2007 University of Tennessee Research and Extension and Tennessee State University Extension Combined Annual Report

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I. Report Overview

1. Executive Summary

Providing Solutions

This report consists of the FY 2007 results and accomplishments of the Tennessee Agricultural Research and Extension System. 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 report 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.

UT and TSU Extension extend the knowledge and expertise of the state's two land grant institutions to the 5.9 million people of Tennessee through agents and specialists in all 95 counties. Our work is providing education that produces solutions to societal, economic and environmental issues. Engagement of the state's citizens occurs where they live, work and play through hundreds of programs which are planned, conducted and evaluated by UT and TSU Extension. Special accomplishments for FY 2007 were in economic development and outreach.

Economic Development: Extension's educational programs in 4 H youth development, agriculture and natural resources, family and consumer sciences and resource development produce substantial returns for Tennessee. Using research, questionnaires, observations and sales records, an estimated impact is $210 million for FY 2007.

The recurring economic impacts were estimated at $113 million. These recurring economic values include increased revenue, increased savings and one time capital purchases associated with three Extension programs: Crop Variety Trials, Master Beef Producer and 4 H camping. Using the United States Department of Defense formula, an estimated 2,220 jobs in Tennessee were created or maintained because of the recurring economic impacts produced by Extension.

The one time, non recurring economic values were estimated at $97 million from six Extension programs. The programs included in this analysis were nutrition education, health literacy, Tennessee Saves, 4 H scholarships, feeder cattle marketing and volunteerism.

Outreach: UT and TSU Extension professionals and the volunteers they recruited, trained and managed made over 4.4 million direct contacts through group meetings, on site visits, phone calls, direct mail, and client visits to local Extension offices. In addition, indirect educational methods included mass media, exhibits, and Internet resources. UT Extension had over 400,000 downloads of educational materials from its websites.

Data for the Extension portion of this report utilized the new Extension reporting system, System for University Planning, Evaluation and Reporting (SUPER). This reporting system, and the process of statewide, outcome based measurement, is still new for Extension. In some cases, the targets set were too ambitious given our resources. In setting the initial outcome targets, a host of factors, including staff vacancies, were not considered. The FY 2008 data in this report represents benchmark data, and was used as such in the 2009 2013 Plan of Work. One example was in the Agronomic Crop Systems planned program that emphasized conservation tillage. Instead of measuring conservation tillage, the program adapted to weather and market demands and results included:

(1) 152,200 acres of corn, 140,202 acres of soybeans and 65,500 acres of wheat were scouted by a producer, UT trained scout or independent crop consultant to help make management decisions.

(2) 404 corn producers reported a 6% increase and 218 soybean producers reported a 9% increase in yield by using Extension's recommended practices for insects, weeds or plant diseases.

TAES research foci for the past year included concerted efforts to ramp up biomass production and processing to reduce dependence on foreign oil; support for the state’s nursery industry; development of agronomic crop varieties to meet consumer

and farmer needs; improvements in the reproductive health of our livestock; and research support of the state's important hardwood lumber processing industry. In addition, we continued our leadership in soil erosion modeling and no till agriculture; used beneficial insects to protect ecosystems in the Great Smoky Mountains and beyond; and contributed to the national public policy conversation through our agricultural and natural policy research centers. We also promoted technologies to minimize wastewater impact and helped safeguard the public with important food safety research.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	464.6	43.0	295.0	0.0
Actual	657.0	26.0	328.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

The merit review and peer review processes established in the latest Plan of Work were fully implemented in FY 2007.
In addition, research merit review was strengthened during the year by the introduction of an online workplan submission process.Workplans are the core of many planned research programs -- the details of how the project actually gets done on the ground.Our new online system allows rapid interactive review and revision of workplans between PI, department head, research center director, Deans, and compliance officers.With a central document repository, all those involved can literally be "on the same page," no matter where they are located.

III. Stakeholder Input

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

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

Brief Explanation

In FY 2007, UT and TSU Extension made 53,464 contacts for needs assessment purposes. Tennessee Extension Agents placed special emphasis on involving youth and other under-represented groups in needs assessment activities. Of these needs assessment contacts, 25,518 (47.7%) were young people under 18 years of age. A special accomplishment was the involvement of racial and ethnic minority groups; 8,222 contacts (15.4% of the total) were of racial or ethnic minority groups.

We sought stakeholder input for research in a number of ways.After a competitive search, we retained a public relations firm, partially tasked with giving us a fresh, outsider view of how we were meeting the needs of various constituencies. Ongoing stakeholder input for research was also sought more traditionally: each department has an advisory group, while most research and education centers have advocacy groups. These groups meet once or more each year (typically at least twice). 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 or center director, and typically consists of industry and regional representatives, local leaders, scientific peers, commodity group members, and other relevant stakeholders.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Needs Assessments
- Other (Public relations firm)

Brief Explanation

All Extension Agents receive instruction in selecting needs assessment strategies and in selecting individuals for Advisory Committees. Community leaders selected for Advisory Committees are chosen to represent the diversities (i.e., gender, age, racial/ethnic, socio-economic, political, educational, etc.) of the county or area served.

The PR firm retained for our research efforts reinforced our understanding of a number of critical stakeholders: a largely oblivious Tennessee public; federal, state, and local legislators and opinion leaders, industry and academic research partners, and the residents around our 10 regional research centers (the regional field laboratories).

2(B). A brief statement of the process that was 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 traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Meeting specifically with non-traditional individuals
- Other (Interviews with Key Informants)

Brief Explanation

The System for University Planning, Evaluation and Reporting (SUPER) tracks Extension's needs assessment efforts across Tennessee. In FY 2007, of the 955 different focus groups and interviews with key informants, 601 (63%) involved individuals who were not previously active in Extension (defined as those not previously on an Extension mailing list). These individuals were indentified in various ways such as asking Advisory Committee members and community leaders to suggest names.

In addition to the regular periodic meetings with various research user groups at the department, research center, and Institute level, we held an extended session in a west Tennessee location with our PR firm, academic department heads, and research center directors, and select principal investigators.This session was very helpful in refining our focus as we shared different perspectives on the expressed needs of various constituents.

3. A statement of how the input was considered

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

Brief Explanation

Over 600 Extension advisory committee meetings were held across the state. Other needs assessment activities conducted by UT and TSU Extension included: document reviews, focus groups, interviews with key informants, open listening sessions, invitations to stakeholder groups. Needs assessment data at the local level was entered into the Extension System for University Planning, Evaluation and Reporting (SUPER).

The State Action Agendas (state plans of work) delineated programs, curricula, partners and resources for addressing these concerns. Individual plans were created and implemented by every Extension Agent and Specialist based on the results of the needs assessment. The plans were monitored and adjusted by Regional Program Leaders and Department Heads.

In research, partly due to the PR firm's recommendations and brainstorming sessions, we made changes in our "branding", website layout, and quantity of available research content.A public-facing new hire was made, to address a perceived lack of stakeholder connection in the more "remote" west Tennessee area.

Brief Explanation of what you learned from your Stakeholders

The Extension statewide needs assessment analysis showed that the four priorities identified during 2005-2006 should continue for the foreseeable future. Those four program priorities are: •Promoting safety, health and health care literacy; •Protecting our food, environmental and agricultural resources; •Promoting youth and workforce development; and •Building and sustaining personal and family financial skills.

Research feedback shows a very strong continuing interest in the entire biofuels/bioenergy spectrum -- including ameliorating fuel prices, offsetting the demand on corn that is rippling through other commodities, and providing new income streams for farmers.Food safety also is very much "on the table" -- recent news stories and large-scale public health and economic impacts seem to be on the public's mind.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
8081557	2315911	8153834	0

2. Totaled Actual dollars from Planned Programs Inputs

	Extension		Research	
	Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
Actual Formula	8825862	2315911	6981346	0
Actual Matching	28414297	1157956	29334766	0
Actual All Other	10756021	559971	8430725	0
Total Actual Expended	47996180	4033838	44746837	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years

Carryover	744305	0	0	0

V. Planned Program Table of Content

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agronomic Crop Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	0%	0%	2%	
133	Pollution Prevention and Mitigation	0%	0%	3%	
201	Plant Genome, Genetics, and Genetic Mechanisms	12%	12%	15%	
202	Plant Genetic Resources	0%	0%	3%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	12%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	3%	
205	Plant Management Systems	62%	62%	19%	
206	Basic Plant Biology	0%	0%	2%	
211	Insects, Mites, and Other Arthropods Affecting Plants	3%	3%	5%	
212	Pathogens and Nematodes Affecting Plants	16%	16%	23%	
213	Weeds Affecting Plants	0%	0%	4%	
215	Biological Control of Pests Affecting Plants	0%	0%	2%	
216	Integrated Pest Management Systems	0%	0%	7%	
601	Economics of Agricultural Production and Farm Management	7%	7%	0%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	62.9	12.9	60.0	0.0
Actual	80.0	3.2	50.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1076756	282541	1333306	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
3466544	141271	6939684	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
981601	37500	701604	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Extension portion of this plan was implemented via the Innovation-Decision Process (Rogers, 1995). It is important to organize the agronomic crop systems planned program 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 practices were targeted:

•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)

A major change to this planned program was helping producers deal with the extreme weather conditions that created an unfortunate growing season. Tennessee experienced freezing temperatures in March and April combined with one of the state's worst droughts on record throughout June, July and August.

Knowledge: Newspaper articles, radio programs, websites and newsletters were used to build awareness of UT Extension resources and practices for more profitable production. Mass media highlighted pests and pesticides in a timely manner.

Persuasion: Farm visits and group meetings were used to showcase practices.

Decision: Group meetings and classes were conducted in which Extension specialists demonstrated practices and shared variety test results with 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 were 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 were evaluated in replicated field research plots at numerous Research and Education Centers and with producer cooperators in selected counties. Likewise, cropping systems research addressing tillage systems and rotation schemes was conducted to develop production system information.

We conducted surveillance for exotic and invasive organisms using both conventional and molecular technology.We researched the effects of biological, cultural and chemical control technology for efficacy and effect on productivity of cropping systems under study. We sought new organisms to use in integrated control programs for pests and diseases of agronomic systems that are in danger of severe damage from new, emerging, and re-emerging pests and diseases.

Economic data was developed from field experiments on agricultural experiment stations, through surveys of producers, and through simulation modeling. Data was 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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	15000	1000	0
2007	51885	246740	12102	246740

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	7

Patents listed

Four new Roundup Ready varieties derived from our top performing 5601T soybean variety: 1) Allen 2) 5601TRR-124 3) 5601TRR-293 4) 5601TRR-379.

Antibiotic resistance conferred by a plant ABC transporter gene when expressed in transgenic plants. Inventors: C. Neal Stewart, Jr., and Mentewab Ayalew. US SN11/912,713 filed October 26 2007.

An arsenic-specific phytosensor and uses thereof. Inventors: Jason Abercrombie, Laura L. Good, and C. Neal Stewart, Jr. US Provisional Patent applied for November 2 2007.

Herbicidal mixtures. Armel, G.R., M.S. Casini, J.C. Cotterman, E. Hidalgo, M.L. Link, P.L. Rardon, D.W. Saunders, S.D. Strachan. 2007. World Patent Application, WO07120706.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	26	36	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	5	21

Output #2

Output Measure

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

Year	Target	Actual
2007	1000	7607

Output #3

Output Measure

- Presentations, workshops, media releases.

Year	Target	Actual
2007	14	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Row Crops Production: % acreage increase in conservation-till corn.
2	Row Crops Production: % acreage increase in conservation-till cotton.
3	Row Crops Production: % acreage increase in conservation-till soybeans.
4	Row Crops Production: % reduction in amount of seed planted per acre in soybean.
5	Row Crops Production: Number of acres of corn maintained or increased in conservation-tilled.
6	Row Crops Production: Number of acres of cotton maintained or increased as conservation-tilled.
7	Row Crops Production: Number of acres of soybeans maintained or increased in conservation-tilled.
8	Row Crops Production: Number of acres planted to insect or herbicide tolerant crops.
9	Row Crops Production: Number of acres of sprayed with a foliar fungicide to manage disease.
10	Row Crops Production: Number of producers using recommended varieties of soybeans or corn.
11	Additional tons of soil erosion prevented due to adopting conservation-tillage encouraged by the availability of herbicide-resistant seed for cotton production in Tennessee.
12	Additional acres of herbicide-resistant cotton in Tennessee encouraged by the adoption of conservation tillage.
13	Percentage of farmers using new IPM technology or genetics.
14	Farm operators using TAES economic research in decisions.
15	UT Extension took action to minimize affects to row crop producers from an historic drought across the state.
16	Using a fungus against soilborne pathogens
17	Biocontrol of 'wire stem' of broccoli
18	Herbicide-resistant weeds in cotton and soybean
19	Soybean improvement
20	Cotton variety improvements
21	Biotechnology impacts
22	Damping-off disease in tomatoes
23	Plant nematode resistance mechanism

Outcome #1

1. Outcome Measures

Row Crops Production: % acreage increase in conservation-till corn.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
205	Plant Management Systems
112	Watershed Protection and Management

Outcome #2

1. Outcome Measures

Row Crops Production: % acreage increase in conservation-till cotton.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #3

1. Outcome Measures

Row Crops Production: % acreage increase in conservation-till soybeans.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Row Crops Production: % reduction in amount of seed planted per acre in soybean.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #5

1. Outcome Measures

Row Crops Production: Number of acres of corn maintained or increased in conservation-tilled.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Row Crops Production: Number of acres of cotton maintained or increased as conservation-tilled.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #7

1. Outcome Measures

Row Crops Production: Number of acres of soybeans maintained or increased in conservation-tilled.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	700000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #8

1. Outcome Measures

Row Crops Production: Number of acres planted to insect or herbicide tolerant crops.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #9

1. Outcome Measures
Row Crops Production: Number of acres of sprayed with a foliar fungicide to manage disease.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	800000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #10

1. Outcome Measures
Row Crops Production: Number of producers using recommended varieties of soybeans or corn.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1800	2004

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
205	Plant Management Systems

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1600000	1190000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Conservation tillage reduces soil erosion over conventional tillage practices.

What has been done

17% of cotton was herbicide-resistant in 2007, or about 49K acres (http://state.tn.us/agriculture/annualreport/ar04.pdf).

Results

If 10 tons of soil erosion per acre are saved by each acre under conservation tillage because of herbicide-resistant cotton, this represents approximately 1190K tons of soil remaining in the field.

4. Associated Knowledge Areas

KA Code	Knowledge Area

202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
201	Plant Genome, Genetics, and Genetic Mechanisms
112	Watershed Protection and Management
213	Weeds Affecting Plants

Outcome #12

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	450000	590000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Herbicide-resistant cotton encourages the use of conservation tillage, because weeds can be better managed.

What has been done

In the most recent data available (2006, http://state.tn.us/agriculture/annualreport/ar04.pdf), acreage of herbicide resistant cotton varieties had more than doubled (from 8% to 17%) in two years.

