2007 Tennessee State University Research Annual Report

Status: Accepted
Date Accepted: 06/02/08

2007 Tennessee State University Research Annual Report

I. Report Overview

1. Executive Summary

This report consists of the FY 2007 results and accomplishments of the Tennessee State University Institute of Agricultural and Environmental Research.
The Institute of Agricultural and Environmental Research (IAgER) is the principal agricultural and environmental research center at Tennessee State University (TSU). Prior to 2003, IAgER was known as the Cooperative Agricultural Research Program (CARP) and was situated in the Division of Academic Affairs at TSU. By becoming a research institute in 2002, IAgER, unlike its predecessor CARP, assumed a broader research role to include the environmental sciences as they interface with agriculture, and other emerging frontiers with promises for the agricultural sector. This broader research role meant developing and expanding partnership beyond the School of Agriculture and Consumer Sciences at TSU to the Colleges of Engineering (environmental engineering), Arts and Sciences (biological sciences) and Health Sciences (public health to the extent of including human nutrition and food safety).

The mission of IAgER is to generate new scientific knowledge in the agricultural and environmental sciences for the prosperity of the citizens of Tennessee, the nation and the world. As a vision, IAgER aspires to be synonymous to excellence and a place of destination for scientific inquiry in the fields of agricultural and environmental sciences

To fulfill its mission and achieve its vision, IAgER is organized around research themes of State, National, and International significance. These research themes include (1) introduction of alternative livestock; (2) enhancement and introduction of specialty crop; (3) enhancement of food safety and nutrition for disadvantaged populations; (4) enhancing the potential of agricultural and other plant material for bioenergy production and (5) developing methods for enhancing food security and agricultural biosecurity.

The research infrastructure in IAgER consists of excellent facilities on the main campus of Tennessee State University and a state-of-the-art 20,000 sq. ft. Otis Floyd Nursery Research Center in McMinnville, Tennessee. Research in IAgER is organized into seven multidisciplinary research teams: (1) Agricultural Biosecurity; (2) Animal and Alternative Livestock; (3) Bioenergy; (4) Economics and Policy; (5) Environmental Protection and Enhancement; (6) Food Safety, Nutrition and Family Well-Being; and (7) Nursery, Medicinal, and Alternative Food Crops – Specialty crops.

IAgER is staffed by dedicated faculty and staff who have received their education and training from many of the best institutions and training centers in the United States and in several countries around the world. This group of individuals strives each day to advance the agricultural and environmental research at Tennessee State University and make a positive difference in our society.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	59.8
Actual	0.0	0.0	0.0	57.7

II. Merit Review Process

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

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

2. Brief Explanation

Each Planned Program in this Plan of Work was approved by separate external and internal review panels.These panels were composed of agricultural research administrators in the 1890 University system. Potential Planned Programs were evaluated for relevance, scientific soundness, and appropriateness of planned outcomes. Only those proposed programs that were approved by both panels were developed into Planned Programs.

A number of strategies have been developed to guarantee that approved programs are periodically reviewed to ensure they are meeting goals and remaining relevant:

•Prior to the initiation of IAgER projects/programs, researchers/research teams initiate and document contact with appropriate stakeholders, i.e., government agencies, community groups/representatives, professional organizations, extension personnel, or industry groups, to identify and prioritize critical needs. •Periodically during, and upon completion, of IAgER projects/programs researchers/research teams initiate and document contact with appropriate stakeholders to evaluate the degree of program/projectsuccess.

•An administrator within the Institute of Agricultural and Environmental Research has been appointed to meet with every project leader semiannually to monitor the progress of the planned programs. If the program is not progressing as planned, appropriate remedial steps are initiated.

We feel that these procedures will contribute significantly to ensuring the Planned Programs will be executed completely and with maximum benefit to stakeholders.

III. Stakeholder Input

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

- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals

Brief Explanation

When appropriate to the project, either community groups, industry associations or individual stakeholders were contacted and solicited for participation.For example, in projects that have clientele who are low income and have young children, agencies such as Head Start, Habitat for Humanity, and Good Food for Good People were involved.In programs where needs were more commodity-based, trade organizations (i.e. Tennessee Nursery and Landscape Association, Tennessee Goat Producers Association, Guinea Fowl Breeders Association) were contacted and utilized for input and direction. In other cases, individuals were contacted and participation was requested.For much of the research in the area of nursery plants, periodic meetings meetings were held with a Nursery Advisory Group that is maintained by the University.

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
- Use Surveys

Brief Explanation

The methods used for identifying stakeholders depends upon the program.We try to identify stakeholders in a manner that will lead to the most useful and accurate feedback about stakeholder concerns as possible.Groups that serve the stakeholders (community based groups) or groups that represent stakeholders (industry and trade associations) were a primary source of input.Individuals are utilized where there are no associated groups representing the program area, or when an opportunity for face-to-face interaction (i.e. at an association meeting,field site visit, or community event) is presented.In these cases, individuals involved the program outputs are identified and queried for input.

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
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals

Brief Explanation

Most stakeholder input is collected in either face-to-face discussions or via survey instruments.Each of these methods is effective.The face-to-face discussions are often held with community group or trade association representatives, or with individual stakeholders in a group setting, this allows for questions answers to direct and stimulate discussion of areas of importance to stakeholders.Survey instruments are a useful tool to assess information from broader groups of stakeholders.While some stakeholders prefer the anonymity and brevity of a survey instrument (often resulting in increased participation), the survey instrument does not allow for discussion of previously unrecognized areas of concern.

3. A statement of how the input was considered

- To Identify Emerging Issues
- Redirect Research Programs
- To Set Priorities
- Other (Effective means to communicate research results)

Brief Explanation

Stakeholder input is used on many levels in research projects.It is used to determine priority areas of research, how research is conducted, and how research results are communicated.

Brief Explanation of what you learned from your Stakeholders

As one would expect, most examples of items learned from stakeholders were project-specific. In environmental sciences research, there was a clear desire from agricultural producers in the nursery sector to develop pesticide application methodologies that utilize significantly less water than those presently recommended/required by various USDA agencies.This issue had not previously been an issue with stakeholders and thus not considered in our research in this area.The reason for desire to use less water in pesticide application was monetary - decreases in the amount of water used decreases fuel and labor costs.In addition, it was learned that routine application of nutrients by nursery producers was no longer a typical a practice; thus affecting nutrient loading calculations in watershed research.

Another example of unexpected, yet useful feedback from stakeholders was in the areas of communication and information dissemination.In our human nutrition family cohesiveness research, comments from stakeholders changed the way questions were asked, brochures were designed, and phraseology used.Stakeholders apprised researchers of relative levels of literacy and English comprehension of end users of the research and suggested alternative means of communicating information.Stakeholders also helped researchers communicate conclusions and recommendations in a manner culturally acceptable to the target audiences.

IV. Expenditure Summary

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	2611665

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	0	0	2386665
Actual Matching	0	0	0	2805232
Actual All Other	0	0	0	0
Total Actual Expended	0	0	0	5191897

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	0	0	0	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Development of treatments to manage quarantine insects in field nursery production
2	Developing a recombinant antibody-based biosensor for rapid detection of salmonella in foods
3	Controlling imported fire ants in the nursery industry using behavior modifying chemicals
4	Management strategies to improve meat goat and guinea fowl production
5	Evaluation of pathogen infectivity in stressed plants.
6	Evaluation of poinsettias and seasonal alternative crops for production in Tennessee
7	Assessment of nutrients in the Collins River basin
8	Molecular approaches for the study of leaf surface microorganisms in ornamental crops
9	Analyzing the green industry and related sub-sectors in Tennessee: challenges and prospects
10	Reducing the costs of food borne illnesses to small producers, selected food handlers and consumers
11	Biopesticides to control diseases and insects and improve water quality from container nursery stock
12	Evaluation of agricultural production on water resources and determination of mitigation strategies
13	Reducing risk of food borne illness by characterizing food pathogens and risky consumer practices
14	Pathology research to benefit the Tennessee nursery industry
15	Evaluating strategies to promote the goat meat industry in Tennessee
16	Nutritional and management strategies to improve growth and production performance of guinea fowl
17	Improving families through improved nutrition and well-being of limited resource households
18	Molecular and whole-plant evaluations of selected herbaceous plants
19	Impact of the tobacco buyout program and strategies to promote economic viability of small farmers
20	Functional studies on cold and heat–regulated genes using tomato as a model plant
21	Germplasm collection and evaluation of Goldenseal clones with superior properties

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Development of treatments to manage quarantine insects in field nursery production

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
211	Insects, Mites, and Other Arthropods Affecting Plants				100%
	Total				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	0.0	4.5
Actual	0.0	0.0	0.0	4.0

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	0	165453
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	125795
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research experiments will be conducted with labeled and experimental insecticide compounds that will lead to new or improved fire ant and Japanese beetle quarantine treatments for field nursery plants. The research will be used to expand grower options in the Federal Imported Fire Ant Quarantine and the U.S. Domestic Japanese Beetle Harmonization Plan. The TSU Entomology Program will partner with USDA-ARS and USDA-APHIS collaborators to achieve these outcomes.

2. Brief description of the target audience

Nursery producers and policy makers (i.e., regulatory entities involved with decision making on quarantine treatment approval).Pesticide and chemical manufacturers.

