adults, youth and children alike in Tennessee are continuing to have problems with drug abuse, emotional problems, child abuse, juvenile delinquency, divorce, etc. Because many children come from at-risk environments where they do not receive appropriate love and attention, children are not ready for school when they get to kindergarten. Tennessee has one of the highest adult illiteracy rates in the country (21%). Research shows that most adult literacy problems can be traced back to early childhood – problems that could have been avoided. Children not exposed to books and print materials when they are young are more likely to have problems in school; less likely to graduate high school; and more likely to have social/emotional problems.
Simply stated, inadequate parenting and interpersonal skills are associated with family instability which negatively affects child well-being and results in increased costs to individuals, communities, and governments.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 802 100% Human Development and Family Well-Being

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Adults, youth and children alike in Tennessee are continuing to have problems with drug abuse, emotional problems, child abuse, juvenile delinquency, divorce, etc. Because many children come from at-risk environments where they do not receive appropriate love and attention, children are not ready for school when they get to kindergarten. Research shows that children's social/emotional development is the foundation for all other areas of a child's growth, especially during the first thee years of life. Children are more likely to do well in school when they have a positive sense of personal well-being, developed through consistent, caring relationships in their first three years of life. Tennessee has one of the highest adult illiteracy rates in the country (21%). Research shows that most adult literacy problems can be traced back to early childhood – problems that could have been avoided. Children not exposed to books and print materials when they are young are: more likely to have problems in school, less likely to graduate high school, and more likely to have social/emotional problems. Researchers have found that parents' divorce can be detrimental to children's well-being and adjustment during childhood and as adults. Children of divorce have been found to have double or greater risk of lifelong emotional or behavioral problems when compared to children whose parents stay married. These problems include greater difficulty forming close personal relationships, higher teen marriage rates, higher cohabitation rates, and higher divorce rates as adults, lower psychological and overall well-being, and lower quality of parent-child relationships. Researchers have found that parents who completed a skills-based education program on parenting children through divorce, in contrast to a comparison group of parents who did not do so, were better able to work with their ex-spouses on difficult child-related issues and were more willing to allow their children to spend time with the other parent and had lower re-litigation rates. Tennessee's divorce rate was tied for 8th out of 48 units reporting in 2003 (we have been ranked as high as second nationally). The rate of decrease in divorces in almost double the rate of decrease nationally. The Tennessee legislature passed a law in 2000 that requires divorcing parents to attend a minimum of four hours of parent education specifically dealing with parenting through divorce.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Assumption A. Tennessee Extension Family and Consumer Sciences Agents have the necessary relationships to involve and motivate child care providers to access Extension education programs in their communities.
Assumption B. The Tennessee Department of Human Service will continue the enforcement of required training for child care providers.

2. Ultimate goal(s) of this Program

Many Tennessee children are not ready for school when they get to kindergarten. This program will ensure that they are ready for kindergarten and contribute to improved literacy rates in the state. This program will also improve parenting skills, especially for the state's divorced parents and incarcerated parents.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	14.5	2.5	0.0	0.0
2009	14.5	2.5	0.0	0.0
2010	14.5	2.5	0.0	0.0
2011	14.5	2.5	0.0	0.0
2012	14.5	2.5	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

This program will involve professionals, parents, child care providers, older adults, and community leaders. The target audiences are child care providers, adolescents, and parents who are divorced or incarcerated. The following will be used to help the target audience gain awareness: Displays, exhibits, community events, newspaper articles, radio programs, TV shows and newsletters. In addition, fact sheets and resource lists for parents, teachers and professionals will be created and dissiminated. Child Care Provider training will involve over 10,000 annual contacts in: Love at First Sight, How to Read to Your Baby and Emotional Beginnings programs. Parenting classes targeting parenting and co-parenting outcomes will reach an additional 10,000 contacts. Extension FCS Agents in over 60 of Tennessee's 95 counties will offer the four-hour class Parenting Apart: Effective Co-Parenting, an information and skills-based program that utilizes lecture, class discussion, videos, and handouts to inform parents about the potential effects of divorce on their children and provides them with strategies for minimizing those effects. It is expected that approximately 2,000 participants will complete the Extension class annually.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Demonstrations • Other 1 (On-site Visits) • One-on-One Intervention • Education Class	• Other 1 (Newspaper Articles) • Newsletters • TV Media Programs • Other 2 (Radio Programs) • Web sites