Results

700K acres of cotton were planted in 2006 of which 84% was no-till or conservation tillage, up from 75% the previous year. If the numbers are similar for 2007, this suggests about 590K acres under some form of conservation tillage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
202	Plant Genetic Resources
201	Plant Genome, Genetics, and Genetic Mechanisms
204	Plant Product Quality and Utility (Preharvest)
213	Weeds Affecting Plants
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #13

1. Outcome Measures

Percentage of farmers using new IPM technology or genetics.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Use of integrated pest management and new genetics increases crop yields. However, as currently stated, this outcome is too broad to be accurately measured, and will be removed in future plans.

What has been done

For two examples of research progress, a soybean variety from our program yields 8 bushels more than the average of commercial varieties, and our tests identified the top-10 yielding cotton varieties.

Results

At a $9/bushel soybean price, this represents a theoretical gain of $72 bushels per acre for the new variety, and the collective value to Tennessee producers of planting the Top-10 yielding soybean varieties from our 2006 tests is estimated at $48 million higher gross revenue than planting the varieties below the top yielding group.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
216	Integrated Pest Management Systems
201	Plant Genome, Genetics, and Genetic Mechanisms
204	Plant Product Quality and Utility (Preharvest)
601	Economics of Agricultural Production and Farm Management

Outcome #14

1. Outcome Measures
Farm operators using TAES economic research in decisions.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Incremental per-acre cost differences in management, weed and insect control, variety selection, and plant and harvest timing make huge differences when multiplied by vast state acreages of various crops.

What has been done

Our economists, agronomists, entomologists, engineers, and others plant thousands of yield plots on major crops every year, on our research centers and elsewhere. Data from these trials are then pushed out to the public in a variety of formats and media.

Results

From a research perspective, we are unable to quantify the number of operators using TAES economic research in decisions. However, based on surveys in six major row crop counties, 92% of producers base variety buying decisions on UT data -- an estimated $12M extra income in those counties (based on the yield difference from lower yielding varieties). If 90% of TN producers behave similarly, the statewide income increase is $70M.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
212	Pathogens and Nematodes Affecting Plants
601	Economics of Agricultural Production and Farm Management
205	Plant Management Systems
215	Biological Control of Pests Affecting Plants
202	Plant Genetic Resources
216	Integrated Pest Management Systems
204	Plant Product Quality and Utility (Preharvest)
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #15

1. Outcome Measures

UT Extension took action to minimize affects to row crop producers from an historic drought across the state.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The historic drought of 2007 could have been much more damaging to row crop producers across Tennessee if not for the work of UT Extension.

What has been done

UT Extension adapted its educational programs to focus on helping producers to make the most of the drought. Programs focused on precision agriculture and solutions for weed, insect and disease problems.

Results

Because of UT Extension programs, four major impacts were realized:
(1) 152,200 acres of corn, 140,202 acres of soybeans and 65,500 acres of wheat were scouted by a producer, UT-trained scout or independent crop consultant to help make management decisions.
(2) 404 corn producers reported a 6% increase and 218 soybean producers reported a 9% increase in yield by using Extension's recommended practices for insects, weeds or plant diseases.
(3) 56 corn producers and 106 soybean producers utilized precision agricultural technologies such as yield mapping or grid/zone soil sampling for making management decisions.
(4) 1,520 producers, farm workers and other ag professionals received pesticide certification, recertification and pesticide safety training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

Outcome #16

1. Outcome Measures

Using a fungus against soilborne pathogens

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The fungus Beauveria bassiana is a natural parasite of insects and can colonize the insides of seedling tissues and protect against damping off by some soilborne pathogens.

What has been done

We established the relationship between initial density of B. bassiana applied to seed and the extent of colonization.

Results

The extent of endophytic colonization of plant tissues by Beauveria bassiana may have implications for success with use of the fungus as a biological control agent against soilborne pathogens.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #17

1. Outcome Measures

Biocontrol of 'wire stem' of broccoli

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Soilborne pathogens are a diverse group of pathogens that reduce plant emergence and infect roots and crowns. They attack field crops and numerous vegetable crops. The result is reduced plant productivity and increased costs to the grower.

What has been done

We developed the protocol for biocontrol agents for 'wire stem of broccoli' (Rhizoctonia solani).

Results

At regional trials in four states it was found that some treatments delayed seedling emergence and growth, and some increased growth after transplant. Two agents appeared to improve broccoli growth.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants
205	Plant Management Systems

Outcome #18

1. Outcome Measures

Herbicide-resistant weeds in cotton and soybean

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

If a major weed pest, Palmer pigweed, develops resistance to glyphosate, as there are few other good herbicide options, it could be devastating to cotton and soybean producers in Tennessee.

What has been done

We found fields with Palmer Pigweed in Tennessee with above-average tolerance to the herbicide.

Results

We have constructed recommendations to assist in managing this weed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
213	Weeds Affecting Plants
205	Plant Management Systems
204	Plant Product Quality and Utility (Preharvest)
216	Integrated Pest Management Systems

Outcome #19

1. Outcome Measures

Soybean improvement

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Continued soybean improvement is critical to Tennessee producers.

What has been done

The glyphosate-resistant soybean developed by our breeding program at TAES ranked #1 for yield in the 2007 County Standardized test in Tenn. and Ky., and our new edible green endamame soybean was ranked as having superior flavor.

Results

Genetic gains accomplished by our program in new high-yielding soybean varieties translate directly into improved farm revenue, and mapping of genomic regions governing seed quality traits is improving soybean protein and oil quality.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
206	Basic Plant Biology
202	Plant Genetic Resources
213	Weeds Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
201	Plant Genome, Genetics, and Genetic Mechanisms

Outcome #20

1. Outcome Measures
Cotton variety improvements

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Tennessee cotton producers have indicated that variety test results are the single most valuable UT cotton research product to them.

What has been done

We identified several new cotton varieties broadly adapted to West Tennessee. Seed companies showcased new commercial cultivars in head-to-head comparisons under farm management and growing conditions.

Results

Top-10 yielding varieties in the 2006 cotton OVTs averaged 19% higher yield ($47.8 million).

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #21

1. Outcome Measures

Biotechnology impacts

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The effects of biotechnology are important to consumers, producers, the general public, and the environment.

What has been done

We assessed the competitive value of field mustard, an insect-resistant relative of canola. Introgressed wheat hybrids containing a Bt gene did not outcompete wild-type canola (trangenic or not) or non-transgenic introgressed hybrids. Risk assessment data useful to regulators of biotechnology were gathered from field and greenhouse experiments.

Results

Biotechnology was shown to weaken weedy relatives, not make them weedier.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
216	Integrated Pest Management Systems
202	Plant Genetic Resources
211	Insects, Mites, and Other Arthropods Affecting Plants
201	Plant Genome, Genetics, and Genetic Mechanisms
112	Watershed Protection and Management

Outcome #22

1. Outcome Measures

Damping-off disease in tomatoes

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Organic pesticide products must control insects and diseases on plants to compete with traditional synthetic pesticides.

What has been done

We determined that monarda herbage reduces weeds and also significantly increases survival from the damping-off of tomatoes in greenhouses by the fungus Rhizoctonia solani.

Results

We have dicovered an effective organic means of contolling damping-off disease in tomatoes.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
205	Plant Management Systems
204	Plant Product Quality and Utility (Preharvest)
215	Biological Control of Pests Affecting Plants
213	Weeds Affecting Plants
601	Economics of Agricultural Production and Farm Management
216	Integrated Pest Management Systems

Outcome #23

1. Outcome Measures
Plant nematode resistance mechanism

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Plant nematodes are a significant horticultural problem.

What has been done

We applied Meloidogyne incognita (a plant parasitic nematode) to three good plant hosts where it reproduced well, and to two species with nematicidal characteristics (bee balm and epazote) that significantly inhibited its reproduction.

Results

The apparent discovery of a strong resistance mechanism in epazote can be exploited for further investigation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
212	Pathogens and Nematodes Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)

Brief Explanation

Tennessee faced serious crop production issues in 2007 including a drought of monumental proportions and temperature extremes. Warm March weather encouraged producers to plant corn earlier than normal, and freezing conditions in April damaged over 200,000 acres of corn which had to be replanted. Exceptional drought and heat plagued the rest of the growing season. Outcomes relative to conservation tillage were not measured because programs were constantly changing to provide producers with solutions to weed, insect and disease problems.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Other (Third-Party)

Evaluation Results

Key Items of Evaluation

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Biomass Utilization

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
135	Aquatic and Terrestrial Wildlife	0%	0%	4%	
205	Plant Management Systems	0%	0%	7%	
307	Animal Management Systems	0%	0%	3%	
402	Engineering Systems and Equipment	0%	0%	20%	
404	Instrumentation and Control Systems	0%	0%	7%	
501	New and Improved Food Processing Technologies	0%	0%	7%	
511	New and Improved Non-Food Products and Processes	0%	0%	32%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	0%	0%	3%	
603	Market Economics	0%	0%	7%	
605	Natural Resource and Environmental Economics	0%	0%	4%	
606	International Trade and Development	0%	0%	3%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc	0%	0%	3%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	17.0	0.0
Actual	0.0	0.0	35.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	545690	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	2341982	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	712241	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Our economic research has developed national ethanol, biodiesel, electric, and bioproduct demand quantities and incorporated them into an existing dynamic agricultural sector econometric simulation models, such as POLYSYS. Regional feedstock supply curves necessary to meet national bioenergy and bioproduct demand quantities were estimated by modifying POLYSYS to include cellulose feedstock in addition to existing agricultural grain and oilseed crops. Regional bioenergy and bioproduct supply curves were 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 was estimated. Key indicators of agricultural sector performance including net farm income, agricultural prices, and government cost in meeting national bioenergy and bioproduct demand quantities have been evaluated.

We are studying maize, switchgrass, rapeseed and canola optimum production for cellulosic ethanol and bio-diesel use. Development of perennial maize and optimized seeding rates for switchgrass will reduce the cost for ethanol production, and variety trials of rapeseed and canola will allow us to select the most promising genetics for future research.

We examined biomass size reduction techniques and equipment to minimize energy usage, finding that multiple passes through the equipment and high rotational speeds were counterproductive. Size reduction of biomass improves handling, reduces transport costs, and improves component separation; our size reduction and separation research has the potential to save the industry $1B per year by 2010, based on energy savings alone.

In terms of downstream processing, we have conducted 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. Bench-scale bioreactor prototypes have been formed and tested.

2. Brief description of the target audience

This research is great interest to government and private industry as they begin to ramp up bioenergy production, and particularly the cellulosic sector.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2007	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	1

Patents listed

Hydrolysis of Oat Hull Derived Cellulose for the Production of Ethanol. J. J. Bozell, S. K. Black, N. Nagel, N. Weiss. 2007.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	12	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Compilation of biomass monograph.

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of growers producing bio-mass for commercial sale as "energy crops".
2	Establishment of a pilot cellulosic ethanol plant.
3	Biomass processing
4	A predictive look at the biofuels sector
5	Rapid biomass classification

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Ramping up the cellulosic biomass industry is a 'chicken-and-egg' situation with a parallel ramp-up needed between the biomass feedstock producers and the processing facilities to use the feedstock.

What has been done

Analyses have been run to size a pilot plant and the feedstock to supply it. Production support programs have been created and staffed to initiate a biomass supply.

Results

We are working with 16 farmers to plant the initial 725 acres of switchgrass needed for feedstock this year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
205	Plant Management Systems
511	New and Improved Non-Food Products and Processes
605	Natural Resource and Environmental Economics
512	Quality Maintenance in Storing and Marketing Non-Food Products
402	Engineering Systems and Equipment

Outcome #2

1. Outcome Measures

Establishment of a pilot cellulosic ethanol plant.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cellulosic ethanol production, though understood at the bench level, is largely untested at the field scale. Many questions remain that can best be answered by building a partial-scale working plant.

What has been done

Industry partners have been arranged, a location has been acquired, funding provided from the State, and a 10% scale research and demonstration cellulosic ethanol plant has been designed.

Results

We are in the final stages of negotiating with our industry partners before beginning plant construction.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
402	Engineering Systems and Equipment
605	Natural Resource and Environmental Economics
511	New and Improved Non-Food Products and Processes
404	Instrumentation and Control Systems
512	Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #3

1. Outcome Measures

Biomass processing

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Vast quantities of biomass will be needed to meet energy goals, yet biomass has low energy density, making optimal sizing, transport, sorting, and storage very important.

What has been done

We created new knowledge on biomass chemical fractionation, optimum compression environment and techniques, and rapid chemical analysis to aid in sorting.

Results

Our research will impact how biomass is harvested, transported, size-reduced, dried, and stored, perhaps resulting in a $2/ton savings to a projected billion ton/year industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
512	Quality Maintenance in Storing and Marketing Non-Food Products
402	Engineering Systems and Equipment
603	Market Economics

Outcome #4

1. Outcome Measures

A predictive look at the biofuels sector

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is general agreement that biomass will play an important part in the nation's future, but uncertainty about the correct path to that future.

What has been done

We've predictively characterized the evolving bioenergy economy, including transitions over time, the role of cellulosic feedstocks, job impact, the effect on existing crops, and impacts on import/export markets.

Results

We've charted a realistic path to an energy economy with a large biofuels sector depending heavily on cellulosic feedstocks, which protects the environment, increases farm income, reduces oil imports, and increases jobs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
606	International Trade and Development
603	Market Economics
501	New and Improved Food Processing Technologies
205	Plant Management Systems
511	New and Improved Non-Food Products and Processes
605	Natural Resource and Environmental Economics

Outcome #5

1. Outcome Measures

Rapid biomass classification

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Biomass feedstocks vary widely in their characteristics, but must be rapidly and inexpensively assessed.

What has been done

We developed and validated a single model for corn stover and switchgrass that rapidly characterizes biomass chemical properties and heating value using near-infrared spectroscopy and chemometrics.

Results

Our biomass classification method is useful in feedstock selection for a bioconversion plant, and as a powerful tool in managing varying stocks of biomass by providing rapid classification without lengthy and costly wet chemical analysis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
512	Quality Maintenance in Storing and Marketing Non-Food Products
603	Market Economics
511	New and Improved Non-Food Products and Processes
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Our progress in the cellulosic bioenergy research was affected by such factors as the value and scarcity of commodity crops, policy and funding decisions at the state and federal level, international impacts on the price of oil, severe drought in Tennessee that influenced producers plans, and negotiations with external partners.

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

1. Evaluation Studies Planned

-

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

4-H Positive Youth Development

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	100%	100%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	97.0	6.0	0.0	0.0
Actual	237.0	9.4	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
3177311	833728	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
10229148	416864	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2326299	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

In 2007, 86 of the 95 Tennessee counties organized well over 3,000 4-H clubs where workforce preparation was the major emphasis. Project work was emphasized, and the experiential learning model was used to highlight jobs and careers aligned with 4-H projects. Activity sheets were developed and distributed to show practical skills which align with jobs and careers. Various school enrichment programs in focused on workforce preparation. Youth were exposed to jobs and careers with the goal to set a goal for their future job or career. Mass media was used to inform parents, participants and stakeholders about program opportunities and achievements. The potential indirect audience for radio and TV alone targeting workforce preparation issues was 297,155 contacts.