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	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Refereed publications pertaining to research findings

Year	Target	Actual
2007	0	3

Output #2

Output Measure

- New techniques for control of Japanese beetle and imported fire ant

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Numerical increase in grower awareness via educational talks
2	Number of educational trade articles to increase grower awareness
3	Number of refereed manuscripts produced
4	Development of an improved treatment method for Japanese beetle and imported fire ant
5	Approval of new insecticides or lower rates of existing insecticides in Fire Ant and Japanese Beetle quarantines
6	Insecticide label changes based on research

Outcome #1

1. Outcome Measures

Numerical increase in grower awareness via educational talks

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	390

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Imported fire ants are a serious pest causing multiple negative impacts to agricultural producers (e.g., quarantines, damage to electrical systems, livestock injury, harvesting equipment damage) and the general public (e.g., threat to human health, road damage, electrical system damage, recreational impacts, loss of wildlife and ecosystem diversity).

What has been done

Imported fire ant management and new control techniques were presented to agricultural audiences that included nursery growers, landscapers, turf growers, and IR-4 Project scientists. Some general public attendees were also present at these presentations. The total estimated number of people receiving educational talks was about 400 during 2007.

Results

Nursery growers, landscapers, and turf producers were given the latest treatment techniques for managing imported fire ants. The relative costs for different treatment techniques were compared to allow stakeholders to make informed decisions that will improve the productivity of their agricultural businesses. Safety issues for handling agrochemicals were also addressed to enhance the safety and quality of life for agricultural workers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #2

1. Outcome Measures

Number of educational trade articles to increase grower awareness

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The occurrence of imported fire ants and Japanese beetle in an area can result in nursery quarantines, which impact the ability of nurseries and sod producers to ship their products.

What has been done

An annual report of research activities and results has been prepared and publicly posted on a USDA-APHIS website.

Results

Multiple insecticides were evaluated as field-grown balled and bulapped nursery stock treatments. Insecticides that demonstrated promise for imported fire ant quarantine control when applied as drenches included bifenthrin and chlorpyrifos. Rotation of root balls enhanced the efficacy of drench treatments and may allow a reduction in the total number of drenches required. Information is now publicly available in an internet summary report.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #3

1. Outcome Measures

Number of refereed manuscripts produced

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Imported fire ants and Japanese beetle are important quarantine pests that impact the ability of commercial nurseries and sod farms to trade their products.

What has been done

Research has been published that will add to the body of knowledge to reduce the threat of fire ants to the US agricultural sector.

The following refereed manuscripts were published in 2007:
Oliver, J.B., Reding, M.E., Klein, M.G., Youssef, N.N., Mannion, C.M., Bishop, B., James, S.S., and Callcott, A. 2007. Chlorpyrifos immersion to eliminate third instars of Japanese beetle (Coleoptera: Scarabaeidae) in balled and burlapped trees and subsequent treatment effects on red maple. J. Econ. Entomol. 100: 307-314.

Mmbaga, M.T., and Oliver, J.B.. 2007. Effect of biopesticides on foliar diseases and Japanese beetle (Popillia japonica) in roses (Rosa spp.), oakleaf hydrangea (Hydrangea quercifolia) and crape myrtle (Lagerstroemia indica). Arboriculture and Urban Forestry. 33: 210-219.

Valles, S.M., Strong, C.A., Oi, D.H., Porter, S.D., Pereira, R.M., Vander Meer, R.K., Hashimoto, Y., Hooper-Bui, L.M., Sanchez-Arroyo, H., Davis, T., Karpakakunjaram, V., Vail, K.M., Graham, L.C., Briano, J.A., Calcaterra, L.A., Gilbert, L.E., Ward, R., Ward, K., Oliver, J.B., Taniguchi, G., and Thompson, D.C. 2007. Phenology, distribution, and host specificity of Solenopsis invicta virus. J. Invert. Path. 96: 18-27.

Results

The chlorpyrifos immersion manuscript recommends a chlorpyrifos rate reduction for balled and burlapped plant dips eight times lower than currently required in the U.S. Domestic Japanese Beetle Harmonization Plan. The biopesticide manuscript reports that kaolin clay was as effective as carbaryl in the management of adult Japanese beetle feeding damage on several ornamental crops. It also reports effective biopesticide treatments for ornamental pathogens. The Solenopsis invicta virus manuscript reports the first finding of a new potential fire ant biological control agent (SINV-1A virus) in the state of Tennessee, as well as the distribution of the virus in multiple southern states.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #4

1. Outcome Measures

Development of an improved treatment method for Japanese beetle and imported fire ant

2. Associated Institution Types

•1890 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)

The current quarantine methods approved for the management of Japanese beetle larvae and imported fire ants in field-grown nurseries are labor intensive, expensive, hazardous, and impractical for treating large quantities of nursery plants.

What has been done

No new techniques have been developed at this time because the project has just begun and research is on going. However, phorid-decapitating flies, which parasitize the worker caste of imported fire ants, have been released in Davidson and Williamson Counties during 2006 and 2007, respectively. The 2006 and 2007 releases were a new species (Pseudacteon tricuspis) and a new biotype (Pseudacteon curvatus Formosan biotype) not presently established in Tennessee.

Results

We anticipate the development of a new drench treatment that will reduce the number of consecutive drenches required by the Federal Imported Fire Ant Quarantine. We have not confirmed establishment of phorid flies in Davidson and Williamson Counties. However, it is hoped these flies will provide region-wide suppression of imported fire ants once established, which will provide a no-cost reduction in fire ants for nursery and sod growers (as well as the general public). Therefore, phorid flies can be considered another potential treatment method that may already be established in the state of Tennessee.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #5

1. Outcome Measures

Approval of new insecticides or lower rates of existing insecticides in Fire Ant and Japanese Beetle quarantines

2. Associated Institution Types

•1890 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)

The Federal Imported Fire Ant Quarantine has only one approved insecticide (i.e., chlorpyrifos) for treating field-grown nursery stock. In addition, chlorpyrifos is the only insecticide approved for post-harvest treatment of field-grown nursery stock for Japanese beetle. Chlorpyrifos has been under increased regulatory scrutiny recently, including an Environmental Protection Agency petition to ban all label registrations in December 2007. If this product is removed from the market, it will jeopardize the ability of both nursery and sod producers to comply with existing quarantine requirements. Nursery markets could be lost.

What has been done

No new insecticides or lower rates have been approved at this time because the project has just begun and research is on going. However, data has been submitted to the U.S. Domestic Japanese Beetle Harmonization Plan Regulatory Treatment Review Committee in support of a new reduced chlorpyrifos rate for root ball dipping.

Results

If the new chlorpyrifos rate is approved, it will be eight times lower than the current rate requirement. The lower chlorpyrifos rate will reduce grower costs, lessen environmental contamination, increase the likelihood of Environmental Protection Agency retention of chlorpyrifos use, and lower worker exposure hazard.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #6

1. Outcome Measures

Insecticide label changes based on research

2. Associated Institution Types

•1890 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)

Chlorpyrifos is the only insecticide approved for use in the Federal Imported Fire Ant Quarantine for nursery stock treatment. If this chemical is lost, it will jeopardize the ability of nursery growers and sod producers to certify their products for shipment. In addition, chlorpyrifos use only allows a 30 to 84 day certification period depending on whether it is applied as a dip, drench, or pre-harvest broadcast. A 30 to 84 day certification period is too short to be practical for current field-grown nursery production systems.

What has been done

No insecticide label changes have been developed for this project at this time because the project has just begun and research is on-going. However, support data has been submitted to FMC Corporation for a new bifenthrin dip label. The label change is pending with the Environmental Protection Agency.

Results

The bifenthrin dip label that is pending will offer a six-month fire ant certification period for growers, which will be a major improvement over the current 30-day certification offered by chlorpyrifos. In addition, approval of the new dip label will allow dip certification against Japanese beetle grubs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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 #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Developing a recombinant antibody-based biosensor for rapid detection of salmonella in foods

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins				100%
	Total				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	0.0	1.8
Actual	0.0	0.0	0.0	2.1

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	0	86863
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	66042
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct laboratory experiments to develop a biosensor.

Conduct field trials to evaluate the biosensor.

Transfer the developed technology to end users.

2. Brief description of the target audience

The sensor and analytical protocol developed in this project can be adapted as a rapid detection method by meat and poultry processors.

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	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Commercializable diagnostic assay for rapid detection of Salmonella in food.

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Publications relating to rapid detection of Salmonella in foods

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Scientific publications concerning rapid detection of Salmonella in foods
2	New technologies developed to detect Salmonella in foods
3	Transfer of new Salmonella detection procedures to commercial food industry

Outcome #1

1. Outcome Measures

Scientific publications concerning rapid detection of Salmonella in foods

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Traditional methods for the detection of Salmonella are time consuming. The rapid method developed through this research will reduce labor and time of analysis for meat and poultry processors and thus reduce the risk to consumers.

What has been done

Experiments were conducted to evaluate performance of a rapid detection method using a sensor platform. The project findings were presented to food industry scientists and representatives at the Institute of Food Technologists/IFT Annual Meeting.