3. Description of targeted audience

The target audiences for this planned program are Tennessee child care providers, parents, and adolescents. While all parents of infants and young children are targeted for literacy programs, parents seeking a divorce are especially targeted for parenting instruction because of the added demands of co-parenting. Tennessee child care providers working full-time are required to have 18 hours and child care center directors are required to have 24 hours of instruction annually. Tennessee parents seeking a divorce are directed by the courts to a four-hour co-parenting class. In many communities in the state, UT Extension is the only provider of this instruction.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	5000	10000	0	0
2009	5000	10000	0	0
2010	5000	10000	0	0
2011	5000	10000	0	0
2012	5000	10000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 : 0 **2009 :** 0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	1
2010	0	1
2011	0	1
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of exhibits displayed to promote program awareness and participation.

  2008 : 10 **2009 :** 10 **2010 :** 10 **2011 :** 25 **2012 :** 25

- Number of research-based publications distributed as part of this program.

  2008 : 200 **2009 :** 200 **2010 :** 200 **2011 :** 200 **2012 :** 200

V(I). State Defined Outcome

1. Outcome Target

Book by Book: Number of participants who had a knowledge gain of at least 15% from pre-test to post-test.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :600 **2009 :** 600 **2010 :** 600 **2011 :**600 **2012 :** 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Book by Book: Number of child care providers who now offer a writing/drawing center in their classroom.

2. Outcome Type : Change in Action Outcome Measure

2008 :600 **2009 :** 600 **2010 :** 600 **2011 :**600 **2012 :** 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Book by Book: Number of childcare providers who now report asking open-ended questions while reading books.

2. Outcome Type : Change in Action Outcome Measure

2008 :600 **2009 :** 600 **2010 :** 600 **2011 :**600 **2012 :** 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Book by Book: Number of childcare providers and parents who report that they now provide books for infants and toddlers at eye-level and within their reach.

2. Outcome Type : Change in Action Outcome Measure

2008 :600 **2009 :** 600 **2010 :** 600 **2011 :**600 **2012 :** 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Book by Book: Number of childcare providers and parents who report providing a special place for children to read and write which is in their reach.

2. Outcome Type : Change in Action Outcome Measure

2008 :600 **2009 :** 600 **2010 :** 600 **2011 :**600 **2012 :** 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Book by Book: Number of childcare providers and parents who report visiting the library more than before this program.

2. Outcome Type : Change in Action Outcome Measure

2008 :600 **2009 :** 600 **2010 :** 600 **2011 :**600 **2012 :** 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Parenting Skills for Incarcerated Inmates: Number of inmates who acquired knowledge about the importance of effective communication required to build parent/child relationships.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	25	25	25

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Parenting Skills for Incarcerated Inmates: Number of inmates who demonstrated their knowledge of positive parent/child relationships by writing to their child.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	25	25	25

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Love At First Sight: Number of parents and childcare providers who report using suggested guidance techniques more often.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
600	600	600	600	600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Parenting Skills for Incarcerated Inmates: Number of inmates who now have an ongojng relationship with their children and demonstrate the need not to violae the law.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	25	25	25

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Love At First Sight: Number of parents and child care providers who report yelling less at children.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
600	600	600	600	600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Love At First Sight: Number of parents and child care providers who report putting down or blaming their child less.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
600	600	600	600	600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Love At First Sight: Number of parents and child care providers who report talking, singing and playing more with their children than before the program.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
600	600	600	600	600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Divorcing Parents: Number of paremts who plan to decrease exposure of their children to parental conflict.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	300	300	300	300

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations

Description

If Tennessee law relative to required instructional hours for child care providers changes, the outcomes will likely change. An increase in the number of instructional hours would likely cause an increase in the child care providers reached and the outcomes achieved, provided that the increased demand could be successfully met with current funding levels.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

Description

To evaluate human development programs, post-program questionnaires, pre-tests and post-tests will be used. Typically, participants knowledge gain is also measured during the actual programs.

2. Data Collection Methods

- Mail
- On-Site
- Telephone
- Whole population

Description

When questionnaires are used for evaluation of Extension human development programs, participants provide responses on-site, via mail, or via telephone.