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	5000	0	25000	100000
2007	34660	0	364840	297155

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	22	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of volunteers utilized in delivering this program.

Year	Target	Actual
2007	250	4906

Output #2

Output Measure

- Number of exhibits produced.

Year	Target	Actual
2007	5	248

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Achieving Goals: Number of youth who now break down goals into steps so they can check thier progress.
2	Achieving Goals: Number of youth who now work to achieve their goals.
3	Achieving Goals: Number of youth who now put their goal in writing.
4	Achieving Goals: Number of youth who now report they set high goals.
5	Achieving Goals: Number of youth who now set high goals that require work to achieve them.
6	Achieving Goals: Number of youth who report that they now achieve goals they set for themselves.
7	Achieving Goals: Number of youth who are now making plans to acheive their goals.
8	Achieving Goals: Number of youth who have set a goal for their job or career.
9	Communicating: Number of youth who are better able to understand and follow directions.
10	Communicating: Number of youth who can express ideas with a poster, exhbit, or other display.
11	Communicating: Number of youth who can now share their ideas through writing.
12	Communicating: Number of youth who can use technology to help themselves express ideas.
13	Communicating: Number of youth who have learned at least five jobs in which communication skills are important.
14	Communicating: Number of youth who are now better listeners.
15	Communicating: Number of youth who haved explored careers in communications.
16	Communicating: Number of youth who report they can now keep records.
17	Communicating: Number of youth who report they have improved photography skills.
18	Communicating: Number of youth who report they have learned skills in visual communications.
19	Communicating (Public Speaking): Number of youth who can deal with their nervousness when giving a speech or talk.
20	Communicating (Public Speaking): Number of youth who can explain an idea to others.
21	Communicating (Public Speaking): Number of youth who can select a topic for a speech or talk.
22	Communicating (Public Speaking): Number of youth who can speak loudly enough to be heard when giving a speech or talk.
23	Communicating (Public Speaking): Number of youth who feel comfortable sharing their thoughts and feelings in a speech or talk.

Outcome #1

1. Outcome Measures

Achieving Goals: Number of youth who now break down goals into steps so they can check thier progress.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	15258

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Achieving Goals: Number of youth who now work to achieve their goals.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	17205

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	8363

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	14684

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5

1. Outcome Measures

Achieving Goals: Number of youth who now set high goals that require work to achieve them.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	3163

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	3819

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #7

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	3508

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	3999

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #9

1. Outcome Measures

Communicating: Number of youth who are better able to understand and follow directions.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	42300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	35396

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	38227

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #12

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	36812

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #13

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	36340

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #14

1. Outcome Measures
Communicating: Number of youth who are now better listeners.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	40587

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #15

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	10880

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #16

1. Outcome Measures

Communicating: Number of youth who report they can now keep records.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	8369

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #17

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	14060

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #18

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	12386

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #19

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25000	34924

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #20

1. Outcome Measures

Communicating (Public Speaking): Number of youth who can explain an idea to others.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	38227

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #21

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	39171

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #22

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	39171

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #23

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	33508

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities

Brief Explanation

This Extension planned program in 4-H youth development was developed after an extensive and well-documented statewide needs assessment. In several counties, local advisory boards slightly shifted their opinion during 2007 to place greater emphasis on communications, an area in which outcome targets were met or significantly exceeded for this planned program.

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

1. Evaluation Studies Planned

- After Only (post program)

Evaluation Results

Key Items of Evaluation

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Human Development

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	100%	100%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	14.5	2.5	0.0	0.0
Actual	33.0	1.3	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
441293	115796	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1420715	57898	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
323097	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This program involved professionals, parents, child care providers, older adults, and community leaders. The target audiences reached were child care providers, adolescents, and parents who were divorced or incarcerated. The following teaching methods were 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 were prepared and disseminated. Child Care Provider training involved 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 reached an additional 10,000 contacts. Extension FCS Agents in over 60 of Tennessee's 95 counties offered 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.

Girl Talk was a multiple-session course offered in 20 counties in the state. Extension Family and Consumer Science Agents recruited and trained health care providers to promote the course to mothers and daughters. The course used video, group discussion, mini-lectures, and newsletters to encourage mothers and daughters to discuss sexual health.

2. Brief description of the target audience

The target audiences for this planned program were Tennessee child care providers, parents, and adolescents. While all parents of infants and young children were targeted for literacy programs, parents seeking a divorce were of primary concern 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(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	5000	10000	0	0
2007	14167	357000	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	10	33

Output #2

Output Measure

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

Year	Target	Actual
2007	200	655

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Book by Book: Number of participants who had a knowledge gain of al least 15% from pre-test to post-test.
2	Book by Book: Number of participants who plan to use suggested practices related to early literacy.
3	Book by Book: Number of books parents report they read to children each week.
4	Book by Book: Number of child care providers who now offer a writing/drawing center in their classroom.
5	Book by Book: Number of childcare providers who now report asking open-ended questions while reading books.
6	Parenting/Co-Parenting: Number of participants surveyed who reported decreasing exposure of their children to parental conflicts.
7	Book by Book: Number of chidlcare providers who now provide a soft/inviting place for young children to read.
8	Book by Book: Number of chidlcare providers who report that they now provide books for infants and toddlers at eye-level and within their reach.
9	Parenting/Co-Parenting: Number of participants surveyed who reported being less stressed in their parenting roles.
10	Book by Book: Number of parents who report reading more to their chidlren than before this program.
11	Parenting/Co-Parenting: Number of participants surveyed who reported increasing their monitoring of their children's friends, whereabouts, and activities.
12	Book by Book: Number of parents who report having more print materials in their home than before.
13	Parenting/Co-Parenting: Number of participants surveyed who reported they had decreased use of corporal punishment.
14	Book by Book: Number of parents who report providing a special place for children to read and write which is in their reach.
15	Parenting/Co-Parenting: Number of participants surveyed who reported that their communications with their children improved.
16	Book by Book: Number of parents who report visiting the library more than before this program.
17	Parenting Skills for Incarcerated Inmates: Number of inmates who acquired knowledge about the importance of effective communication required to build parent/child relationships.
18	Love At First Sight: Number of child care providers who report saying that they have said at least 3-5 positive statements to chidlren each da.
19	Love At First Sight: Number of child care providers who report talking, singing and playing more with chidlren than before.
20	Parenting Skills for Incarcerated Inmates: Number of inmates who demonstrated their knowledge of positive parent/child relationships by writing to their child.
21	Love At First Sight: Number of childcare providers who report using suggested guidance techniques more often.
22	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.
23	Love At First Sight: Number of child care providers who report yelling less at children.
24	Love At First Sight: Number of parents who report putting down or blaming their child less.
25	Love At First Sight: Number of parents who report saying that they have said one posotive thing to their child each day.
26	Love At First Sight: Number of parents who report showing increased affection toward their children.
27	Love At First Sight: Number of parents who report talking, singing and playing more with their children than before the program.
28	Love At First Sight: Number of parents who report they yell less at their children.
29	Love At First Sight: Number of parents who report using suggested guidance techniques more often.
30	Adolescent High Risk Behaviors: Number of adolescents who reported that they developed the skills to generate a healthy discussion within their family about sexuality, values, feelings and decision-making.
31	Adolescent High Risk Behaviors: Number of adolescents surveyed who reported that they learned the risks related to early sexual activity.
32	Adolescent High Risk Behaviors: Number of parents who reported that they developed the skills to generate a healthy discussion within their family about sexuality, values, feelings and decision-making.

33	Adolescent High Risk Behaviors: Number of adolescents who reported a clear knowledge of the male and female reproductive systems.
34	Adolescent High Risk Behaviors: Number of adolescents who reported thay plan not to have sex until they are married.
35	Adolescent High Risk Behaviors: Number of parents and adolescents who reported that they have generated a healthy discussion within their family about sexuality, values, feelings and decision-making.
36	Co-Parenting: Number of divorcing parents who report improved parenting skills because of this program.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	102

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #2

1. Outcome Measures

Book by Book: Number of participants who plan to use suggested practices related to early literacy.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	126

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #3

1. Outcome Measures

Book by Book: Number of books parents report they read to children each week.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	29

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	284

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	283

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #6

1. Outcome Measures

Parenting/Co-Parenting: Number of participants surveyed who reported decreasing exposure of their children to parental conflicts.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #7

1. Outcome Measures
Book by Book: Number of chidlcare providers who now provide a soft/inviting place for young children to read.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	390

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #8

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	217

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #9

1. Outcome Measures

Parenting/Co-Parenting: Number of participants surveyed who reported being less stressed in their parenting roles.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #10

1. Outcome Measures

Book by Book: Number of parents who report reading more to their chidlren than before this program.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	61

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #11

1. Outcome Measures

Parenting/Co-Parenting: Number of participants surveyed who reported increasing their monitoring of their children's friends, whereabouts, and activities.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #12

1. Outcome Measures

Book by Book: Number of parents who report having more print materials in their home than before.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #13

1. Outcome Measures

Parenting/Co-Parenting: Number of participants surveyed who reported they had decreased use of corporal punishment.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #14

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	78

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #15

1. Outcome Measures

Parenting/Co-Parenting: Number of participants surveyed who reported that their communications with their children improved.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #16

1. Outcome Measures
Book by Book: Number of parents who report visiting the library more than before this program.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	39

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #17

1. Outcome Measures

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

2. Associated Institution Types

•1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #18

1. Outcome Measures

Love At First Sight: Number of child care providers who report saying that they have said at least 3-5 positive statements to chidlren each da.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	135

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #19

1. Outcome Measures

Love At First Sight: Number of child care providers who report talking, singing and playing more with chidlren than before.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	160

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #20

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #21

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	104

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #22

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #23

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #24

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	71

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #25

1. Outcome Measures
Love At First Sight: Number of parents who report saying that they have said one posotive thing to their child each day.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	108

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #26

1. Outcome Measures
Love At First Sight: Number of parents who report showing increased affection toward their children.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	94

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #27

1. Outcome Measures

Love At First Sight: Number of parents who report talking, singing and playing more with their children than before the program.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #28

1. Outcome Measures

Love At First Sight: Number of parents who report they yell less at their children.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	58

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #29

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	79

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

802	Human Development and Family Well-Being

Outcome #30

1. Outcome Measures

Adolescent High Risk Behaviors: Number of adolescents who reported that they developed the skills to generate a healthy discussion within their family about sexuality, values, feelings and decision-making.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	276

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #31

1. Outcome Measures

Adolescent High Risk Behaviors: Number of adolescents surveyed who reported that they learned the risks related to early sexual activity.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	157

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #32

1. Outcome Measures

Adolescent High Risk Behaviors: Number of parents who reported that they developed the skills to generate a healthy discussion within their family about sexuality, values, feelings and decision-making.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	31

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #33

1. Outcome Measures

Adolescent High Risk Behaviors: Number of adolescents who reported a clear knowledge of the male and female reproductive systems.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	207

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #34

1. Outcome Measures

Adolescent High Risk Behaviors: Number of adolescents who reported thay plan not to have sex until they are married.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #35

1. Outcome Measures

Adolescent High Risk Behaviors: Number of parents and adolescents who reported that they have generated a healthy discussion within their family about sexuality, values, feelings and decision-making.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #36

1. Outcome Measures
Co-Parenting: Number of divorcing parents who report improved parenting skills because of this program.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	2779

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Tennessee has one of the highest divorce rates in the U.S. Because divorce is so common, it may seem like adjustment to divorce has become easier for everyone involved. In reality, divorce is hard for all family members, especially children.

What has been done

University of Tennessee Extension has developed a four-hour program, 'Parenting Apart: Effective Co-Parenting,' to help divorcing parents learn how to help their children cope with the issues that arise because of the parents' divorce.

The following topics are covered in the program:

facts about divorce
the processes of divorce and medication
domestic violence and divorce
dealing with stress
how children react to divorce
positive communication skills
helping children get through divorce
keeping children out of the middle of conflicts
the family after divorce
Classes include group discussion, the viewing of videos and lecture.

Results

2797 respondents improved knowledge of how divorce impacts children by age/stage of development.

2770 respondents learned effective communication techniques.

2766 respondents plan to decrease exposure of their children to parental conflict.

2754 respondents report understanding the importance of working together for the sakes of their children.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Animal Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	0%	0%	2%	
135	Aquatic and Terrestrial Wildlife	0%	0%	12%	
301	Reproductive Performance of Animals	16%	16%	21%	
302	Nutrient Utilization in Animals	5%	5%	8%	
303	Genetic Improvement of Animals	5%	5%	3%	
304	Animal Genome	0%	0%	5%	
305	Animal Physiological Processes	0%	0%	13%	
306	Environmental Stress in Animals	0%	0%	2%	
307	Animal Management Systems	57%	57%	5%	
311	Animal Diseases	17%	17%	26%	
315	Animal Welfare/Well-Being and Protection	0%	0%	3%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	43.5	1.2	47.0	0.0
Actual	63.0	2.5	36.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
847282	222327	936733	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2727772	111164	5644372	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
620346	18570	159690	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

We have conducted applied and basic research in animal health, nutrition, physiology and genomics to address high priority problems of the livestock industries. We continue to 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 was 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 were taught by agents who completed the comprehensive MBP training curriculum. The Master Beef Producer Program included a series of 12 educational sessions that focused on cow-calf production and issues facing the beef industry. These were conducted at various off-campus locations accessible to Tennessee beef producers. These sessions included hands-on demonstrations, mini-lectures, discussions, question and answer sessions, etc.

2. Brief description of the target audience

Producers, veterinarians, and others associated with the animal industry are target audiences.

Tennessee cattle producers are primarily cow-calf operators. All of the state's cow-calf operators compose the target audience for the Master Beef Producer portion of this planned program.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	10000	5000	5000
2007	81147	2450000	2908	2450000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	3

Patents listed

Method for diagnosing infectious diseases, Issued on October 2, 2007, U.S. Patent 10,832,761, S. Eda and C. A. Speer.

Method for diagnosing infections, Pending, Filed September 6, 2005, U.S. Patent 11,220,156, C. A. Speer and S. Eda.