Results

The sensor was able to specifically detect S. typhimurium in the coexistence of non-pathogenic microorganisms.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

New technologies developed to detect Salmonella in foods

2. Associated Institution Types

•1890 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)

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

Outcome #3

1. Outcome Measures

Transfer of new Salmonella detection procedures to commercial food industry

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
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
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

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

Controlling imported fire ants in the nursery industry using behavior modifying chemicals

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
211	Insects, Mites, and Other Arthropods Affecting Plants				100%
	Total				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	0.0	2.5
Actual	0.0	0.0	0.0	3.5

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	0	144772
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	1100710
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The research proposed under this project will identify compounds useful in keeping fire ants out of nursery plants that are being held for shipment as well as from areas where they are a nuisance and where it is not practical to use conventional insecticides because of health and environmental concerns.

2. Brief description of the target audience

Nursery producers, schools, parks and recreational facilities, nursing homes.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications describing the isolation, characterization and efficacy of behavior modifying chemicals in fire ant.

Year	Target	Actual
2007	1	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Increase in number of growers with increased awareness of issue
2	Percentage of nurseries adopting control strategies using newly discovered chemicals

Outcome #1

1. Outcome Measures

Increase in number of growers with increased awareness of issue

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Control of imported fire ant is important for the agricultural industries of Tennessee and for public well-being. Species specific imported fire ant attractants/repellents will target fire ant without adversely impacting native ant species and beneficial insects.

What has been done

Poisson and Dufours glands been extracted from red, black and hybrid fire ant species. Analysis of the glands has been completed.

Results

Laboratory assays have shown that Poisson gland extracts of red imported fire ants is species-specific. Field evaluation of the extracts are underway. Communication of results to growers will commence when field analysis is completed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #2

1. Outcome Measures

Percentage of nurseries adopting control strategies using newly discovered chemicals

2. Associated Institution Types

•1890 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)

Control of imported fire ant is important for the agricultural industries of Tennessee and for public well-being. Species specific imported fire ant attractants/repellents will target fire ant without adversely impacting native ant species and beneficial insects.

What has been done

Poisson and Dufours glands been extracted from red, black and hybrid fire ant species. Analysis of the glands has been completed.

Results

Laboratory assays have shown that Poisson gland extracts of red imported fire ants is species-specific. Field evaluation of the extracts are underway. Communication of results to growers will commence when field analysis is completed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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 #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Management strategies to improve meat goat and guinea fowl production

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
302	Nutrient Utilization in Animals				20%
303	Genetic Improvement of Animals				20%
304	Animal Genome				60%
	Total				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	0.0	3.9
Actual	0.0	0.0	0.0	4.3

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	0	177862
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	135230
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Generate a cDNA library for the guinea fowl. Develop chicken, guinea fowl and meat goat genetic resource populations. Use microArray to identify adipose specific transcriptome. Evaluate concentrate supplementation options for meat goat performance.

2. Brief description of the target audience

Meat goat industry, poultry industry, small farmers, scientific community, Extension specialists.

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	6	6

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Evaluation of livestock management techniques for economic feasibility

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Development of chicken, Guinea fowl and meat goat genetic resource populations

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- Construction of cDNA library for Guinea fowl

Year	Target	Actual
2007	0	1

Output #4

Output Measure

- Scientific publications relating to management strategies to improve meat goat and guinea fowl production

Year	Target	Actual
2007	0	6

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of adipose-specific genes identified
2	Percentage of overall reduction in fat deposition
3	Number of birds examined in genetic resource population
4	Number of meat goats screened for genetic markers

Outcome #1

1. Outcome Measures

Number of adipose-specific genes identified

2. Associated Institution Types

•1890 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)

Excessive fat deposition in poultry reduces feed efficiency, increases costs of production and excess carcass fat is a liability to the consumer.

What has been done

cDNA libraries of the liver and adipose tissues were constructed and sequenced. Chicken genome structural variations were also studied or isolated.

Results

Structural variation in 14 gene loci have been identified in chromosomes 1,2,4,5,6,8 and Z of chickens . At least 5 of these loci have sequences that code for proteins. About 100 gene sequences have been characterized from the liver of Guinea fowl.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
304	Animal Genome

Outcome #2

1. Outcome Measures

Percentage of overall reduction in fat deposition

2. Associated Institution Types

•1890 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)

Excessive fat deposition in poultry is a liability to the consumer and producer.

What has been done

Two pureline populations of chicken divergent in fat deposition have been established These purelines will be used to generate the reference population

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
304	Animal Genome

Outcome #3

1. Outcome Measures

Number of birds examined in genetic resource population

2. Associated Institution Types

•1890 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)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
304	Animal Genome

Outcome #4

1. Outcome Measures

Number of meat goats screened for genetic markers

2. Associated Institution Types

•1890 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)

Internal parasites continue to be a challenge to meat goat production

What has been done

Blood samples from a reference population have been obtained. Analysis has not been completed.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
304	Animal Genome

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Evaluation of pathogen infectivity in stressed plants.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant				30%
212	Pathogens and Nematodes Affecting Plants				50%
216	Integrated Pest Management Systems				20%
	Total				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	0.0	1.9
Actual	0.0	0.0	0.0	2.2

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	0	90999
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	69187
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research in the molecular response of plants to stress and subsequent pathogen establishment.
Development of techniques to mitigate the exploitation of plant stress proteins by plants.
Strategize implication of host stress in pest management practices.

2. Brief description of the target audience

Plant pest management researchers and agricultural 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	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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Techniques for inducing, detecting, and exploiting stress related proteins in plant disease resistance research

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Scientific publications concerning pathogen infectivity in stress induced plants

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of integrated stress management and disease prevention strategies developed
2	Number of molecular mechanisms for plant stress identified
3	Number of stress and disease resistant plants developed
4	Number of additional growers aware of issue

Outcome #1

1. Outcome Measures

Number of integrated stress management and disease prevention strategies developed

2. Associated Institution Types

•1890 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)

Potato (Solanum spp.) the target species of this research is the fourth most important food crop in the world. As such, any improvements in the the ability to reduce yield losses in a sustainable manner are important. The integrated pest management strategies being examined in this project are sustainable.

What has been done

Infectivity analyses are being conducted for three pathogens on stressed and non-stressed Solanum plants. This work is being performed among collaborators at Tennessee State University, University of Idaho, and North Dakota State Univesity.

Results

Research is in progress.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant

Outcome #2

1. Outcome Measures

Number of molecular mechanisms for plant stress identified

2. Associated Institution Types

•1890 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)

Knowledge of the nexus between stress and infectivity would be of great benefit in the development of stress resistant plants. The identification of these components at a molecular level will lead to a better understanding to the processes and speed the identification of plants with superior abilities to resist pests.

What has been done

Molecular analysis of stressed and non-stressed plants challenged with three soft-rot bacteria are being conducted.

Results

Infectivity data are currently being collected for 'Norchip' (heat resistant) and 'Atlantic' (heat sensitive) varieties of Solanum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Number of stress and disease resistant plants developed

2. Associated Institution Types

•1890 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)

Development of sustainable improvements in yield are improtant for the portion fo the world's population that utilizes Solanum as a food source. This research will lead to development of plants with improved resistance to stresses, thus improving yield.

What has been done

Data collected from other research in this project will be used to develop improved varieties.

Results

Activities not at this stage yet.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Number of additional growers aware of issue

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Completion of the project will aid in the development of integrated pest management strategies and disease resistant plants. Thus the stakeholders who adopt and use these methods would benefit the production of potato and other crops

What has been done

At the time of reporting, presentations are being prepared for The Biotechnology Institute and Potato Association of America.

Results

It is expected that information will be communicated to approximately 50 stakeholders at above-referenced meetings.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes

Brief Explanation

The project was initiated in during 2007 and all the activity had been focused on generating data for subsequent communication to stakeholders.Therefore,research results have not yet been available for presentations to growers, scientists and pest-managers.

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #6

V(A). Planned Program (Summary)

1. Name of the Planned Program

Evaluation of poinsettias and seasonal alternative crops for production in Tennessee

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
202	Plant Genetic Resources				50%
205	Plant Management Systems				25%
211	Insects, Mites, and Other Arthropods Affecting Plants				25%
	Total				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	0.0	2.3
Actual	0.0	0.0	0.0	2.3

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	0	136499
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	103781
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct greenhouse trials of a range of poinsettia cultivars and other seasonal crops. Partner with major U.S. suppliers. Provide training to growers, industry customer reps, and homeowners. Conduct poinsettia open house at which consumer preferences will be surveyed.Generate production and marketing information on new and established poinsettia cultivars as well as alternative seasonal crops.

2. Brief description of the target audience

Crop producers, plant breeders, retailers and marketers of ornamental plants, extension agents, homeowners

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications concerning traditional and novelty poinsettias and marketing trends with poinsettias and seasonal crops.

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Number of students receiving training in seasonal crop production and marketing

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Publications concerning traditional and novelty poinsettias and marketing trends with poinsettias and seasonal crops.
2	Number of cultivars of seasonal crops evaluated
3	Number of participants in consumer preference analysis
4	Number of students receiving training in seasonal crop production and marketing

Outcome #1

1. Outcome Measures

Publications concerning traditional and novelty poinsettias and marketing trends with poinsettias and seasonal crops.