Streptococcus uberis Adhesion Molecule. Oliver, Stephen P., Raul A. Almeida, Douglas A. Luther, Hee-Myung Park. New Zealand Letters Patent Number 540701, November 8, 2007.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	16	24	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	5	11

Output #2

Output Measure

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

Year	Target	Actual
2007	5000	2324

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Percentage of livestock producers that adapt prudent use guidelines for antibiotic use in their herds based on information derived and disseminated.
2	Master Beef Producer: Number of producers who applied "valued added" management and health practices.
3	Master Beef Producer: Number of producers who carried out recommended practices to improve environmental integrity of cattle operations.
4	Master Beef Producer: Number of producers who carried out recommended reproductive practices.
5	Master Beef Producer: Number of producers who improved performance through application of genetic improvement practices.
6	Master Beef Producer: Number of producers who started a vaccination program.
7	Master Beef Producer: The increase in value of feeder calves as result of cooperative marketing or marketing through an "alliance" was $ ___ total.
8	Master Beef Producer: Number of producers who market cattle through cooperative sales or "marketing alliances."
9	Percent of cattle producers using preventative treatment.
10	Beef Quality Assurance: Number of beef producers who received BQA certification.
11	Beef Quality Assurance: Number of producers who sold calves that were managed according to BQA guidelines.
12	Beef Quality Assurance: Number of calves sold in Tennessee that were managed according to BQA guidelines.
13	Beef Quality Assurance: The added value of calves marketed that were managed according to BQA guidelines (dollars).
14	Pregnancy rates in cattle
15	Johne's disease in cattle
16	Deer harvest and roadkill data
17	Controlling mastitis in dairy cattle
18	Combatting the T-2 toxin in fowl
19	Broiler performance with different dietary fat sources
20	Livestock and Forage Systems: Improved genetics for Tennessee beef and dairy herds.
21	Improved beef cattle
22	Crossbreeding dairy cattle
23	Dairy herd heat stress infertility
24	Reproductive performance of domestic ruminants
25	Stress factors of farm animals
26	Tennessee Quality Milk Initiative
27	Health and well-being of weaned pigs

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

This outcome was not evaluated.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
311	Animal Diseases

Outcome #2

1. Outcome Measures

Master Beef Producer: Number of producers who applied "valued added" management and health practices.

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8000	1791

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
311	Animal Diseases
303	Genetic Improvement of Animals

Outcome #3

1. Outcome Measures

Master Beef Producer: Number of producers who carried out recommended practices to improve environmental integrity of cattle operations.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8000	569

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #4

1. Outcome Measures

Master Beef Producer: Number of producers who carried out recommended reproductive practices.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8000	1791

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
307	Animal Management Systems

Outcome #5

1. Outcome Measures

Master Beef Producer: Number of producers who improved performance through application of genetic improvement practices.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8000	1791

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
303	Genetic Improvement of Animals

Outcome #6

1. Outcome Measures

Master Beef Producer: Number of producers who started a vaccination program.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8000	1791

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #7

1. Outcome Measures
Master Beef Producer: The increase in value of feeder calves as result of cooperative marketing or marketing through an "alliance" was $ ___ total.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100000	2020100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
303	Genetic Improvement of Animals

Outcome #8

1. Outcome Measures

Master Beef Producer: Number of producers who market cattle through cooperative sales or "marketing alliances."

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #9

1. Outcome Measures

Percent of cattle producers using preventative treatment.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

This outcome was not evaluated.

4. Associated Knowledge Areas

KA Code	Knowledge Area

315	Animal Welfare/Well-Being and Protection
311	Animal Diseases
306	Environmental Stress in Animals
307	Animal Management Systems

Outcome #10

1. Outcome Measures

Beef Quality Assurance: Number of beef producers who received BQA certification.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #11

1. Outcome Measures

Beef Quality Assurance: Number of producers who sold calves that were managed according to BQA guidelines.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
307	Animal Management Systems

Outcome #12

1. Outcome Measures

Beef Quality Assurance: Number of calves sold in Tennessee that were managed according to BQA guidelines.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #13

1. Outcome Measures

Beef Quality Assurance: The added value of calves marketed that were managed according to BQA guidelines (dollars).

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100000	2312529

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection

Outcome #14

1. Outcome Measures

Pregnancy rates in cattle

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Embryo transfer pregnancy rates are a critical concern for beef cattle producers.

What has been done

1)We evaluated whether heat-induced perturbations in the cytoplasm of a dairy cow ovum may carry over to increase susceptibility of otherwise thermo-tolerant embryos to heat stress. 2) Recovery of bovine embryos with flushing medium containing an FPr antagonist improved pregnancy rates after transfer; no abnormalities in calf health, birth weight or weaning weight were observed.

Results

1) Results raise possible concerns regarding current practices of utilizing MOET in heat-stressed cattle with the intent of obtaining 'developmentally-competent' embryos.
2) Utilization of a prostaglandin F2¡ receptor antagonist during embryo recovery will significantly improve pregnancy rates of recipient animals and thus efficiency of production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
301	Reproductive Performance of Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals

Outcome #15

1. Outcome Measures

Johne's disease in cattle

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Johne's disease causes an annual loss of $200-$250 million to the cattle industry in the U.S.

What has been done

We developed a highly sensitive diagnostic test in 2006 and significantly improved the sensitivity of the test this year.

Results

We initiated a collaborative effort to develop a 'hand-held' diagnostic device by merging our diagnostic method and microfluidic technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes
311	Animal Diseases

Outcome #16

1. Outcome Measures

Deer harvest and roadkill data

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Deer damage to agriculture is one of the most significant wildlife issues in the eastern United States. Deer also provide important opportunities for hunters and wildlife watchers. Deer management must address the needs of all stakeholders.

What has been done

We have entered deer harvest and roadkill data from the Oak Ridge Wildlife Management Area into an electronic spreadsheet for analysis.

Results

The data will be used to analyze the relationships between deer harvest and roadkill spatially over time. This will provide essential information for managers to develop deer harvest strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
307	Animal Management Systems
301	Reproductive Performance of Animals

Outcome #17

1. Outcome Measures

Controlling mastitis in dairy cattle

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Mastitis infections reduce milk production and degrade milk quality.

What has been done

In dairy cows vaccinated with a novel surface protein, recombinant SUAM (rSUAM), the rSUAM induced antibodies that effectively blocked some strains of S. uberis (associated with mastitis).

Results

A novel surface protein, SUAM, may be a promising antigen for the control of S. uberis mastitis in dairy cows; our research may help develop non-antibiotic strategies for controlling this form of mastitis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
306	Environmental Stress in Animals
315	Animal Welfare/Well-Being and Protection
311	Animal Diseases

Outcome #18

1. Outcome Measures

Combatting the T-2 toxin in fowl

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Trichothecene mycotoxin (T-2) toxin is best known as an immunosuppressant and compromises growth and reproductive performance of birds.

What has been done

Research included in vitro testing of the enzyme as a protective agent against the toxin, and evaluation of testicular function in quail selected for stress response and challenged with the toxin.

Results

Chicken cells were totally protected against the toxin when co-incubated with the enzyme. The reproductive performance of high stress quail was negatively impacted by the toxin. A novel protein is effective in reducing the toxicity of this toxin, and should lead to intervention strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
311	Animal Diseases
307	Animal Management Systems

Outcome #19

1. Outcome Measures

Broiler performance with different dietary fat sources

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrient requirements play an important role in poultry growth but they are influenced by growth environment. Also, environmental insults affect immune response which, in turn, is affected by level of nutrition.

What has been done

This research examined the use of alternative feed ingredient as well as the role of amino acids, vitamins and minerals in the immune function of poultry reared under heat stress. Research was conducted to identify nutritional modulations and management strategies that are important in dealing with this problem. The performance of broilers fed different dietary fat sources and reared under high temperatures was evaluated.

Results

Use of fish oil in the diet of heat-stressed birds resulted in an increase in antibody titers and promoted greater macrophage activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
306	Environmental Stress in Animals

Outcome #20

1. Outcome Measures

Livestock and Forage Systems: Improved genetics for Tennessee beef and dairy herds.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poor genetics has reduced returns for Tennessee beef and dairy producers.

What has been done

In FY07, UT Extension partnered with the Tennessee Department of Agriculture in assisting 4,969 beef and dairy producers as they worked to improve the genetics of their beef cattle herds.

Results

The producers purchased improved sires or semen that met minimum standards established by UT Extension for birth weights, growth, milk production and other performance factors. Agents provided education and one-on-one assistance in making sire selection decisions. The state provided $2,028,935 in cost share funding for improved genetics, and the total investment statewide at the farm level was $7,206,237. This investment will provide benefits for several years, as heifers that are retained from these improved genetics are added to the state's beef and dairy herds. In addition, the calves from these better sires show improved performance and quality, increasing revenue for Tennessee beef and dairy producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
307	Animal Management Systems

Outcome #21

1. Outcome Measures

Improved beef cattle

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Availability of beef cattle that exceed breed average steadily improves the efficiency of animal production systems for human food.

What has been done

In our beef cattle sire evaluation program of selection for gain and weight, this year's results show a reduction in the upward trend due to a ration change for production of more lean mass and less body fat.

Results

These efforts have made herd sires with a demonstrated genetic potential for accelerated growth rate available to beef producers through a public cooperative auction.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals

Outcome #22

1. Outcome Measures

Crossbreeding dairy cattle

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Crossbreeding dairy cattle may provide one strategy to combat mortality and morbidity in dairy cattle.

What has been done

To date approximately 500 crossbred calves in 40 herds and 13 states have been born, and health data are being collected.

Results

Crossbred dairy calves and cows are expected to be healthier with increased survival and thus crossbreeding may ultimately lead to more profitable dairy herds. It is anticipated that such strategies will save approximately 1 million dollars annually for Tennessee dairy producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
311	Animal Diseases
303	Genetic Improvement of Animals

Outcome #23

1. Outcome Measures

Dairy herd heat stress infertility

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Infertility coupled with reduced milk production in dairy cows experiencing summer heat stress is one of the most important economic problems in the dairy industry.

What has been done

Because previous efforts have shown that ovulatory follicle size may be reduced in heat-stressed cows and that the oocyte may mature faster than in cows not experiencing heat-stress, a research project was conducted to examine follicular growth and ovulation.

Results

While follicle stimulating hormone (FSH) did not increase ovulatory follicle size, earlier ovulation occurred when FSH was given. Information gained from these studies constitutes an important first step toward the development of management strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
305	Animal Physiological Processes
315	Animal Welfare/Well-Being and Protection
301	Reproductive Performance of Animals
306	Environmental Stress in Animals

Outcome #24

1. Outcome Measures
Reproductive performance of domestic ruminants

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Reproductive inefficiency has a dramatic negative impact on the economics of the livestock producer.

What has been done

Studies were performed to identify specific phospholipase enzymes associated with bovine endometrial epithelial cell prostaglandin production and to identify transcription factors associated with the induction and termination of ovine conceptus interferon production.

Results

Our results indicate that specific phospholipase inhibitors could be used to enhance reproduction in livestock, and that stimulation of other biochemical pathways may improve pregnancy rates, reproductive efficiency, and decrease problems associated with the birthing process.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
315	Animal Welfare/Well-Being and Protection
307	Animal Management Systems
305	Animal Physiological Processes

Outcome #25

1. Outcome Measures

Stress factors of farm animals

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Development of assays to determine and measure physiological stress in livestock and companion animals has high relevance to animal welfare.

What has been done

An experiment was performed to assess physiological measures of health and well-being in weaned pigs with or without subsequent transport, and to examine the role of pre-weaning weight on the outcome of the weaning and transport processes.

Results

Results of this work will be useful in improving management and husbandry procedures that impact the health and well-being of animals thereby ensuring the productivity and profitability of farms and enhancing the interactions of humans and companion animals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
305	Animal Physiological Processes
315	Animal Welfare/Well-Being and Protection
311	Animal Diseases
306	Environmental Stress in Animals

Outcome #26

1. Outcome Measures

Tennessee Quality Milk Initiative

2. Associated Institution Types

•1862 Extension
•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poor quality milk in Tennessee and in the Southern Region continues to be of concern. Lost premiums and/or penalties due to poor quality milk have a significant financial impact on dairy producers.

What has been done

A fee-based comprehensive program was launched, designed to motivate and educate dairy producers on aspects of production that affect milk quality. A passing grade or completion of activities will award producers with a level certification.

Results

Eight TQMI educational meetings that were held throughout the state, attracting 239 dairy producers from 211 dairy farms, which represents approximately 37% of dairy farms in Tennessee.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
306	Environmental Stress in Animals
305	Animal Physiological Processes
315	Animal Welfare/Well-Being and Protection
311	Animal Diseases
302	Nutrient Utilization in Animals

Outcome #27

1. Outcome Measures
Health and well-being of weaned pigs

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Weaning constitutes a tremendous stress on the pig resulting in weight loss and increased mortality.

What has been done

Experiments were conducted to document changes in feed intake, body weight, and immune function in response to treatment with a single injection of syndyphalin-33 (SD33) in weaned pigs.

Results

This research may lead to management tools to combat post-weaning declines in pig health and well-being.

4. Associated Knowledge Areas

KA Code	Knowledge Area
306	Environmental Stress in Animals
305	Animal Physiological Processes
315	Animal Welfare/Well-Being and Protection
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The Extension portion of the Animal Systems program was impossible to implement as planned due to a number of external factors; most notably, the 2007 drought which caused many beef producers to downsize. The problem was compounded because of record-high fuel prices. Both of these factors affected all 95 Tennessee counties. However, in counties were drought conditions were slightly less severe; the Master Beef Producer and Beef Quality Assurance programs were successful. Extension intended to be proactive in increasing farm income for beef producers during 2007 with major statewide efforts using group meetings, farm visits and mass media. Instead, agents and specialists worked much of the year in one-on-one consultations with beef producers to advise them in ways to stay in business. Overall, we feel that our efforts were successful at mitigating (to the extent possible) the historic weather and economic forces. For example, see the outcome added for livestock and forgae systems regarding improved genetics. This effort produced a total investment statewide at the farm levelof over $7 million, and this investment will provide benefits for several years.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #6

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food Safety, Quality, and Nutrition

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	0%	0%	3%	
205	Plant Management Systems	0%	0%	6%	
307	Animal Management Systems	0%	0%	2%	
311	Animal Diseases	0%	0%	6%	
501	New and Improved Food Processing Technologies	10%	10%	10%	
502	New and Improved Food Products	5%	5%	12%	
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	4%	
511	New and Improved Non-Food Products and Processes	0%	0%	1%	
701	Nutrient Composition of Food	0%	0%	1%	
702	Requirements and Function of Nutrients and Other Food Components	5%	5%	21%	
703	Nutrition Education and Behavior	40%	40%	0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.	0%	0%	1%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	40%	40%	28%	
722	Zoonotic Diseases and Parasites Affecting Humans	0%	0%	5%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	43.5	2.5	18.0	0.0
Actual	143.0	5.6	32.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1915213	502553	876526	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
6165903	251276	3337870	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
5106764	405101	843256	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension used the Power of Choice curriculum in Tennessee schools and afterschool programs. Extension personnel and volunteers used the curriculum to teach diet quality to young adolescents. The program has 10 interactive lessons.

Extension conducted 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 were delivered in homes, schools, community centers, churches, and other accessible locations to consumers. The lessons in "Cook's Corner" and "Safe Food for You" were successful in changing attitudes, skills and behaviors in regards to safe food handling practices.

Youth participants received food safety education using Fight BAC and other curricula through their school classroom, community center or after-school program. Teaching methods emphasized 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 conduct applied and basic research in foodborne risks and nutrition to address high priority issues for consumers of food products. We 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 are used to identify stress mechanisms in bacteria that allow them to resist interventions.

Studies are done on how nonthermal processing (high pressure, ultrasound, solvents) affects the functional properties of proteins for food and non-food applications.