2. Associated Institution Types

•1890 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)

Poinsettia is a leading seasonal greenhouse crop. Each year many new varieties of Poinsettia are introduced. For producers, or potential producers, to make wise choices about the best variety to produce in their area, they need information on consumer preference and technical production information.

What has been done

Publications for producer-oriented audiences are being prepared

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #2

1. Outcome Measures

Number of cultivars of seasonal crops evaluated

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	30	44

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poinsettia is a leading seasonal greenhouse crop. Each year many new varieties of Poinsettia are introduced. For producers, or potential producers, to make wise choices about the best variety to produce in their area, they need information on consumer preference and technical production information.

What has been done

New and established varieties of poinsettia were propagated and grown to finish. A poinsettia field day was held for general public and greenhouse professionals to rate varietal preference. These data were combined with production data.

Results

Consumer and producer preference data were communicated to the producer community via trade publication outlets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #3

1. Outcome Measures

Number of participants in consumer preference analysis

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	253

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poinsettia is a leading seasonal greenhouse crop. Each year many new varieties of Poinsettia are introduced. For producers, or potential producers, to make wise choices about the best variety to produce in their area, they need information on consumer preference. A menas ot gauge this consumer preference is to have consumers rate a representative variety of poinsettia cultivars for preferred color, stature, etc.

What has been done

New and established varieties of poinsettia were propagated and grown to finish. A poinsettia field day was held for general public and greenhouse professionals to rate varietal preference. These data were combined with production data.

Results

Over 200 persons attended the field day. A high proportion filled out consumer preference surveys. The information has been summarized and conveyed via trade publications.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Number of students receiving training in seasonal crop production and marketing

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is important to train the next generation of agricultural scientists. One aspect of this training is hands-on experential learning.

What has been done

An undergraduate student was hired to work on this project, the student participated all aspects of the project: varietal selection, plant propagation and maintenance staging of the field day and tabulation of data.

Results

An undergraduate student received hands-on experiential learning opportunity in greenhouse crop management and consumer preference analysis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The Project Director for this project has left the employment of the university and a successor has not been hired.It has not been determined at this time if the project will continue.

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

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #7

V(A). Planned Program (Summary)

1. Name of the Planned Program

Assessment of nutrients in the Collins River basin

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				100%
	Total				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	0.0	2.6
Actual	0.0	0.0	0.0	3.0

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	0	124090
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	94346
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Characterize watershed. Assess soil and water quality. Provide experiential learning opportunities to TSU students. Communicate research findings to appropriate scientific and stakeholder groups.

2. Brief description of the target audience

Nursery and other agricultural producers. Fertilizer producers. Regulatory and watchdog agencies.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications pertaining to water quality measurement techniques and watershed analysis results

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Development of water quality analysis techniques

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of nursery producers with increased awareness of problem/situation
2	Number of water bodies removed from 303(d) list
3	Number of agricultural producers per year developing a nutrient management plan
4	Number of students per year gaining experiential learning in water quality analysis

Outcome #1

1. Outcome Measures

Number of nursery producers with increased awareness of problem/situation

2. Associated Institution Types

•1890 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)

many nursery crop growers are not aware of the impact of their fertilizer and lime management practices on surface water. As a result of this issue, residents and water managers that live in the Collins River watershed, and the State regulatory agency (Tennessee Department of Environment & Conservation) care about this issue because of the possible effects of nursery crop production on the water quality of inflows (tributaries) to the Collins River.

What has been done

Nothing as of yet, but this project will be monitoring the nutrient load and water quality parameters of three tributaries in the Collins River sub-watershed.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #2

1. Outcome Measures

Number of water bodies removed from 303(d) list

2. Associated Institution Types

•1890 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)

The Collins River is listed in the States 303(d) impaired water body list. As a result, the State regulatory agency (TDEC) cares about the quality of the water in this river because they, and the residents of Tennessee, would like to have as few bodies of water on the 3030(d) list as possible.

What has been done

Project is still in data acquisition stage.

Results

Project is still in data acquisition stage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #3

1. Outcome Measures

Number of agricultural producers per year developing a nutrient management plan

2. Associated Institution Types

•1890 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)

The Collins River is a major public water supply source and recreation source for the residents of the Collins River watershed. The Collins River watershed drains four (4) rural counties in Middle Tennessee. As a result of this issue, water managers and residents that live in the watershed and the State regulatory agency (Tennessee Department of Environment & Conservation, TDEC care about the potential nutrient run-off into the Collins River because of the possible adverse effects of nursery crop production on the water quality of inflows (tributaries) to the Collins River.

What has been done

A short survey instrument was administered to twelve (12) randomly selected nursery crop growers in Collins River sub-watershed to provide baseline data on the nature of their farm operations and management practices in the sub-watershed.

Results

The survey shows that a majority of the growers (98%) operate a field grown nursery stock operation. They grow a variety of different types of trees and and shrubs. Two (2) percent have both field grown and container operations. The field nursery crop operators apply complete fertilizer (NPK) to their nursery fields. None of these growers reported having a nutrient management plan for theses fields. They also seldom do annual soil testing for fertilizer and lime requirements. However, the growers also apply agricultural lime every 3-4 years to their fields.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #4

1. Outcome Measures

Number of students per year gaining experiential learning in water quality analysis

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is the need to train a future workforce (students) to meet the need of water resource issues, especially in the area of water quality assessment and monitoring.

What has been done

Two work-aide students have been hired and are involved in the project gaining both research and extension experiential training.

Results

The students have conducted a detailed literature review on surface water monitoring and the associated equipment used for monitoring water quality parameters. They assisted the project director survey data analysis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Molecular approaches for the study of leaf surface microorganisms in ornamental crops

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
212	Pathogens and Nematodes Affecting Plants				100%
	Total				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	0.0	2.6
Actual	0.0	0.0	0.0	1.8

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	0	74454
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	56608
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Development of a pathosystem between Pseudomonas and ornamental/nursery crops. Optimize the parameters important for the pathogenicity process. Characterize the diversity and community structure of leaf surface microorganisms in the natural environments under diseased and healthy conditions. Characterize the interactions between epiphytic populations of Pseudomonas. Make comparisons between epiphytic microbial populations in diseased and healthy plants. Make comparisons between epiphytic microbial populations on different hosts. Make comparisons between epiphytic microbial populations in plants grown under different conditions.Generate a list of microbial organisms which cohabitate the phyllosphere with the Pseudomonas bacteria.Assess the possible use of any of these epiphytic organism as a biocontrol agent to be armed with anti-pathogen activities. Provide experiential learning to TSU students on agricultural biotechnology.

2. Brief description of the target audience

The immediate primary audience is the agricultural research community interested in understanding plant disease at the molecular level and using this understanding to design alternative disease management strategies. Regulatory agencies will also use the knowledge generated for policy formulation and growers will benefit from improved disease management strategies developed.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications relating to plant/leaf microbe interactions

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Number of techniques to evaluate host/leaf surface microbe interactions

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- Number of pertinent bacterial strains identified

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of host/Pseudomonas pathosystems elucidated
2	Number of potential biocontrol candidates identified
3	Number of crops with blocked epiphyte-pathogen switch identified

Outcome #1

1. Outcome Measures

Number of host/Pseudomonas pathosystems elucidated

2. Associated Institution Types

•1890 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)

Plant diseases caused by Pseudomonas species result in high crop losses and cost of disease control. A good understanding of these diseases could reduce these losses.

What has been done

An experiment was performed to find a suitable experimental host to study Pseudomonas diseases in ornamental crop using four cultivars of Periwinkle and four strains of Pseudomonas syringae pathovars

Results

There were significant differences among the cultivars, bacterial strains and interactions of both. One host-pathogen combination was identified to produce the most compatible reaction

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #2

1. Outcome Measures

Number of potential biocontrol candidates identified

2. Associated Institution Types

•1890 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)

As a genus, Pseudomonas species probably cause more diseases on plants than any other plant pathogenic bacterial genus.

What has been done

Experiments have been performed using periwinkles to establish a pathosystem with Pseudomonas species.

Results

Successful infections were developed and more hosts will be tested.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Measures

Number of crops with blocked epiphyte-pathogen switch identified

2. Associated Institution Types

•1890 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)

If we identify how microbes switch from epiphyte to pathogen, we can attempt to intervene in the process to stop disease.

What has been done

Research is presently in initialization stage.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #9

V(A). Planned Program (Summary)

1. Name of the Planned Program

Analyzing the green industry and related sub-sectors in Tennessee: challenges and prospects

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				50%
604	Marketing and Distribution Practices				50%
	Total				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	0.0	2.2
Actual	0.0	0.0	0.0	2.2

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	0	90999
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	69187
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Provide information to green industry and related sub-sector service providers at special events such as trade shows and field days.

2. Brief description of the target audience

Green industry producers, landscape businesses, consumers of green industry products and services, and policy makers.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications and policy papers relating to economic analysis of the green industry in Tennessee

Year	Target	Actual
2007	2	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Percentage of program participants with potential problems, knowledge of exports and their information needs determined
2	Percentage of program participants with an increase in exports of nursery products and producers' income
3	Percentage of program participants with increased sales and income
4	Percentage of program participants receiving assistance in decreasing knowledge gaps, marketing and market access
5	Percentage of program participants with increased knowledge of exports potential and opportunities by producers

Outcome #1

1. Outcome Measures

Percentage of program participants with potential problems, knowledge of exports and their information needs determined

2. Associated Institution Types

•1890 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)

Growers and green industry related businesses that are concerned about the long term growth and profitability of the industry. The project will study and evaluate the various issues that impact the green industry and its underlying trend. The more they are aware of the potential problems of exports and opportunities that exist the more they can explore their options.

What has been done

Two surveys were developed, pretested and revised using feedback from stakeholders and administered (a) to landscape businesses in Tennessee and (b) to nursery businesses to assess problems and prospects of nursery export from the United States. The survey data on landscape businesses is currently being analyzed to understand the various contributions these businesses make and the challenges they face. Results of the export survey were presented at the Southern Nursery Association conference and published in the 2007 proceedings. The survey provided some insight regarding problems and knowledge of exports based on a limited sample.

Results

Analysis of data on export of nursery products shows that businesses face both opportunities and challenges. Providing those interested to pursue export with market and regulatory policies information by government and private organizations is found to be critical. Based on face-to-face discussion and survey on export, the above outcome measure was determined.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Percentage of program participants with an increase in exports of nursery products and producers' income

2. Associated Institution Types

•1890 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)

This project targets growers and green industry related businesses that are concerned about the long term growth and profitability of the industry. The project will study and evaluate the various issues that impact the green industry and its underlying trend. Nursery producers care about export which is important because it gives them access to additional market outlet and income.

What has been done

Two surveys were developed, pretested and revised using feedback from stakeholders and administered (a) to landscape businesses in Tennessee and (b) to nursery businesses to assess problems and prospects of nursery export from the United States. The survey data on landscape businesses is currently being analyzed to understand the various contributions these businesses make and the challenges they face. Results of the export survey were presented at the Southern Nursery Association conference and published in the 2007 proceedings. The purpose of the survey is to identify destinations of exports, problems and what should be done to alleviate the problems.

Results

Analysis of data on export of nursery products shows that businesses face both opportunities and challenges. Providing those interested to pursue export with market and regulatory policies information by government and private organizations is found to be critical. There is no data yet to indicate an increase in exports due to the project.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures
Percentage of program participants with increased sales and income

2. Associated Institution Types

•1890 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)

This project targets growers and green industry related businesses that are concerned about the long term growth and profitability of the industry. The project will study and evaluate the various issues that impact the green industry and its underlying trend. Given that the nursery business is one of the fastest growing sub-sectors of Agriculture, increased sale and income is important for the business and jobs.

What has been done

Two surveys were developed, pretested and revised using feedback from stakeholders and administered (a) to landscape businesses in Tennessee and (b) to nursery businesses to assess problems and prospects of nursery export from the United States. The survey data on landscape businesses is currently being analyzed to understand the various contributions these businesses make and the challenges they face. Results of the export survey were presented at the Southern Nursery Association conference and published in the 2007 proceedings.

Results

Analysis of data on export of nursery products shows that businesses face both opportunities and challenges. Providing those interested to pursue export with market and regulatory policies information by government and private organizations is found to be critical. There is no data yet to show the percentage of the participants have increased their sales and income.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Percentage of program participants receiving assistance in decreasing knowledge gaps, marketing and market access

2. Associated Institution Types

•1890 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)

This project targets growers and green industry related businesses that are concerned about the long term growth and profitability of the industry. The project will study and evaluate the various issues that impact the green industry and its underlying trend. It is important for participants to receive assistance in decreasing knowledge gaps in order to be competitive.

What has been done

Two surveys were developed, pretested and revised using feedback from stakeholders and administered (a) to landscape businesses in Tennessee and (b) to nursery businesses to assess problems and prospects of nursery export from the United States. The survey data on landscape businesses is currently being analyzed to understand the various contributions these businesses make and the challenges they face. Results of the export survey were presented at the Southern Nursery Association conference and published in the 2007 proceedings. The results of the survey provide a summary of export destinations and identified factors affecting export and is available on the web for anyone interested to access and use it.

Results

Analysis of data on export of nursery products shows that businesses face both opportunities and challenges. Providing those interested to pursue export with market and regulatory policies information by government and private organizations is found to be critical. The survey results are made widely available by putting them on the web for use by all interested.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

Percentage of program participants with increased knowledge of exports potential and opportunities by producers

2. Associated Institution Types

•1890 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)

This project targets growers and green industry related businesses that are concerned about the long term growth and profitability of the industry. The project will study and evaluate the various issues that impact the green industry and its underlying trend. Increase in knowledge will enable businesses to penetrate foreign markets rather than depending on domestic market.

What has been done

Two surveys were developed, pretested and revised using feedback from stakeholders and administered (a) to landscape businesses in Tennessee and (b) to nursery businesses to assess problems and prospects of nursery export from the United States. The survey data on landscape businesses is currently being analyzed to understand the various contributions these businesses make and the challenges they face. Results of the export survey were presented at the Southern Nursery Association (SNA) conference and published in the 2007 SNA conference proceedings. The survey results are made widely available by putting them on the web for use by all interested.

Results

Analysis of data on export of nursery products shows that businesses face both opportunities and challenges. Providing those interested to pursue export with market and regulatory policies information by government and private organizations is found to be critical. There is no data yet on how many of the businesses have increased knowledge of exports.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Public Policy changes
- Government Regulations
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #10

V(A). Planned Program (Summary)

1. Name of the Planned Program

Reducing the costs of food borne illnesses to small producers, selected food handlers and consumers

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
504	Home and Commercial Food Service				40%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins				60%
	Total				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	0.0	2.2
Actual	0.0	0.0	0.0	1.8

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	0	74454
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	56608
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Collect secondary information from existing databases.

Design a survey for collecting primary information from consumers, small producers and selected food handlers.

Design training/education strategies and materials.

Construct and review sound experimental design for the study and explore analytical and statistical method(s) for analyzing data to be collected.

Analyze collected data and draw conclusions.

Develop policy implication and recommendation.

Develop strategies for communicating findings to stakeholders and policy makers.

2. Brief description of the target audience

Food scientists, economists, extension personnel, small farmers, and food handlers.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications relating to the present and future causes and costs of food borne illnesses in Tennessee

Year	Target	Actual
2007	1	0

Output #2

Output Measure

- Bulletin publication concerning the current and future status of food safety in Tennessee

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of people with increase knowledge of sources, estimated cost, and recommendations concerning foodborne illnesses in Tennessee
2	Number of persons receiving training and education in foodborne illnesses and prevention
3	Number of consumers applying knowledge from education and training
4	Number of small producers applying knowledge from education and training

Outcome #1

1. Outcome Measures

Number of people with increase knowledge of sources, estimated cost, and recommendations concerning foodborne illnesses in Tennessee

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Food borne illness costs are real and need to be estimated. Deaths associated with illnesses also need to be reduced.

What has been done

Collaborators for the research were identified.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2

1. Outcome Measures

Number of persons receiving training and education in foodborne illnesses and prevention

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Deaths associated with food borne illness need to be reduced.

What has been done

Internet and library research is continuing. Recruitment of an advisory group proceeds

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

Number of consumers applying knowledge from education and training

2. Associated Institution Types

•1890 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)

Food safety and the issue of food borne illness are important in Tennessee.

What has been done

Key participants and partners have been contacted.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #4

1. Outcome Measures

Number of small producers applying knowledge from education and training

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
504	Home and Commercial Food Service

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

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

Biopesticides to control diseases and insects and improve water quality from container nursery stock

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation				20%
215	Biological Control of Pests Affecting Plants				80%
	Total				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	0.0	1.7
Actual	0.0	0.0	0.0	3.5

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	0	144772
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	110071
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The research in this project will identify multiple new biopesticide compounds that can manage soil-borne pathogen and insect problems in container nurseries.The research will be used to expand grower options and offer alternatives that are safer for farm laborers and the environment.In addition to finding and developing alternative pest management options, we intend to demonstrate that a significant reduction in offsite environmental contamination can be accomplished by grower adoption of biopesticide pest management options.

2. Brief description of the target audience

Nursery producers.Policy makers for regulatory pests like fire ants (e.g., regulatory entities involved with decision making on quarantine treatment approval).Pesticide and chemical manufacturers.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications documenting the efficacy of biopesticides in container nursery crops

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	New regulatory treatments to reduce the offsite movement of conventional pesticides in container nurseries using biorational insect and pathogen treatments.
2	Increase in number of producers aware and educated about the problem
3	Number of new biopesticde treatments developed
4	Percent reduction in pesticide movement offsite of research facility

Outcome #1

1. Outcome Measures

New regulatory treatments to reduce the offsite movement of conventional pesticides in container nurseries using biorational insect and pathogen treatments.

2. Associated Institution Types

•1890 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)

The general public is aware of, and understandably concerned about, the adverse human and environmental impacts of the intrusions of conventional pesticides into vulnerable ecosystems such as water resources.

What has been done

We are testing biopesticides as safer alternatives to conventional pesticides from the standpoints of human and environmental health. Biopesticides that are currently undergoing evaluation at the TSU Nursery Research Center in McMinnville and the TSU Mani Campus in Nashville include Ecotrol (aka Ecotec), Azatin, Cinnacure, Muscle, Triat and Veggie Pharm.