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	10000	30000	10000	30000
2007	112231	351000	106345	351000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	1
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	2	38	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	10	340

Output #2

Output Measure

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

Year	Target	Actual
2007	10	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in the attitude about cooking food to a safe internal temperature.
2	Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in their attitude about cleaning surfaces, utensils and equipment to prevent cross-contamination.
3	Safe Food Handling Pactices for Consumers: Number of participants surveyed who made a positive change in their attitude about eating/drinking foods from unsafe sources.
4	Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in their attitude about how they thaw food.
5	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.
6	Safe Food Handling Practices for Consumers: Number of participants surveyed who consumed fewer foods from unsafe sources.
7	Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in the way they stored perishable foods.
8	Safe Food Handling Practices for Consumers: Number of participants surveyed more often cooked foods to safe internal temperatures.
9	Safe Food Handling Practices for Consumers: Number of participants surveyed who more often thoroughly washed their produce under running water before eating them.
10	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.
11	Safe Food Handling Practices for Consumers: Nmber of participants surveyed who more often washed their hands with soap and warm running water before eating.
12	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.
13	Safe Food Handling Practices for Consumers: Number of participants surveyed who more often washed the plate used to hold raw meat, poultry, or seafood with hot, soapy water before returning cooked food to the plate OR used a
14	Safe Food Handling Practices for Consumers: Number of participants surveyed who used a thermometer to check the internal temperature of food.
15	Safe Food Handling Practices for Consumers: Number of participants surveyed who used a thermometer to check the internal temperature of their refrigerator.
16	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.
17	Safe Food Handling Practices for Consumers: Number of pregnant or formerly pregnant participants surveyed avoided one or more of the following foods during pregnancy: cold hot dogs, soft cheese like brie, Camembert and queso fesc
18	Number of medium or large food processing companies (1,000,000 food purchases) adopting an antimicrobial strategy developed through the food safety program.
19	Diet Quality: Number of participants who learned how to use MyPyramid.gov and Dietary Guidelines.
20	Diet Quality: Number of participants who learned how to use the Healthy Plate to balance their diet.
21	Diet Quality: Number of participants who learned sources of healthy fats.
22	Diet Quality: Number of participants who learned which foods increase blood sugar.
23	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.
24	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.
25	Diet Quality: Number of participants who increased consumption of dairy foods.
26	Diet Quality: Number of participants who increased consumption of fruits.
27	Diet Quality: Number of participants who increased consumption of vegetables.
28	Diet Quality: Number of participants increased consumption of whole grains.
29	Diet Quality: Number of participants who improved their blood pressure.

30	Diet Quality: Number of participants who improved their blood sugar.
31	Diet Quality: Number of participants who improved their cholesterol levels.
32	Diet Quality: Number of participants who improved their sleep habits.
33	Diet Quality: Number of participants who improved their stress.
34	Diet Quality: Number of participants who improved their triglyceride levels.
35	Diet Quality: Number of participants who reduced their risk factor for diet-related diseases.
36	Effect on obesity of dairy products
37	Encapsulation of pharmaceutical compounds
38	Fruit and vegetable quality
39	Stress response in E. coli
40	Protection from food-borne contamination
41	Novel biodegradable and edible films and coatings
42	Polyunsaturated fatty acids and human health
43	Foodborne disease from contaminated baby formula
44	Foodborne bacteria and antibiotic resistance

Outcome #1

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in the attitude about cooking food to a safe internal temperature.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15444

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #2

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in their attitude about cleaning surfaces, utensils and equipment to prevent cross-contamination.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16933

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
703	Nutrition Education and Behavior

Outcome #3

1. Outcome Measures

Safe Food Handling Pactices for Consumers: Number of participants surveyed who made a positive change in their attitude about eating/drinking foods from unsafe sources.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	17305

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
703	Nutrition Education and Behavior

Outcome #4

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in their attitude about how they thaw food.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15630

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #5

1. Outcome Measures
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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16188

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
703	Nutrition Education and Behavior

Outcome #6

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who consumed fewer foods from unsafe sources.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17305

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
703	Nutrition Education and Behavior

Outcome #7

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who made a positive change in the way they stored perishable foods.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	15816

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #8

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed more often cooked foods to safe internal temperatures.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	15444

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
703	Nutrition Education and Behavior

Outcome #9

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who more often thoroughly washed their produce under running water before eating them.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	15816

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
703	Nutrition Education and Behavior

Outcome #10

1. Outcome Measures
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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	17491

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17491

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
703	Nutrition Education and Behavior

Outcome #12

1. Outcome Measures

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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17305

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #13

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of participants surveyed who more often washed the plate used to hold raw meat, poultry, or seafood with hot, soapy water before returning cooked food to the plate OR used a

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17491

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #14

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	7443

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #15

1. Outcome Measures
Safe Food Handling Practices for Consumers: Number of participants surveyed who used a thermometer to check the internal temperature of their refrigerator.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17491

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #16

1. Outcome Measures

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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17305

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #17

1. Outcome Measures

Safe Food Handling Practices for Consumers: Number of pregnant or formerly pregnant participants surveyed avoided one or more of the following foods during pregnancy: cold hot dogs, soft cheese like brie, Camembert and queso fesc

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	15816

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #18

1. Outcome Measures

Number of medium or large food processing companies (1,000,000 food purchases) adopting an antimicrobial strategy developed through the food safety program.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

We were unable to quantify this outcome.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #19

1. Outcome Measures

Diet Quality: Number of participants who learned how to use MyPyramid.gov and Dietary Guidelines.

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	150775

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #20

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	12147

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #21

1. Outcome Measures

Diet Quality: Number of participants who learned sources of healthy fats.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	68998

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #22

1. Outcome Measures

Diet Quality: Number of participants who learned which foods increase blood sugar.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20000	63119

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #23

1. Outcome Measures

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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	70179

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #24

1. Outcome Measures

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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	14498

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #25

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	14524

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #26

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	119819

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #27

1. Outcome Measures
Diet Quality: Number of participants who increased consumption of vegetables.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	119462

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #28

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	63194

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #29

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	5894

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #30

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	4709

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #31

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	4773

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #32

1. Outcome Measures

Diet Quality: Number of participants who improved their sleep habits.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	3886

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #33

1. Outcome Measures

Diet Quality: Number of participants who improved their stress.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	4663

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #34

1. Outcome Measures
Diet Quality: Number of participants who improved their triglyceride levels.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	4279

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #35

1. Outcome Measures

Diet Quality: Number of participants who reduced their risk factor for diet-related diseases.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	9758

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #36

1. Outcome Measures

Effect on obesity of dairy products

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Obesity is a well-documented problem, of epidemic proportion, in the U.S.

What has been done

We previously demonstrated that calcitrol regulates oxydative and inflamatory stress genes, and test results showed that high Ca dairy foods substancially supress oxidative and inflamatory stress associated with obesity.

Results

We have provided a theoretical framework, cellular data and clinical data to demonstrate that dietary calcium protects against both oxidative and inflammatory stresses and that dairy exerts a greater effect than calcium alone.

4. Associated Knowledge Areas

KA Code	Knowledge Area

702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
701	Nutrient Composition of Food
311	Animal Diseases

Outcome #37

1. Outcome Measures

Encapsulation of pharmaceutical compounds

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The pharmaceutical and dairy industries stand to gain from innovative use of milk components.

What has been done

We investigated casein micelle from bovine milk was as a nano-carrier system for Triclosan (TCS), and results present the casein micelle as a suitable biopolymer for the potential encapsulation of pharmaceutical compounds.

Results

This research enables the use of dairy-based ingredients for new rheological/binding application in food products and the development of carrier/delivery systems for hydrophobic-low molecular-weight molecules in the pharmeceutical industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
511	New and Improved Non-Food Products and Processes
501	New and Improved Food Processing Technologies
701	Nutrient Composition of Food
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.

Outcome #38

1. Outcome Measures

Fruit and vegetable quality

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The mechanism of calcium-induced firmness is debatable since fungi in general contain little or no pectin substances. The purpose of this study is to enhance our understanding of calcium binding to macromolecules in plant and mushroom cells.

What has been done

Stepwise extraction of apple, cucumber and mushroom tissues resulted in a set of fractions, which were analyzed for protein, neutral polysaccharides, pectins and chitin content, and binding of calcium.

Results

Understanding the capacity of various macromolecules in plant and mushroom tissues in binding of calcium will provide novel and more efficient pre- and post-harvest practices to enhance quality of fresh and processed fruits and vegetables.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
502	New and Improved Food Products
501	New and Improved Food Processing Technologies
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
702	Requirements and Function of Nutrients and Other Food Components

Outcome #39

1. Outcome Measures

Stress response in E. coli

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

E. coli contamination of food has repeatedly been in the news in recent months. It is a critical issue for consumers and the food industry.

What has been done

We used DNA microarrays to study gene expression in E. coli under refrigerated and acidic conditions.

Results

Information on the stress response in E. coli at reduced temperatures will help the food industry understand how this organism behaves in food products and how the stress response is affected by pre-storage temperatures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
503	Quality Maintenance in Storing and Marketing Food Products
501	New and Improved Food Processing Technologies

Outcome #40

1. Outcome Measures

Protection from food-borne contamination

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The public at large, as well as the government are interested in antimicrobial approaches against foodborne pathogens, including those intentionally used in a terrorist attack, such as with anthrax.

What has been done

We looked at the sporicidal capabilities of household disinfectants and other products against Bacillus cereus as surrogates for B. anthracis on spinach and cantaloupe in case of a large-scale terrorist event.

Results

Studies demostrated that heat-based processes could be inadequate, chlorine-based products are recommended, and high-pressure homogenization of fluid foods had excellent potential for microbial inactivation without significant heat.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.

Outcome #41

1. Outcome Measures

Novel biodegradable and edible films and coatings

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The food industry is interested in the design and application of biodegradable and edible films and coatings based on food biopolymers.

What has been done

We tested crystallinity, metal-binding capacity, and antibacterial efficiency of thick, thin, and ultra-thin films using different chitosan/PEO blend ratios.

Results

Addition of natural polysaccharide, chitosan, to synthetic PEO films would increase the functionality and biodegradability of the material, and at the same time partially reduce use of petrochemicals for polymer production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
502	New and Improved Food Products
701	Nutrient Composition of Food
501	New and Improved Food Processing Technologies
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #42

1. Outcome Measures

Polyunsaturated fatty acids and human health

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Americans are unlikely to achieve the proposed dietary recommendations of increased long chain n-3 PUFA by consuming fish. Therefore, agricultural sources of n-3 PUFA must be investigated as an alternative means to fish (in achieving equivalent health benefit).

What has been done

We previously established a mathematical model for allometric scaling of caloric intake in a rodent that would mimic a human equivalent dose, and we tested it in rodents comparing it to human archival data.

Results

Our data (based on the established mathematical allometric scaling model) support the FDA's policy decision that alpha-linolenic acid (ALA) cannot be used as a viable substitute for eicosapentaenoic acid (EPA) or docosahexaenoic acid (DHA).

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
701	Nutrient Composition of Food
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
502	New and Improved Food Products
703	Nutrition Education and Behavior

Outcome #43

1. Outcome Measures

Foodborne disease from contaminated baby formula

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Foodborne diseases are one of the most widespread health problems facing the world and the social and economic impact of these largely preventable diseases on society is significant.

What has been done

Results indicate that once E. sakazakii attaches to surfaces it produces biofilms, making it resistant to the bactericidal effect of chlorine solutions, explaining the contamination of formula which can result in foodborne disease outbreaks.

Results

Information on the risk of growth of Enterobacter sakazakii in infant formula held at room temperature (25 C) was presented to hospital staff, parents and visitors. Information on appropriate handling of rehydrated infant formula was widely disseminated.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
501	New and Improved Food Processing Technologies

Outcome #44

1. Outcome Measures

Foodborne bacteria and antibiotic resistance

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

To prevent disease outbreaks, the prevalence, sources, and routes of transfer of resistant bacteria and resistance genes in livestock environments are important.

What has been done

PCR analysis was performed on E. coli and salmonella from chickens, pigs and sows in the US and Thailand, and class 1 integrons were more prevalent in isolates from Thailand compared with the US.

Results

The information derived from these studies will provide much-needed guidance to maintain livestock health and productivity while reducing the risk of antibiotic resistance in foodborne bacteria that may infect humans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
501	New and Improved Food Processing Technologies
311	Animal Diseases
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Outcome targets for diet quality were exceeded, and in most cases, exceeded by great margins. On the other hand, targets for food safety outcomes were not met in many cases. This was due to input from local stakeholders. In the TNCEP program, for example, 93 county coalitions helped Extension agents plan and conduct local programs. The actual outcome data demonstrates where these local decision-makers placed emphasis in 2007. The 2009-2013 Plan of Work will be changed accordingly.

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

1. Evaluation Studies Planned

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

Evaluation Results

In 33 Tennessee counties, pre- and post-test evaluation questionnaires were used during program implementation of safe food handling practices for consumers. Adult participants who received food safety education using lessons in "Cook's Corner" and "Safe Food for You" completed survey questions on "Your Opinions About Food Safety" (short term attitude/knowledge outcomes) or "Food Handling and Eating Preferences Questionnaire" (intermediate outcomes) before and after education. Results were tracked using the Extension System for University Planning, Evaluation and Reporting (SUPER) software. The results from those counties (percentages) were extrapolated for the outcome totals based on statewide participation. The evaluation results (as shown by the state defined outcomes) indicate that the planned programs successfully helped:

•consumers wash their hands before eating and preparing food; •pregnant or formerly pregnant women to avoid high-risk foods; and •consumers cook foods to safe internal temperatures.

Key Items of Evaluation

Program #7

V(A). Planned Program (Summary)

1. Name of the Planned Program

Family Economics

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	100%	100%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	29.0	3.4	0.0	0.0
Actual	28.0	1.1	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
379512	99584	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1221814	49792	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
277863	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

At least 10 regional and local social marketing campaigns (organized by UT and TSU Extension) were conducted by coalitions of volunteers across Tennessee. The Tennessee toolkit for savings lesson plans and activities for teaching financial and savings education was used in schools, workplaces, community centers and other locations to teach youth and adults. Extension maintained 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 hosted a bi-annual partnership training conferences to strengthen the capacity of educators to teach financial and savings education. Extension deployed its On My Own curriculum and youth TN Saves in over 100 financial education simulations throughout the state to reach 30,000 youth with savings and financial education. Additional classes, newletters, news releases and community events were conducted for adult audiences.