Results

Results at the Nursery Research Center suggest that some biopesticides have potential to manage fire ants and Japanese beetle grubs when appropriate rates, times of application and issues of phytotoxicity are resolved.

Preliminary laboratory results from Nashville suggest that Ecotec biopesticide may not exert profound, short term adverse impacts on soil microbial populations even under spill concentrations (1000 x agronomic concentrations) of the biopesticide.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
215	Biological Control of Pests Affecting Plants

Outcome #2

1. Outcome Measures

Increase in number of producers aware and educated about the problem

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	150

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The public cares about environmental degradation due to intrusions of agrichemicals into vulnerable ecosystems; regulatory agencies care about information dissemination to growers about management practices that protect the environment.

What has been done

Workshops and field demonstrations have been held and presentations to stakeholder conferences have been made to raise awareness and educate stakeholders about best management practices that protect the environment.

Results

No results to report at this time.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
215	Biological Control of Pests Affecting Plants

Outcome #3

1. Outcome Measures

Number of new biopesticde treatments developed

2. Associated Institution Types

•1890 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)

The general public, regulatory agencies, and agricultural producers care about natural resource degradation caused by agricultural production. Natural resource degradation adversely impacts human health. The general public, regulatory agencies, and agricultural producers demand/seek the development and use of safer production practices.

What has been done

Biopesticides are being tested as safer alternative to toxic conventional pesticides

Results

Biopesticide treatments are all in developmental phases; there are no results to report at this time.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

Outcome #4

1. Outcome Measures

Percent reduction in pesticide movement offsite of research facility

2. Associated Institution Types

•1890 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)

The general public, regulatory agencies, and agricultural producers care about natural resource degradation caused by agricultural production. Natural resource degradation adversely impacts human health. The general public, regulatory agencies, and agricultural producers demand/seek the development and use of safer production practices.

What has been done

A nursery production facility has been installed at the IAgER Experimental Farm in Nashville to study movement and environmental impacts of conventional pesticides versus biopesticides, and develop strategies to mitigate intrusions of agrichemicals into the environment

Results

Installation of the nursery facility in Nashville was only recently completed; there are no results to report at this time

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation of agricultural production on water resources and determination of mitigation strategies

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				50%
133	Pollution Prevention and Mitigation				50%
	Total				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	0.0	5.2
Actual	0.0	0.0	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**
0	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Note: The inclusion of this planned program in the 2007 Plan of work was an oversight; the research activities in this program are part of, and included in, another program in the 2007 Plan of Work entitled"Assessment of nutrients in the Collins River Basin".

Conduct research on the movement of chemical pollutants from soil to water.

Develop strategies to mitigate the movement of contaminants from agricultural production areas to bodies of water.

Strengthen partnerships with watershed associations, farmers, and government (potential funding) agencies.

2. Brief description of the target audience

Note: The inclusion of this planned program in the 2007 Plan of work was an oversight; the research activities in this program are part of, and included in, another program in the 2007 Plan of Work entitled"Assessment of nutrients in the Collins River Basin".

Nursery and other agricultural producers who potentially contribute to non-point source pollution of water bodies.

Students.

Pesticide producers.

Government agencies such as Tennessee Departments of Agriculture, Environment and Conservation and Natural Resource Conservation Service.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications concerning determination and mitigation of agricultural production related watershed issues

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- New techniques in measurement and mitigation of agricultural production related watershed issues

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Bodies of water removed from 303(d) list
2	Percentage of additional agricultural producers adopting watershed friendly strategies
3	Percentage of additional agricultural producers adopting enhanced Best Management Practices (BMP)
4	Students trained in watershed measurement and analysis techniques

Outcome #1

1. Outcome Measures

Bodies of water removed from 303(d) list

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Percentage of additional agricultural producers adopting watershed friendly strategies

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Percentage of additional agricultural producers adopting enhanced Best Management Practices (BMP)

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Students trained in watershed measurement and analysis techniques

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	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
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

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 (See explanation below.)

Brief Explanation

Note: The inclusion of this planned program in the 2007 Plan of work was an oversight; the research activities in this program are part of, and included in, another program in the 2007 Plan of Work entitled"Assessment of nutrients in the Collins River Basin".

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #13

V(A). Planned Program (Summary)

1. Name of the Planned Program

Reducing risk of food borne illness by characterizing food pathogens and risky consumer practices

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
504	Home and Commercial Food Service				10%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins				90%
	Total				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	0.0	2.4
Actual	0.0	0.0	0.0	2.7

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	0	111681
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	84912
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Analyze survey data on consumer transportation, usage and storage of foods to identify risky behaviors and assess potential for cross contamination. Perform microbial analysis of samples collected from meat, poultry, food samples, packages and home refrigerators. Develop strategies to minimize potential for food borne illness originating from improper food handling and animal management practices.

2. Brief description of the target audience

Alternative meat and poultry producers.

Consumers.

Risk assessment agencies.

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	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications concerning parameters for food borne illness transmission and mitigation

Year	Target	Actual
2007	1	1

Output #2

Output Measure

- Consumer education materials in food handling practices

Year	Target	Actual
2007	0	9

Output #3

Output Measure

- Complete microbial profile of home refrigerators

Year	Target	Actual
2007	0	0

Output #4

Output Measure

- Microbial profile of meat goat carcasses

Year	Target	Actual
2007	0	0

Output #5

Output Measure

- Microbial profile of guinea fowl carcasses

Year	Target	Actual
2007	0	0

Output #6

Output Measure

- Strategies for improved management practices

Year	Target	Actual
2007	0	0

Output #7

Output Measure

- Assess food packages and fresh produce for microbial content

Year	Target	Actual
2007	{No Data Entered}	15

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Proportion of targeted consumers using practices that reduce cross contamination potential
2	Percentage of targeted consumers that will be following best management practices for reducing microbial contamination
3	Practices to reduce contamination of meat goat and guinea fowl

Outcome #1

1. Outcome Measures

Proportion of targeted consumers using practices that reduce cross contamination potential

2. Associated Institution Types

•1890 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)

Allowing raw foods to come in contact with cooked foods that will not be re-heated increases the likelihood that the consumer will get a food-borne illness.

What has been done

Project on cross-contamination prevention education just beginning.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
504	Home and Commercial Food Service

Outcome #2

1. Outcome Measures

Percentage of targeted consumers that will be following best management practices for reducing microbial contamination

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Eating fresh fruits and vegetables that have not been properly cleaned before increases the chances of an individual getting sick from eating that food.

What has been done

One thousand food safety brochures were distributed to recipients of fresh foods and vegetables.

Results

Of those participants who received the brochure, 25% reported that they had read the brochure and followed the cleaning instructions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
504	Home and Commercial Food Service

Outcome #3

1. Outcome Measures

Practices to reduce contamination of meat goat and guinea fowl

2. Associated Institution Types

•1890 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)

Using unsafe sanitary practices while processing meat and poultry increases the likelihood that the resulting products may be contaminated procedures

What has been done

Producer education has not yet begun.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
504	Home and Commercial Food Service

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities
- Other (Possible bird flu outbreak)

Brief Explanation

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #14

V(A). Planned Program (Summary)

1. Name of the Planned Program

Pathology research to benefit the Tennessee nursery industry

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
212	Pathogens and Nematodes Affecting Plants				100%
	Total				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	0.0	4.5
Actual	0.0	0.0	0.0	3.5

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	0	144772
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	110071
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research to identify powdery mildew resistance, resistance to cercospora leafspot/blight.Research to identify and catalog soil-borne pathogens prevalent in the Tennessee nursery industry.

2. Brief description of the target audience

Nursery producers.

Landscape industry.

Home owners.

Pathology scientists.

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	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publication concerning disease resistance/susceptibility in hydrangea and identification of soil borne diseases

Year	Target	Actual
2007	0	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Increase in number of growers aware of resistant cultivars
2	Increase in number of growers aware of causes of pathogens and their survival
3	Increase in number of growers aware of soil-borne disease prevention methods
4	Percentage of growers with reduced plant mortality by exercising preventative measures
5	Compendium of soil borne pathogens of economic importance to the Tennessee nursery industry
6	Percentage of Tennessee growers aware of disease resistant hydrangea cultivars

Outcome #1

1. Outcome Measures

Increase in number of growers aware of resistant cultivars

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Information will reduce fungicide use in the nursery industry, thus reducing the amount of pesticides entering the environment. This information will also reduce production costs for nursery producers, resulting in a net increase in income.

What has been done

Presented preliminary datain a poster presentations at regional nursery production trade show (Southern Nursery Association) and published two research conference proceeding describing the results.

Results

Conference attendees have now increased knowledge of resistant hydrangea cultivars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #2

1. Outcome Measures

Increase in number of growers aware of causes of pathogens and their survival

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Information will reduce fungicide use in the nursery industry, thus reducing the amount of pesticides entering the environment. This information will also reduce production costs for nursery producers, resulting in a net increase in income.

What has been done

Information was communicated to producers at the Southern Nursery Association Research Conference and Trade Show via a poster presentation.