2. Brief description of the target audience

Youth and adults were targeted for this program. UT Extension maintained its national leadership for creating, testing and validating family economics programs for reaching different target audiences, such as youth ages 9-18, young adults, coalition members and consumers.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	50000	20000	50000
2007	38241	480000	43736	480000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	10	51

Output #2

Output Measure

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

Year	Target	Actual
2007	10000	15965

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	TN Saves: Number of participants who analyzed their readiness for home ownership.
2	TN Saves: Number of participants who determined their net worth.
3	TN Saves: Number of participants who estimated their retirement income needs.
4	TN Saves: Number of participants who gained a better understanding of their options for financing health care.
5	TN Saves: Number of participants who identified more effective strategies for dealing with reductions or gaps in income.
6	TN Saves: Number of participants who identified ways to avoid being victimized by predatory practices or fraud.
7	TN Saves: Number of participants identified ways to increase savings.
8	TN Saves: Number of participants identified ways to reduce debt.
9	TN Saves: Number of participants who increased their financial management skills.
10	TN Saves: Number of participants who set financial or retirement goals.
11	TN Saves: Number of participants who felt more confident that they could build wealth.
12	Youth Finanacial Education Simluation: Number of participants who better understood their parent's concerns about money.
13	Youth Finanacial Education Simluation: Number of participants who felt more strongly that they needed to get a good education.
14	Youth Financial Education Simulation: Number of participants who learned better how to plan their spending.
15	Youth Financial Education Simulation: Number of participants who learned how education will affect the kind of job they can get.
16	Youth Financial Education Simulation: Number of participants who learned how having a family can affect their lifestyle.
17	Youth Financial Education Simulation: Number of participants who learned how much money it takes to get by.
18	Youth Financial Education Simulation: Number of participants who learned how occupation and income will affect their lifestyle.
19	Youth Financial Education Simulation: Number of participants who learned how payroll deductions are taken from gross pay.
20	Youth Financial Education Simulation: Number of participants who learned how to keep a checkbook register.
21	Youth Financial Education Simulation: Number of participants who learned how to write a check.
22	Youth Financial Education Simulation: Number of participants who planned to change their career goals.
23	TN Saves: Number of participants who followed a spending plan.
24	Youth Financial Education Simulation: Number of participants who planned to get more education after high school.
25	TN Saves: Number of participants who initiated or increased savings.
26	Youth Financial Education Simulation: Participants began or increased savings an average of $ ___ per month.
27	TN Saves: Participants initiated or increased savings an average of $ ___ per month.
28	Youth Financial Education Simulation: Number of participants who made a change in career plans.
29	TN Saves: Number of participants who kept a record of spending.
30	Youth Financial Education Simulation: Number of participants who made a change in financial behavior.
31	TN Saves: Number of participants who made a change in a financial practice to avoid being a victim of fraud or predatory practices.
32	Youth Financial Education Simulation: Number of participants who made a spending plan.
33	TN Saves: Number of participants who reduced debt.
34	Youth Financial Education Simulation: Number of participants who talked over the simulation with their parents.
35	TN Saves: Participants reduced debt an average of $ ___ per month.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	2718

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	26940

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	23654

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	17412

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #7

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	29240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #8

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	29240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	29240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	23654

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	26940

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

801	Individual and Family Resource Management

Outcome #12

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15142

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #13

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16126

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #14

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16322

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #15

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16912

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #16

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15732

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #17

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16322

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #18

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	16519

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #19

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	14159

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #20

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15339

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #21

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15929

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #22

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	9833

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #23

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	9636

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #24

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	15929

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #25

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	11406

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #26

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	30	273

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #27

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	75	5423

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Personal debt continues to rise, especially among young consumers.

What has been done

The UT Extension Tennessee Saves program is making a difference in the state.

Results

5,423 participants inititaed or increased savings or investment an average of $273 per month.

4. Associated Knowledge Areas

KA Code	Knowledge Area

801	Individual and Family Resource Management

Outcome #28

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	9833

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #29

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	9636

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #30

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	17502

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #31

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	10422

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #32

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	9636

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #33

1. Outcome Measures

TN Saves: Number of participants who reduced debt.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	13176

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #34

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #35

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	75	82

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

13,176 participants reduced debt an average of $82 per month.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

In 25 Tennessee counties, post-test only and pre- and post-test evaluation questionnaires were used during program implementation for the Tennessee Saves and Youth Financial Education Simulation programs. Results were tracked using the Extension System for University Planning, Evaluation and Reporting (SUPER) software. The results from those counties were extrapolated for the outcome totals based on statewide participation. The evaluation results indicate that the Extension family economics program is successfully:

•helping consumers, especially young consumers, to reduce debt; •increasing savings and investing; and •helping consumers plan financial needs in retirement.

Key Items of Evaluation

The UT Extension family economics program teaches personal savings and financial management. In the Tennessee Saves program alone, which reached about 40,000 face-to-face contacts, over 50% of participants increased their savings or investment, generating an annual estimated savings/investment of $6.1 million. In addition, 59% reduced debt. Reductions averaged $66.36 per month, for a total estimated debt reduction generated as the result of program participation across the state of more than $9.6 million annually. The family ecomonics program was delivered for $1.8 million from federal, state and county governments. What is the return on investment? For every one dollar invested in Extension family economics programs, $7.72 is returned to the people of Tennessee from the Tennessee Saves program alone.

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Forestry, Wildlife, and Fishery Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	0%	0%	4%	
121	Management of Range Resources	0%	0%	1%	
122	Management and Control of Forest and Range Fires	0%	0%	1%	
123	Management and Sustainability of Forest Resources	38%	38%	41%	
125	Agroforestry	7%	7%	0%	
132	Weather and Climate	0%	0%	2%	
133	Pollution Prevention and Mitigation	0%	0%	6%	
135	Aquatic and Terrestrial Wildlife	12%	12%	4%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	2%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	1%	
205	Plant Management Systems	0%	0%	1%	
206	Basic Plant Biology	0%	0%	1%	
212	Pathogens and Nematodes Affecting Plants	0%	0%	1%	
301	Reproductive Performance of Animals	0%	0%	1%	
311	Animal Diseases	33%	33%	0%	
511	New and Improved Non-Food Products and Processes	0%	0%	15%	
605	Natural Resource and Environmental Economics	5%	5%	11%	
606	International Trade and Development	0%	0%	1%	
610	Domestic Policy Analysis	5%	5%	2%	
901	Program and Project Design, and Statistics	0%	0%	5%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	24.2	4.7	70.0	0.0
Actual	11.0	1.0	67.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
150039	39370	386787	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
483043	19685	4242122	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
185567	71800	3814076	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

UT and TSU Extension partnered with the Tennessee Forestry Association to plan and conduct group meetings to inform forest landowners of issues pertaining to forestry and wildlife. Topics included the Forest*A*Syst Program and Timber Marketing. Volunteers were recruited and trained to present at group meetings, provide information, demonstrate equipment and provide materials for demonstrations. UT and TSU Extension provided education at local, regional and statewide events, such as the Tennessee Forest Festival. Demonstartions were provided for landowners and forestry workers. Extension Agents and Specialists educated attendees at County Forestry Landowners Association.

UT and TSU Extension made one-on-one contacts with landowners throughout the year and used mass media and newsletters to inform the general public on issues and educational opportunities related to natural resources. Both UT and TSU Extension provided leadership for conducting programs that targeted limited resource landowners with TSU providing specialist leadership for this effort.

In foresty research, we are working on new wood additives, utilizing native Tennessee trees, assisting local forest products industries, and developing advanced wood-polymer composites.We continue to research biological control of the Hemlock Woolly Adelgid pest by known predators and new species and release technologies. We have evaluated methods of increasing hardwood seedling success and techniques for increasing reforestation.We continue to exploit genetic variation in nursery and field characteristics of native hardwood and coniferous forest tree species, and to look for different strategies to address exotic forest tree pests and corresponding forest restoration.We've identified 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.We've continued direct experiments on large trees and forested catchments at two local forest research sites developed by the Department of Energy (DOE). We researched the susceptibility of hardwood forests to invasion by Japanese stilt grass, compared large, high-quality seedlings with standard oak seedlings, and investigated treatments by logging contractors. We completed measurements of mycorrhizal colonization of roots and soil response to severe drought.

In wildlife and fisheries research, we evaluated the effects of deer on agricultural production and identified associated land-use patterns and biological and ecological factors that could be used for reducing the impact of deer on agricultural production.We monitored targeted avian species and related specific population parameters to factors affecting forest health and sustainability, and developed new forest management prescriptions that promote sustainability.We found that allowing cattle access in farm ponds significantly altered the diatom community, and that after three months post-harvest in agricultural fields, few grain resources are available as food for migratory waterfowl.We examined the effects of electrofishing on threatened and endangered fish embryos, and we identified and monitored the response of selected biomarker genes in zebrafish on exposure to concentrations of microcystin.

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	20000	10000	20000
2007	18761	30000	1029	30000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	3

Patents listed

Wood adhesives containing reinforced additives for structural engineering products. Wang S. and C. Xing. 2007. Provisional Patent application.

Plant Patents: Windham, A.S., M.T. Windham and R. N. Trigiano. Dogwood Tree Named 'Appalachian Joy', November 20, 2007. PP 18238. Trigiano, R. N. and M. T. Windham. Dogwood Tree named 'Missy's Appalachian Morning', December 11, 2007. PP 18292.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	11	40	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	5	3

Output #2

Output Measure

- Release of Hemlock Woolly Adelgid predators.

Year	Target	Actual
2007	200000	202000

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Agroforestry for Underserved Landowners: Number of underserved landowners who are now alley cropping with annual crops and high-value hardwoods.
2	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..
3	Agroforestry for Underserved Landowners: Number of underserved landowners who planted riparian buffer strips along waterways.
4	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.)
5	Forest Landowner Education: Number of landowners who improved profitability (marketing) of forest ownership.
6	County Forestry Associations: Number of forest landowners who indicated a better understanding of the need to receive technical assistance with their forestry and wildlife management.
7	County Forestry Associations: Number of forest landowners who indicated a willingness to adopt recommended practices presented by Extension.
8	Master Loggers: Number of loggers who gained knowledge, skill and awareness by completing the 5-day introductory Master logger course.
9	Scientists potentially employing our findings on forest health, including resilience to drought stress, and the role of beneficial soil organisms in modeling environmental changes to drought.
10	Acres of production of freshwater prawn in Tennessee as an alternative income source.
11	Chestnut re-establishment
12	Estimating black bear abundance
13	Environmental physiology of Tennessee tree species

Outcome #1

1. Outcome Measures

Agroforestry for Underserved Landowners: Number of underserved landowners who are now alley cropping with annual crops and high-value hardwoods.

2. Associated Institution Types

•1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #2

1. Outcome Measures

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..

2. Associated Institution Types

•1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #3

1. Outcome Measures

Agroforestry for Underserved Landowners: Number of underserved landowners who planted riparian buffer strips along waterways.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1200	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #4

1. Outcome Measures

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. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1800	1148

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1800	354

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #6

1. Outcome Measures

County Forestry Associations: Number of forest landowners who indicated a better understanding of the need to receive technical assistance with their forestry and wildlife management.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry

Outcome #7

1. Outcome Measures
County Forestry Associations: Number of forest landowners who indicated a willingness to adopt recommended practices presented by Extension.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry

Outcome #8

1. Outcome Measures

Master Loggers: Number of loggers who gained knowledge, skill and awareness by completing the 5-day introductory Master logger course.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry

Outcome #9

1. Outcome Measures

Scientists potentially 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. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

As presently worded, this outcome is too vague, and will be replaced by others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
125	Agroforestry
123	Management and Sustainability of Forest Resources

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A dramatic increase in US aquaculture is needed to supply future seafood needs. In addition, many Tennessee aquaculturists are tobacco farmers seeking alternative income sources while other producers are seeking new species to meet market demands for cultured fish and shellfish products. The benefits of a competitive, sustainable aquaculture industry in Tennessee are numerous

What has been done

Studies were done on the effect of a vegetative substrate on algae prevention in freshwater prawn culture.

Results

Vegetative substrate experiments with freshwater prawn were terminated prematurely, due to severe drought, leading to the draining of affected ponds.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #11

1. Outcome Measures

Chestnut re-establishment

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Efforts continue to improve chestnut trees for re-establishment in forest ecosystems.

What has been done

Hybrid chestnut from two seed sources were established in cleared rows in a young loblolly pine plantation to evaluate competitive ability relative to pines and planted oaks.

Results

The field studies will define critical genetic silvicultural parameters needed for restoration of American chestnut to eastern forests when resistant genotypes are available for planting.

4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry
123	Management and Sustainability of Forest Resources
212	Pathogens and Nematodes Affecting Plants

Outcome #12

1. Outcome Measures

Estimating black bear abundance

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Traditional population estimation based on mark-recapture estimates from live capturing is expensive, limited to small sampling areas, and vulnerable to sampling biases.

What has been done

Non-invasive genetic sampling to estimate black bear populations requires proper sampling design; we have suggested an approach of estimating population growth, rather than population abundance.

Results

Our findings impact how partner resource management agencies regionally monitor black bears; we have developed field sampling procedures to monitor population growth.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
135	Aquatic and Terrestrial Wildlife

Outcome #13

1. Outcome Measures

Environmental physiology of Tennessee tree species

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Forests are impacted by changing environmental factors, many of these the result of the increasing influence of human populations. The effects of elevated temperature, and of soil chemical and physical properties on the growth and physiology of tree species native to Tennessee is being studied.

What has been done

We have determined that ground cover of around 25-75% is optimal for the establishment of seedlings of several important species of hardwood trees to return surface-mined lands to productive forest.

Results

Recommendations for tree species, seedling characteristics, and compatible ground covers will result in approximately 10% increase in survival of trees planted on reclamation sites.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
123	Management and Sustainability of Forest Resources
125	Agroforestry
112	Watershed Protection and Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Drought was a major factor in some research efforts this year -- including premature termination of a prawn study due to drought-related drainage of the study ponds.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #9

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economic Infrastructure and Commerce

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	30%	30%	15%	
602	Business Management, Finance, and Taxation	4%	4%	7%	
603	Market Economics	4%	4%	12%	
604	Marketing and Distribution Practices	26%	26%	31%	
607	Consumer Economics	6%	6%	13%	
608	Community Resource Planning and Development	10%	10%	8%	
609	Economic Theory and Methods	10%	10%	8%	
610	Domestic Policy Analysis	10%	10%	3%	
701	Nutrient Composition of Food	0%	0%	3%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	72.6	5.9	20.0	0.0
Actual	40.0	1.6	19.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
538377	141271	412725	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1733272	70635	552170	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
539178	12500	298077	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Our research analysis includes 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. We evaluate the impacts of various policies, management strategies, or economic conditions on a farm's bottom line and financial strength, sometimes using 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 helped families analyze their total farming business so they could make informed decisions regarding their future. Extneison staff trained in farm and financial management helped 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

Extension workshops were offered to help farmers improve marketing, goal-setting, and strategic planning.

2. Brief description of the target audience

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

Research audiences include government policymakers at the federal, state and municipal/county level, commodity groups, individual producers, and agricultural industries.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	25000	5000	10000
2007	27153	50000	5000	50000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	6	10	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	5	6

Output #2

Output Measure

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

Year	Target	Actual
2007	5000	5500

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Land Ownership Information Program: Number of African-American landowners who increased their knowledge of property rights and responsibilities.
2	Land Ownership Information Program: Number of African-American landowners who developed farm management plans.
3	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.
4	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.
5	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
6	Farm Financial Analysis and Planning: Number of farm families and rural business operators implementing improved record systems.
7	Farm Financial Analysis and Planning: Number of farm families who used FINPACK for developing and implementing whole farm plans.
8	Farm Financial Management: Number of farmers who increased their knowledge and skills in farm and financial planning.
9	Farm Financial Management: Number of farmers who developed financial plans for their farms.
10	Farm Fianncial Management: Number of farmers who increased their potential cash income from their farming operation.
11	Farm Fianncial Management: Amount (in dollars) that farmers increased their potential cash income from implementing a farm plan.
12	Tennessee's role in biomass to energy
13	Veterinary services in Tennessee
14	Impact of U.S. sod production industry
15	Diet, health, and nutrition studies
16	Agronomic crop studies

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	89

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

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. Associated Institution Types

•1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	600	33

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	465

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
607	Consumer Economics

Outcome #5

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	722

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
607	Consumer Economics

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	371

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
607	Consumer Economics

Outcome #7

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	152

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
601	Economics of Agricultural Production and Farm Management

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	1516

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
607	Consumer Economics

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	105

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
601	Economics of Agricultural Production and Farm Management

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
607	Consumer Economics

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150000	500065

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
607	Consumer Economics

Outcome #12

1. Outcome Measures

Tennessee's role in biomass to energy

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Research in biomass to energy is paying dividends as ethanol and biodiesel facilities have announced Tennessee plans.

What has been done

We assessed the biodiesel industry; in the last two years, Tennessee had less than ten facilities producing biodiesel, and 39 biodiesel stations. Capital costs are similar for various feedstock, but feedstock costs vary, and are the largest part of production costs. Per gallon biodiesel costs are about $2.98 (soybean oil), $1.67 (yellow grease), and $3.35 (canola oil) vs. about $1.56 (petroleum). We projected the impacts of a mature cellulosic industry. By 2025, Tennessee's economy might increase by $13 billion with the development of a reliable cellulosic feedstock and conversion to energy industry, providing 2.3 billion gallons of ethanol and nearly 40 billion kWh of electricity.

Results

The impact analysis of cellulosic ethanol helped secure $70 million in state funds to construct a pilot plant. The estimated economic impacts of the industry have been presented widely in 2007 and cited by industry, academics, President Bush, and presidential candidates. The information was used by groups like the 25x'25 organization to move a resolution through congress affirming the goal of 25% renewable energy by 2025.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices
610	Domestic Policy Analysis
608	Community Resource Planning and Development

Outcome #13

1. Outcome Measures

Veterinary services in Tennessee

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Tennessee livestock producers have expressed concern regarding access to veterinary services.

What has been done

We evaluated veterinary services in Tennessee. A study of livestock producers found that the majority did not have problems obtaining veterinary services. Commonly cited problems were a delay in obtaining services, only treating animals transported to the facility, and costs too expensive relative to the animal's value.

Results

Statewide financial impacts of lack of veterinary access for livestock producers are estimated at $9.5 million (<1% of sales). Problems seem more prevalent in certain counties. Scholarship programs for large- and food-animal veterinary students, relocation incentives, and greater availability of veterinary technicians were seen as effective ways to increase access. This analysis is being used in the legislature to link additional funding to areas in need.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
601	Economics of Agricultural Production and Farm Management
610	Domestic Policy Analysis

Outcome #14

1. Outcome Measures

Impact of U.S. sod production industry

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many problems in the nursery industry relate to economic and environmental constraints. Environmental constraints revolve around water and soil quality, weather related stresses, and aesthetic and biological requirements. Economic constraints include changing resources, costs (such as land, labor, and chemicals), and demand for landscape plants.

What has been done

Several regional studies were initiated to assess the importance of the Green Industry, including analyzing the horticulture industry and updating cost of production budgets for nursery growers.

Results

This research sought to conduct a comprehensive economic impact study of the U.S. sod production industry; impact values provide policy makers, nursery industry leaders, specialists, growers and others with specific, actionable information.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
604	Marketing and Distribution Practices
603	Market Economics
601	Economics of Agricultural Production and Farm Management

Outcome #15

1. Outcome Measures

Diet, health, and nutrition studies

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Important issues on American's diet, health, and nutrition are addressed in this project. The roles of consumer health and dietary knowledge in dietary behavior are crucial information and tools for policy makers. Also important are the impacts of Federal food and nutritional programs on health and nutrition of small children and on household food insecurity.

What has been done

We studied: 1) Knowledge of dietary fats among U.S. consumers. 2) Food programs and nutrition in small children. 3) FSP and food insecurity (FI). 4) Grain consumption in the U.S. Consumption was compared with the recommendations in the Government's 2005 Dietary Guidelines, using CSFII 1994-96 and 1998. 5) Smoking and obesity. 6) Nutritional label use and obesity. 7) Consumer knowledge and meat consumption. 8) Demand for cigarettes. 9) Lifestyle and obesity. 10) Demand for vegetables.

Results

This information provides policy makers, the consumers and, more importantly, the tax payers whether the expensive Federal programs are working, and whether they have the potential to continue working. National issues are Tennessee issues and therefore are of interest to state policy makers. Findings are useful for deliberations of educational messages, nutrition programs, food labeling, and other policy measures, and have important implications for American's health and nutritional well being.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
607	Consumer Economics
603	Market Economics

Outcome #16

1. Outcome Measures

Agronomic crop studies

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cotton and corn are major components of the U.S. agricultural system; biomass crops (like switchgrass) are of increasing importance.

What has been done

Our research focused on switchgrass optimal seeding, nitrogen rates, harvest and storage as well as an online nitrogen rate calculator for corn and a review of studies analyzing cotton fertility.

Results

The application of price data to our findings for switchgrass will enhance its competitiveness, farmers can increse their net returns on corn to up to $15 per acre, and cotton growers can reduce uncertainty about spray equipment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices
610	Domestic Policy Analysis
603	Market Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)

Brief Explanation

In 2007, Tennessee faced a drought of monumental proportions and temperature extremes. Warm March weather encouraged producers to plant corn earlier than normal, and freezing conditions in April damaged over 200,000 acres of corn which had to be replanted. Exceptional drought and heat plagued the rest of the growing season. With no water for crops, including forages, many beef and dairy producers downsized their operations. Many outcome targets in this planned program were not measured because Extension programs were constantly changing to address drought-related issues of plant diseases and livestock marketing.

V(I). 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)

Evaluation Results

Key Items of Evaluation

Program #10

V(A). Planned Program (Summary)

1. Name of the Planned Program

Health and Safety

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
205	Plant Management Systems	0%	0%	20%	
402	Engineering Systems and Equipment	0%	0%	10%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	4%	
404	Instrumentation and Control Systems	0%	0%	6%	
511	New and Improved Non-Food Products and Processes	0%	0%	10%	
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	20%	
723	Hazards to Human Health and Safety	0%	0%	10%	
724	Healthy Lifestyle	70%	70%	0%	
801	Individual and Family Resource Management	0%	0%	10%	
802	Human Development and Family Well-Being	0%	0%	4%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	0%	6%	
805	Community Institutions, Health, and Social Services	30%	30%	0%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	48.4	3.9	5.0	0.0
Actual	22.0	0.9	9.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
300079	78741	111927	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
966086	39371	490009	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
395306	14500	497562	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Dining with Diabetes iwas a three-session course offered throughout the state. This course was taught by Extension Family and Consumer Sciences Agents who coordinated with local health officials to target people with diabetes and/or thier caregivers.

Arthritis Self-Help is was delivered in six sessions. Each session was two-hours in length. Participants were provided with the book, The Arthritis Helpbook, written by Kate Lorig and James Fries. This evidence-based program was designed to increase the self-confidence of participants to manage their arthritis. It was delivered 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 included:

•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 also targeted arthritis sufferers. Extension offered this exercise instructional program to individuals throughtout the state. The program helped people to build strength, and it helped those with arthritis to reduce pain and increase mobility.

Homeland Security/Disaster Preparedness: Consumers, families and individuals were taught through various group meetings, visits and mass media. Key practices taught were disaster preparedness for family finances and food safety.

Our research efforts in the Health and Safety planned program focus on modeling and improving rollover safety for agricultural and lawn tractors, creating advanced cotton-surfaced, spun-bound materials for military and civilian protective uses, and implementing and disseminating adaptive technologies for disabled farmers.

2. Brief description of the target audience

The target audience was 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 target audiences for rollover research were farm producers and the general public, as well as tractor manufacturers and regulators.The military, emergency-response personnel, and government agencies will have an interest in our spun-bound work.Adaptive technology research is primarily of interest to farm producers, equipment manufacturers, and healthcare professionals.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	20000	40000	20000	40000
2007	32311	500000	32930	500000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	3	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	25	30

Output #2

Output Measure

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

Year	Target	Actual
2007	800	2387

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Disaster Preparedness for Family Finances: Number of participants surveyed who know to have cash stored in case of an emergency.
2	Disaster Preparedness for Family Finances: Number of participants surveyed who have now placed family records in a watertight, fire-proof container.
3	Disaster Preparedness for Family Finances: Number of participants surveyed now store cash in a safe place in case of an emergency.
4	Arthritis Self-Help Course: Number of participants surveyed who are taking their arthritis medication as prescribed by their doctor.
5	Disaster Preparedness for Family Finances: Number of participants who prepared to minimize impact of an emergency or disaster on their finances.
6	Disaster Preparedness for Food Safety: Number of participants surveyed who can identify the types of foods needed for an emergency food kit.
7	Arthritis Self-Help Course: Number of participants surveyed cab name the arthritis medications they are taking.
8	Disaster Preparedness for Food Safety: Number of participants surveyed who know how much food they need on hand in case of an emergency.
9	Arthritis Self-Help Course: Number of participants surveyed who do aerobic activities such as walking or swimming.
10	Disaster Preparedness for Food Safety: Number of participants surveyed know the amount of water they need on hand in case of an emergency.
11	Arthritis Self-Help Course: Number of participants surveyed who do flexibility exercises.
12	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.
13	Arthritis Self-Help Course: Number of participants surveyed who don't have pain from their arthritis.
14	Disaster Preparedness for Food Safety: Number of participants surveyed maintain an adequate supply of safe water incase of emergency.
15	Arthritis Self-Help Course: Number of participants surveyed who don't take arthritis medications.
16	Arthritis Self-Help Course: Number of participants surveyed who do strengthening exercises.
17	Arthritis Self-Help Course: Number of participants surveyed who eat healthy foods every day (such as fruits, vegetables, calcium-rich foods, water, and low-fat foods.)
18	Arthritis Self-Help Course: Number of participants surveyed who better as a result of this class.
19	Arthritis Self-Help Course: Number of participants surveyed who feel comfortable asking their doctor questions about their arthritis.
20	Arthritis Self-Help Course: Number of participants surveyed who have improved their mental health regarding difficult emotions (sadness, frustration and anger).
21	Arthritis Self-Help Course: Number of participants surveyed who have less pain from their arthritis.
22	Arthritis Self-Help Course: Number of participants surveyed who have less stiffness from their arthritis.
23	Arthritis Self-Help Course: Number of participants surveyed who keep a written record of all their medications to share with their doctors and pharmacist.
24	Arthritis Self-Help Course: Number of participants surveyed who take fewer medications for their arthritis pain.
25	Arthritis Self-Help Course: Number of participants surveyed who use relaxation techniques.
26	Dining with Diabetes: Number of participants surveyed who reduced weight.
27	Dining with Diabetes: Number of participants surveyed who reduced A1c.
28	Dining with Diabetes: Number of participants surveyed who reduced blood cholesterol.
29	Dining with Diabetes: Number of participants surveyed who reduced blood pressure.
30	Dining with Diabetes: Number of participants surveyed who reduced body mass index.
31	Dining with Diabetes: Number of participants surveyed who better manage their diabetes as a result of this program.
32	Dining with Diabetes: Number of participants surveyed who choose foods that fit their diabetic meal plan when eating away from home.

33	Dining with Diabetes: Number of participants surveyed who eat at least five servings of fruits and vegetables each day.
34	Dining with Diabetes: Number of participants surveyed who eat three meals a day.
35	Dining with Diabetes: Number of participants surveyed who eat three servings of low-fat dairy foods each day.
36	Dining with Diabetes: Number of participants surveyed who get a flu shot every fall.
37	Dining with Diabetes: Number of participants surveyed who gat an A1c test.
38	Dining with Diabetes: Number of participants surveyed who get an eye exam once a year.
39	Dining with Diabetes: Number of participants surveyed who get a physical exam once a year.
40	Dining with Diabetes: Number of participants surveyed who get a pneumonia shot if they never had one.
41	Dining with Diabetes: Number of participants surveyed who have a dental exam.
42	Dining with Diabetes: Number of participants surveyed who have a doctor check their feet.
43	Dining with Diabetes: Number of participants surveyed who share with their doctor any problems they are having with their diabetes.
44	Dining with Diabetes: Number of participants surveyed who take diabetes medication as instructed by a doctor or pharmacist.
45	Dining with Diabetes: Number of participants surveyed who now use artificial sweeteners.
46	Dining with Diabetes: Number of participants surveyed who use food labels to choose healthy foods.
47	Dining with Diabetes: Number of participants surveyed who use spices and other seasonings to cut back on fat, sugar, and salt.
48	Tai Chi: Number of participants surveyed who can do basic Tai Chi movements at home.
49	Tai Chi: Number of participants surveyed who continue doing the Tai Chi after the Tai Chi program ends.
50	Tai Chi: Number of participants surveyed who feel better as a result of Tai Chi.
51	Tai Chi: Number of participants surveyed who have less stiffness from their arthritis as a result of Tai Chi.
52	Tai Chi: Number of participants surveyed who have no pain from arthritis.
53	Tai Chi: Number of participants surveyed who improved balance.
54	Tai Chi: Number of participants surveyed who improved body posture.
55	Tai Chi: Number of participants surveyed who improved joint flexibility.
56	Tai Chi: Number of participants surveyed who now practice Tai Chi every day.
57	Adequate Rollover Protective Structure standards
58	Assisting disabled farmers
59	Better spun-bound non-woven fabrics

Outcome #1

1. Outcome Measures

Disaster Preparedness for Family Finances: Number of participants surveyed who know to have cash stored in case of an emergency.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	281

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #2

1. Outcome Measures

Disaster Preparedness for Family Finances: Number of participants surveyed who have now placed family records in a watertight, fire-proof container.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	183

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #3

1. Outcome Measures

Disaster Preparedness for Family Finances: Number of participants surveyed now store cash in a safe place in case of an emergency.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	157

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #4

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who are taking their arthritis medication as prescribed by their doctor.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	46

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #5

1. Outcome Measures

Disaster Preparedness for Family Finances: Number of participants who prepared to minimize impact of an emergency or disaster on their finances.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	122

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Measures

Disaster Preparedness for Food Safety: Number of participants surveyed who can identify the types of foods needed for an emergency food kit.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Measures
Arthritis Self-Help Course: Number of participants surveyed cab name the arthritis medications they are taking.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	68

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #8

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #9

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who do aerobic activities such as walking or swimming.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	59

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #10

1. Outcome Measures

Disaster Preparedness for Food Safety: Number of participants surveyed know the amount of water they need on hand in case of an emergency.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #11

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who do flexibility exercises.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	57

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

724	Healthy Lifestyle

Outcome #12

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2500	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #13

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who don't have pain from their arthritis.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	110

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #14

1. Outcome Measures

Disaster Preparedness for Food Safety: Number of participants surveyed maintain an adequate supply of safe water incase of emergency.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #15

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who don't take arthritis medications.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	33

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #16

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who do strengthening exercises.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #17

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who eat healthy foods every day (such as fruits, vegetables, calcium-rich foods, water, and low-fat foods.)