Results

More people are aware that plant mortality may not necessarily be caused by Phytophthora.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Measures

Increase in number of growers aware of soil-borne disease prevention methods

2. Associated Institution Types

•1890 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)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #4

1. Outcome Measures

Percentage of growers with reduced plant mortality by exercising preventative measures

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #5

1. Outcome Measures

Compendium of soil borne pathogens of economic importance to the Tennessee nursery industry

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #6

1. Outcome Measures

Percentage of Tennessee growers aware of disease resistant hydrangea cultivars

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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}

Program #15

V(A). Planned Program (Summary)

1. Name of the Planned Program

Evaluating strategies to promote the goat meat industry in Tennessee

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
502	New and Improved Food Products				10%
604	Marketing and Distribution Practices				90%
	Total				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	0.0	2.6
Actual	0.0	0.0	0.0	2.0

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	0	82727
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	62897
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Case studies with representative goat producers to conduct economic analysis of various marketing channels in use.

Focus group meetings with local retail businesses to assess the potential to make goat meat available at mainstream local retail markets.

Primary survey of non-traditional consumers to evaluate the extent of goat meat acceptance.

Primary survey of traditional goat consumers to identify issues and problems faced in local goat meat markets and their willingness to pay for desired quality and preferences.

Meetings with goat producers, association and other related groups to promote goat industry.

2. Brief description of the target audience

Goat producers
Traditional consumers (individuals who eat goat meat)
Non-traditional consumers (individuals who have never eaten goat meat before)
Goat producers and marketing associations
Local restaurants and food businesses

Policy makers

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications concerning strategies to promote the goat meat industry in Tennessee

Year	Target	Actual
2007	2	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Increase in number of goat producers with knowledge of efficient marketing techniques
2	Increase in number of local restaurants and businesses with knowledge of goat meat qualities
3	Increase in number of goat producers educated in specific consumer preferences
4	Percent increase in demand for goat meat in Tennessee
5	Percent increase in goat meat production in Tennessee

Outcome #1

1. Outcome Measures

Increase in number of goat producers with knowledge of efficient marketing techniques

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
502	New and Improved Food Products

Outcome #2

1. Outcome Measures

Increase in number of local restaurants and businesses with knowledge of goat meat qualities

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
604	Marketing and Distribution Practices

Outcome #3

1. Outcome Measures

Increase in number of goat producers educated in specific consumer preferences

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
502	New and Improved Food Products

Outcome #4

1. Outcome Measures

Percent increase in demand for goat meat in Tennessee

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

Outcome #5

1. Outcome Measures

Percent increase in goat meat production in Tennessee

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
502	New and Improved Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Populations changes (immigration,new cultural groupings,etc.)
- Other (Departure of Principal Investigator)

Brief Explanation

This program had one Principal Investigator associated with it to conduct the bulk of the research.This PI has taken a leave of absence from the university, preventing the completion of the stated goals.It is unsure at this time if the PI will return to the university.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #16

V(A). Planned Program (Summary)

1. Name of the Planned Program

Nutritional and management strategies to improve growth and production performance of guinea fowl

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
302	Nutrient Utilization in Animals				50%
307	Animal Management Systems				50%
	Total				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	0.0	3.3
Actual	0.0	0.0	0.0	3.6

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	0	148908
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	113215
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

To enhance performance and adoption of guinea fowl as alternative livestock for small scale farmers the following activities will be carried out:

Determine optimum floor space allowance for guinea fowl;
Determine optimum requirement for dietary calcium and phosphorus by guinea fowl; and
Determine optimum dietary requirement for methionine and lysine by guinea fowl.

2. Brief description of the target audience

Guinea fowl and poultry industries.

Small farmers.

Scientific community.

Extension specialists.

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	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications concerning the optimization of parameters for guinea fowl production

Year	Target	Actual
2007	0	3

Output #2

Output Measure

- Dietary recommendations to guinea fowl producers for optimal production

Year	Target	Actual
2007	0	1

Output #3

Output Measure

- Technique to determine optimal nutrient composition of guinea fowl diet

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Dietary recommendations for amino acid and mineral nutrition of guinea fowl
2	Percentage of producers realizing savings in feeding costs
3	Percentage of producers aware of recommendations for floor space, calcium and phosphorus
4	Percentage of producers implementing recommendations
5	Percentage of producers realizing profitability after adoption of recommendations

Outcome #1

1. Outcome Measures

Dietary recommendations for amino acid and mineral nutrition of guinea fowl

2. Associated Institution Types

•1890 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)

There are currently no guidelines for optimum amino acid and mineral nutrition requirements for Guinea fowl. As commercial production of this species increases, such requirements must be known to optimize producer efficiency.

What has been done

Ongoing experiments in optimizing amino acid and mineral nutrition levels.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #2

1. Outcome Measures

Percentage of producers realizing savings in feeding costs

2. Associated Institution Types

•1890 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)

The costs associated with the production of Guinea fowl need to minimized for producers to realize maximum profit as this species becomes more accepted in American diets.

What has been done

As optimized nutrition parameters are developed they will be communicated to stakeholders via scientific, popular, and grower-target publications and presentations.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems

Outcome #3

1. Outcome Measures

Percentage of producers aware of recommendations for floor space, calcium and phosphorus

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Optimum floor space utilization can minimize production costs and increase profitability of Guinea fowl production.

What has been done

Optimum floor space requirement for Guinea fowl (French) was determined and the findings will be presented to the Guinea Fowl Breeders Association.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #4

1. Outcome Measures

Percentage of producers implementing recommendations

2. Associated Institution Types

•1890 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)

There are currently no guidelines for optimum amino acid and mineral nutrition requirements for Guinea fowl. As commercial production of this species increases, such requirements must be known to optimize producer efficiency.

What has been done

Research has not reached this stage yet.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems

Outcome #5

1. Outcome Measures

Percentage of producers realizing profitability after adoption of recommendations

2. Associated Institution Types

•1890 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)

There are currently no guidelines for optimum amino acid and mineral nutrition requirements for Guinea fowl. As commercial production of this species increases, such requirements must be known to optimize producer efficiency.

What has been done

Research has not reached this stage yet.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Appropriations changes
- Competing Programmatic Challenges

Brief Explanation

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

1. Evaluation Studies Planned

- After Only (post program)
- During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #17

V(A). Planned Program (Summary)

1. Name of the Planned Program

Improving families through improved nutrition and well-being of limited resource households

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior				40%
724	Healthy Lifestyle				40%
802	Human Development and Family Well-Being				20%
	Total				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	0.0	3.2
Actual	0.0	0.0	0.0	3.2

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	0	132363
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	100636
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

A program will be developed and activities will be designed to educate adults and children in a long-term healthy living lifestyle. Participants will be pre-and post-tested on behavioral changes after participation in the program.The participants will exhibit improved parameters such as healthier weight, lower blood pressure, more desirable percent body fat, better school attendance, and improved family well-being. Targeted stakeholder agencies will benefit from increased parental participation in their programs.

2. Brief description of the target audience

Limited resource families in Nashville with children ages 3-8.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications concerning the challenges of limited resource households in meeting dietary guidelines and food purchasing practices of economically disadvantaged families.

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Development of complete set of games for project use

Year	Target	Actual
2007	1	1

Output #3

Output Measure

- Development of healthy mini-camp curricula

Year	Target	Actual
2007	1	0

Output #4

Output Measure

- Development of complete set of online lessons for parents

Year	Target	Actual
2007	1	0

Output #5

Output Measure

- Development of newsletters concerning program.

Year	Target	Actual
2007	{No Data Entered}	7

Output #6

Output Measure

- Development of educational brochures concerning program.

Year	Target	Actual
2007	{No Data Entered}	8

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Percentage of participants with increased nutrition knowledge
2	Percentage of participants with improved reported behaviors
3	Quarterly percent increase in participation points
4	Annual percent increase in number of males participating
5	Percentage decrease in school absenteeism

Outcome #1

1. Outcome Measures

Percentage of participants with increased nutrition knowledge

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	95

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Children who are better acquainted with different types of healthy foods are more likely to include them in their diets and ultimately be healthier themselves.

What has been done

Ninety children, age 3, participated in four interactive nutrition education programs.

Results

Of the children who participated in the programs, 95% could recognize the and name the new foods; 90% tried eating the new foods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Percentage of participants with improved reported behaviors

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Limited resource individuals need to understand how to spend their food dollars wisely in order to get the healthiest foods for the lowest price. Consumption of healthier foods should lead to healthier families.

What has been done

Five nutrition and food purchasing classes wee conducted for 17 Habitat for Humanity home builders.

Results

All (100%) of the participants said thy learned new information and would use it when selecting foods. However, when asked at the next class what they had done differently, only two persons reported a changed behavior.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
703	Nutrition Education and Behavior
802	Human Development and Family Well-Being

Outcome #3

1. Outcome Measures

Quarterly percent increase in participation points

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Research has shown that families that plan meals together, eat together and do physical activities together are healthier and children in those families have better school attendance.

What has been done

Classes were held for four months, participants (both parents and children) wee offered incentives for completing tasks each month and bringing them to the next class session.

Results

Unfortunately, neither the parents or the children completed the activities. Only two of the parents and none of the children earned the incentives.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
703	Nutrition Education and Behavior
802	Human Development and Family Well-Being

Outcome #4

1. Outcome Measures

Annual percent increase in number of males participating

2. Associated Institution Types

•1890 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Males generally do not participate in nutrition education, yet they influence food purchases.