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #18

1. Outcome Measures
Arthritis Self-Help Course: Number of participants surveyed who better as a result of this class.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #19

1. Outcome Measures
Arthritis Self-Help Course: Number of participants surveyed who feel comfortable asking their doctor questions about their arthritis.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	64

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #20

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	58

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #21

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	174

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #22

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	554

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

724	Healthy Lifestyle

Outcome #23

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who keep a written record of all their medications to share with their doctors and pharmacist.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	59

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #24

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #25

1. Outcome Measures

Arthritis Self-Help Course: Number of participants surveyed who use relaxation techniques.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	67

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #26

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	150

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #27

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	97

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #28

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	97

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #29

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	109

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #30

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who reduced body mass index.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #31

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	268

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #32

1. Outcome Measures
Dining with Diabetes: Number of participants surveyed who choose foods that fit their diabetic meal plan when eating away from home.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	268

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #33

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	250

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #34

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	333

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #35

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	212

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

724	Healthy Lifestyle

Outcome #36

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who get a flu shot every fall.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	277

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #37

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	275

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #38

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who get an eye exam once a year.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	225

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #39

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who get a physical exam once a year.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	309

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #40

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who get a pneumonia shot if they never had one.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	125

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #41

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who have a dental exam.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	232

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #42

1. Outcome Measures
Dining with Diabetes: Number of participants surveyed who have a doctor check their feet.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	296

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #43

1. Outcome Measures
Dining with Diabetes: Number of participants surveyed who share with their doctor any problems they are having with their diabetes.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	318

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #44

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who take diabetes medication as instructed by a doctor or pharmacist.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #45

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	354

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #46

1. Outcome Measures

Dining with Diabetes: Number of participants surveyed who use food labels to choose healthy foods.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	328

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

724	Healthy Lifestyle

Outcome #47

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	355

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #48

1. Outcome Measures

Tai Chi: Number of participants surveyed who can do basic Tai Chi movements at home.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	434

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #49

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	411

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #50

1. Outcome Measures

Tai Chi: Number of participants surveyed who feel better as a result of Tai Chi.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	457

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #51

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	554

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #52

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	126

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #53

1. Outcome Measures

Tai Chi: Number of participants surveyed who improved balance.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	397

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #54

1. Outcome Measures

Tai Chi: Number of participants surveyed who improved body posture.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	347

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #55

1. Outcome Measures
Tai Chi: Number of participants surveyed who improved joint flexibility.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	407

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #56

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	241

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #57

1. Outcome Measures

Adequate Rollover Protective Structure standards

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Tractor and lawn tractor rollovers continue to claim the lives of their operators.

What has been done

We conducted rollover field tests on lawnmowers and revised the modeling component to accurately predict the continuous roll tendency.

Results

The ROPS height required for preventing continuous roll is much higher than the original model predicted and too high for practical application, so new standards are being developed to protect the operator during a roll instead.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
723	Hazards to Human Health and Safety
404	Instrumentation and Control Systems

Outcome #58

1. Outcome Measures

Assisting disabled farmers

2. Associated Institution Types

- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Modern farming is physically, emotionally, and economically challenging, especially for farmers with disabilities. Farmers and farm workers often do not obtain needed medical and rehabilitation services to aid in recovery and return to work due to a variety of factors.

What has been done

We educated and networked with agricultural and health professionals on potential solutions for farmers and farm workers with disabilities and provided direct assistance to disabled farm individuals.

Results

Farming clients report increased independence following implementation of Tennessee AgrAbility Project plans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
805	Community Institutions, Health, and Social Services
723	Hazards to Human Health and Safety
404	Instrumentation and Control Systems
402	Engineering Systems and Equipment

Outcome #59

1. Outcome Measures

Better spun-bound non-woven fabrics

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Innovations in textile materials and technologies can address the important issues that face the US, in terms of protecting public and healthcare personnel from the biological hazards. It can also protect people and property from fire hazards and provide better uniforms to the fire-fighters and first responders so they can perform their duties efficiently.

What has been done

We have improved breathable, cotton-surfaced spunbound nonwovens (CSNs) fabrics that can be adopted for military use.

Results

CSNs could increase the use of cotton and provide more comfortable and protective medical, industrial, and military apparel

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
805	Community Institutions, Health, and Social Services
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #11

V(A). Planned Program (Summary)

1. Name of the Planned Program

Horticultural Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	0%	0%	20%	
205	Plant Management Systems	0%	0%	26%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	0%	14%	
212	Pathogens and Nematodes Affecting Plants	0%	0%	16%	
213	Weeds Affecting Plants	0%	0%	6%	
216	Integrated Pest Management Systems	0%	0%	6%	
312	External Parasites and Pests of Animals	0%	0%	12%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	28.0	0.0
Actual	0.0	0.0	40.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	1023170	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	3628086	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	772463	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Variety evaluation of different vegetable crops and ornamentals was conducted to determine suitability to climate, soils and cultural practices for state producers. Yields, quality and market potential were evaluated to assess potential production by growers seeking additional crops or alternative crops.Experimental research was carried out to determine the effectiveness of various control technologies. New genetic cultivars of plants were developed from in-house breeding programs or, in some cases, finding naturally resistant populations of plants by searching the southeast U.S.

Research was conducted at TAES Research and Education Centers across Tennessee, and at selected farmer-cooperator locations in key areas of horticultural production in Tennessee. Substantial investments were made in 2007 on 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. Brief description of the target audience

Primary audiences are horticultural producers, farmers, landscaping contractors, and the public who purchase their goods and services.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2007	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	1

Patents listed

Use of herbs as a delivery system for bioactive phytochemicals. Gwinn, K., J. Green, and S. Hamilton. Application filed with U.S. Patent Office on July 15, 2003.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	10	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Horticultural workshops and conferences.

Year	Target	Actual
2007	4	4

Output #2

Output Measure

- Research results will be summarized in the annual Vegetable Initiative Report.

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Projected licenses for dogwood cultivars.
2	Target number of research laboratories using our reverse-genetic tool for Phytophthora gene function analysis.
3	Insects to metabolize biomass
4	Controlling Phytophthora
5	Bolstering insect molecular systematics
6	Integrated weed management tools

Outcome #1

1. Outcome Measures

Projected licenses for dogwood cultivars.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	45	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

Number of licensees was unavailable at the time of this report.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
204	Plant Product Quality and Utility (Preharvest)

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

Number of participating research laboratories was unavailable at the time of this report.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Measures

Insects to metabolize biomass

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

One of the areas of great interest in the production of cellulosic ethanol is the metabolism of the biomass cellulose and lignin.

What has been done

Preliminary field efforts to screen insects adapted to metabolizing cellulose and lignin has yielded replicated sets of more than 80 different species.

Results

Screening foliage-feeding and wood-boring insects' abilities to break down cellulose and lignin is expected to yield quantifiable measures of enzyme activity leading to potentially new research opportunities in biofuels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Controlling Phytophthora

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Members of the genus Phytophthora cause enormous damage to a wide variety of plants and due to their unique biology are very difficult to control.

What has been done

We routinely screen gene targets of approximately 1000 nucleotides in populations of both Phytophthora sojae and the vegetable pathogen P. capsici for chemically induced point mutations.

Results

Determining gene function for Phytophthora provides protection against the estimated $10 billion expenses caused by Phytophthora blight, preventative treatments, and quarantine activity in the U.S. annually.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #5

1. Outcome Measures

Bolstering insect molecular systematics

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The research proposed herein is an intensive effort to identify, implement, and characterize new nuclear markers for insect phylogenetic studies using true flies as model organisms.

What has been done

Oligonucleotides designed by the primary investigator successfully have been shown to amplify 500-1,000 base-pair portions of approximately three dozen slowly and rapidly evolving nuclear coding genes previously unavailable as genetic markers. Several novel nuclearly-encoded markers were discovered.

Results

The result of this body of work should enhance molecular-based diagnostic and phylogenetic research upon a myriad of organisms, particularly insects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
312	External Parasites and Pests of Animals
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #6

1. Outcome Measures

Integrated weed management tools

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Turfgrass is an important component of the agricultural component in the state of Tennessee. Herbicides are a vitally important component in the management of weeds in turfgrass systems.

What has been done

As of December 2007, all organic arsenicals have been cancelled for turfgrass usage. Research in 2007 focused on potential replacements for these herbicide classifications, such as Mesotrione from the plant-derived allelochemical, leptosperomone.

Results

New weed management options are safer and more effective than organic arsenical and triazine herbicides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Severe drought was a major factor this year -- impacting many of the research projects in the horticultural sector.

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #12

V(A). Planned Program (Summary)

1. Name of the Planned Program

Environmental and Water Quality Impacts

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%	0%	6%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	22%	
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	1%	
111	Conservation and Efficient Use of Water	0%	0%	1%	
112	Watershed Protection and Management	0%	0%	17%	
123	Management and Sustainability of Forest Resources	0%	0%	4%	
131	Alternative Uses of Land	0%	0%	6%	
132	Weather and Climate	0%	0%	4%	
133	Pollution Prevention and Mitigation	0%	0%	16%	
135	Aquatic and Terrestrial Wildlife	0%	0%	2%	
205	Plant Management Systems	0%	0%	1%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	8%	
601	Economics of Agricultural Production and Farm Management	0%	0%	1%	
603	Market Economics	0%	0%	1%	
604	Marketing and Distribution Practices	0%	0%	2%	
605	Natural Resource and Environmental Economics	0%	0%	6%	
901	Program and Project Design, and Statistics	0%	0%	2%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	0.0	0.0	30.0	0.0
Actual	0.0	0.0	40.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	1354482	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	2158471	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	631756	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Our research impacted the areas of reservoir management, hardwood restoration, fate and transport of pollutants in soil, livestock impact on watersheds, non-intrusive subsurface soil mapping, soil erosion prevention, watershed water quality protection approaches, enhanced rainfall data, mineralization of compounds in soil, urban planning, subsurface contamination, and the use of laser-induced breakdown spectroscopy in soils research.

2. Brief description of the target audience

Audiences for this research include the general public, government and industry managers, cooperating scientists, municipal planners, the construction industry, and many others.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	0	0	0	0
2007	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	16	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Internet management tool for nitrogen-fertilization decisions on corn to allow a direct evaluation of fertilization strategies (Tyler).

Year	Target	Actual
2007	{No Data Entered}	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	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	Reservoir and bottomland management
3	Mass transport and contaminant persistence in soil
4	Baseline environmental data for dairy operations
5	Moderating urban sprawl
6	Persistence and ecological impact of herbicides
7	Subsurface sewage disposal

Outcome #1

1. Outcome Measures

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. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	10000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Erosion by water profoundly influences agricultural, construction, and natural sites all over the world. Accurate, easy-to-use modeling tools can dramatically improve the management of these areas.

What has been done

This project is working to develop, improve, and evaluate watershed models and other approaches for TMDL development and implementation and to assess the potential ecological benefits/implications of TMDL implementations.

Results

Aided by researchers at Tennessee, the USDA-NRCS has completed implementation of the RUSLE2 soil erosion model in its 2500+ field offices throughout the U.S. and its territories and protectorates.

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics
112	Watershed Protection and Management

Outcome #2

1. Outcome Measures

Reservoir and bottomland management

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Tennessee valley reservoir and bottomland management impacts power generation, wildlife, recreational use, agricultural needs, and local residents.

What has been done

We found that drawing down Tennessee River Valley reservoirs after Labor Day instead of in mid-July does not provide mudflats for migratory shorebirds, and that randomly planting oak seedlings in a bottomland is not a prudent conservation strategy.

Results

TRV reservoirs should be drawn down sequentially, such that newly exposed mudflats are provided for migratory shorebirds from July through November, and oak seedlings should be planted along bottomland contours that correspond to species-specific flood tolerance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife
131	Alternative Uses of Land

Outcome #3

1. Outcome Measures

Mass transport and contaminant persistence in soil

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The heterogenity of soil makes accurate transport and fate predictions difficult. Better understanding, tools, and modeling are needed.

What has been done

We looked at how estrogen hormones from animal manures can travel through soil and affect aquatic species, and we have been developing a heat-pulse probe that meaures soil water content and flow, conductivity and thermal properties.

Results

Estrogen was observed to degrade rapidly in soil, and our heat-pulse probe is 50% more accurate than a current method for prediction of chemical distributions in soil.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
111	Conservation and Efficient Use of Water
133	Pollution Prevention and Mitigation
102	Soil, Plant, Water, Nutrient Relationships

Outcome #4

1. Outcome Measures

Baseline environmental data for dairy operations

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many animal impact studies start with already-compromised locations. Due to a relocation, we have had the opportunity to develop baseline data on a site before the introduction of a dairy herd.

What has been done

Data loggers and meauring and sampling devices have been installed at strategic water locations on UT property and an aquatic survey has been conducted to inventory fish and aquatic insect numbers.

Results

Animals are not present now, but the baseline data is now available for when animals are introduced.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
135	Aquatic and Terrestrial Wildlife
133	Pollution Prevention and Mitigation
131	Alternative Uses of Land
112	Watershed Protection and Management
101	Appraisal of Soil Resources

Outcome #5

1. Outcome Measures

Moderating urban sprawl

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Well-planned urban development is important, but requires tools and strategies for guidance and measurement.

What has been done

The relationships between lot size as a controllable policy tool, open-space demand, and distance to the central business district as a measure of spatial growth of communities were used to develop a strategy to moderate urban sprawl.

Results

Estimates of the value of proximity to water bodies and parks should prove useful to protect open space, and the relative values of residential lot size and open space are essential to policy decisions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
131	Alternative Uses of Land
605	Natural Resource and Environmental Economics
112	Watershed Protection and Management

Outcome #6

1. Outcome Measures

Persistence and ecological impact of herbicides

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Herbicides are a mainstay of U.S. agriculture, but concerns remain about their persistence and impact offsite, and over time.

What has been done

BioSep beads are a suitable matrix for recruiting a highly diverse subset of the bacterial community involved in atrazine degradation. We monitored shifts in microbial community structure due to in situ enrichment.

Results

This research will result in an improved ability to assess the persistence and ecological impact of these economically important herbicides such as atrazine.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
101	Appraisal of Soil Resources
112	Watershed Protection and Management
403	Waste Disposal, Recycling, and Reuse

Outcome #7

1. Outcome Measures

Subsurface sewage disposal

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

An extensive review of Tennessee's subsurface sewage disposal rules found many inconsistencies in the loading rates assigned to various disposal field products. Regulations need to provide a soil-based loading rate.

Results

On December 7, 2007, the Tennessee Department of Environment and Conservation's Division of Ground Water Protection announced a series of public hearings concerning rule-changes for subsurface sewage disposal.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
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101	Appraisal of Soil Resources
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V(H). Planned Program (External Factors)

External factors which affected outcomes

- Public Policy changes
- Competing Public priorities

Brief Explanation

Perhaps more than other planned programs, environmental and water quality research is affected by public outcry and governmental regulation and directives.

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

1. Evaluation Studies Planned

- Before-After (before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}