What has been done

Couples and single males participated in the group lessons.

Results

All males reported learning something new and tried the foods presented.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures
Percentage decrease in school absenteeism

2. Associated Institution Types

•1890 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

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

- Natural Disasters (drought,weather extremes,etc.)
- Populations changes (immigration,new cultural groupings,etc.)
- Other (Competition for time of participants.)

Brief Explanation

It was found that the number of different participants for each session made achieving the targets of the project more difficult than expected.In addition, language barriers are also influencing the results.These items are being addressed

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

1. Evaluation Studies Planned

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

Evaluation Results

Have determined that more in-depth lessons need to be completed with a smaller number of participants.

Key Items of Evaluation

Program #18

V(A). Planned Program (Summary)

1. Name of the Planned Program

Molecular and whole-plant evaluations of selected herbaceous plants

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
202	Plant Genetic Resources				50%
205	Plant Management Systems				50%
	Total				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	0.0	4.4
Actual	0.0	0.0	0.0	3.5

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	0	144772
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	110071
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct field, greenhouse and laboratory research experiments; install and evaluate field demonstration plots.

2. Brief description of the target audience

Agricultural research community, crop producers, plant breeders, retailers of ornamental plants, landscapers, landscape designers, extension agents, policy makers, homeowners.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications pertaining to molecular and cultural characterization of niche crops

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Percentage reduction in crop losses due to Xanthomonas
2	Operation of functional demonstration plots for niche crops

Outcome #1

1. Outcome Measures

Percentage reduction in crop losses due to Xanthomonas

2. Associated Institution Types

•1890 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

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
205	Plant Management Systems

Outcome #2

1. Outcome Measures

Operation of functional demonstration plots for niche crops

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As the population of international residents of the United States increases, (Hispanic, Kurdish, and others) the demand for increased variety and quantities of ethnic foods of different types also increases. Limited resource stakeholders will benefit from the development of crops that can be produced on relatively small acreages and still have commercial income potential - these crops examined here have potential in the specialty, restaurant, gourmet and health-food trade. They could become an income source for small, limited resource producers.

What has been done

Twenty heirloom varieties of peppers and 26 heirlom tomato cultivars were planted in the field and evaluated for production and fruit quality during the 2007 growing season on Tennessee State Universitys main campus farm of which 12 pepper and 14 tomato varieties have been selected to be grown and data collected on their response to different cultural practices (types of mulch).

Results

Research is in progress.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
202	Plant Genetic Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #19

V(A). Planned Program (Summary)

1. Name of the Planned Program

Impact of the tobacco buyout program and strategies to promote economic viability of small farmers

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
604	Marketing and Distribution Practices				50%
610	Domestic Policy Analysis				50%
	Total				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	0.0	2.2
Actual	0.0	0.0	0.0	3.2

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	0	132363
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	100636
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Focus group meetings will be used to develop a comprehensive survey instrument to be used for collecting data on the current situation and future prospects on various issues in small farm operations. Enterprise budget forms will also be developed to collect data necessary to conduct economic analysis. Results derived from analyses will be made available to farmers to assist them to be economically viable. Brochures, fact sheets and other publications containing project results will be developed and distributed to various stakeholders.

2. Brief description of the target audience

Small farmers, extension educators, and policy makers.

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	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications pertaining to the impact of the tobacco buyout program and strategies to promote economic viability of small farmers

Year	Target	Actual
2007	1	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Percentage of program participants with increased awareness about alternative crops
2	Percentage of program participants with improved record keeping, management and marketing skills
3	Percentage of program participants with adopting alternative crops
4	Percentage of program participants with increased farm income
5	Percentage of program participants with increased farm diversification

Outcome #1

1. Outcome Measures

Percentage of program participants with increased awareness about alternative crops

2. Associated Institution Types

•1890 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)

This project is aimed at assessing the impact of the tobacco buyout on the farm operations as well as considers the adoption of alternatives if the farms are to remain economically viable. Given that small farms make up a very large share (about 93%) of all U.S farms, they represent a key element of rural communities. Awareness about alternative crops will encourage those interested to adopt such alternatives which will be a source of their income.

What has been done

A comprehensive survey instrument has been developed and sent out to selected tobacco farmers from a large database provided by the Farm Service Agency. The survey is used to acquire data to answer the research questions, derive implications for policy making and developing appropriate strategies that would enhance viability of small farmers.

Results

Analysis of the survey data is expected to provide results that will be useful for farmers and other stakeholders. There is no data yet to provide information on the increase in awareness level of farmers about alternative enterprises.

4. Associated Knowledge Areas

KA Code	Knowledge Area
610	Domestic Policy Analysis
604	Marketing and Distribution Practices

Outcome #2

1. Outcome Measures

Percentage of program participants with improved record keeping, management and marketing skills

2. Associated Institution Types

•1890 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)

This project is aimed at assessing the impact of the tobacco buyout on the farm operations as well as considers the adoption of alternatives if the farms are to remain economically viable. Given that small farms make up a very large share (about 93%) of all U.S farms, they represent a key element of rural communities. The percentage of program participants with improved record keeping, management and marketing skills is essential to run the farm operations efficiently and in a profitable manner.

What has been done

A comprehensive survey instrument has been developed and sent out to selected tobacco farmers from a large database from the Farm Service Agency. The survey is used to acquire data to answer the research questions, derive implications for policy making and developing appropriate strategies that would enhance viability of small farmers.

Results

Analysis of the survey data is expected to provide results that will be useful for farmers and other stakeholders. There is no data yet to show who improved their record keeping.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #3

1. Outcome Measures

Percentage of program participants with adopting alternative crops

2. Associated Institution Types

•1890 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)

This project is aimed at assessing the impact of the tobacco buyout on the farm operations as well as considers the adoption of alternatives if the farms are to remain economically viable. Given that small farms make up a very large share (about 93%) of all U.S farms, they represent a key element of rural communities. With changes in government involving products such as tobacco and growing global competition, adoption of alternative crops is important not only for farmers but also communities in which they are located.

What has been done

A comprehensive survey instrument has been developed and sent out to selected tobacco farmers from a large database from the Farm Service Agency. The survey is used to acquire data to answer the research questions, derive implications for policy making and developing appropriate strategies that would enhance viability of small farmers.

Results

Analysis of the survey data is expected to provide results that will be useful for farmers and other stakeholders. There is no data yet to show who adopted alternative crops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #4

1. Outcome Measures

Percentage of program participants with increased farm income

2. Associated Institution Types

•1890 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)

This project is aimed at assessing the impact of the tobacco buyout on the farm operations as well as considers the adoption of alternatives if the farms are to remain economically viable. Given that small farms make up a very large share (about 93%) of all U.S farms, they represent a key element of rural communities. Increase in income is important to enable farmers support themselves and their families as well as continue their farm operations.

What has been done

A comprehensive survey instrument has been developed and sent out to selected tobacco farmers from a large database from the Farm Service Agency. The survey is used to acquire data to answer the research questions, derive implications for policy making and developing appropriate strategies that would enhance viability of small farmers.

Results

Analysis of the survey data is expected to provide results that will be useful for farmers and other stakeholders. There is no data yet to show the proportion of farmers whose income increased.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #5

1. Outcome Measures

Percentage of program participants with increased farm diversification

2. Associated Institution Types

•1890 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)

This project is aimed at assessing the impact of the tobacco buyout on the farm operations as well as considers the adoption of alternatives if the farms are to remain economically viable. Given that small farms make up a very large share (about 93%) of all U.S farms, they represent a key element of rural communities. Diversification is a tool for risk management and is important to farmers. It ensures that a farmer can maintain a fair income when some of his operations do well and others do not do as well.

What has been done

A comprehensive survey instrument has been developed and sent out to selected tobacco farmers from a large database from the Farm Service Agency. The survey is used to acquire data to answer the research questions, derive implications for policy making and developing appropriate strategies that would enhance viability of small farmers.

Results

Analysis of the survey data is expected to provide results that will be useful for farmers and other stakeholders. There is no data yet to show the proportion of farmers with increased diversification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Public Policy changes
- Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #20

V(A). Planned Program (Summary)

1. Name of the Planned Program

Functional studies on cold and heat–regulated genes using tomato as a model plant

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms				100%
	Total				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	0.0	1.9
Actual	0.0	0.0	0.0	2.1

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	0	86863
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	66042
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct gene expression research experiments, provide training for graduate students, develop products and services.

2. Brief description of the target audience

Plant breeders, seed companies, scientific colleagues, extension service.

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	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific publications pertaining to expression of temperature stress genes in plants

Year	Target	Actual
2007	0	1

Output #2

Output Measure

- Patents for temperature stress genes

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- Temperature stress tolerant plant cultivars

Year	Target	Actual
2007	0	0

Output #4

Output Measure

- Techniques to quantify heat and chilling stress tolerance in plants

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Temperature stress tolerant genes identified
2	Temperature stress tolerant plant cultivars developed

Outcome #1

1. Outcome Measures

Temperature stress tolerant genes identified

2. Associated Institution Types

•1890 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)

Both the scientific community and plant breeders want information concerning the genes that are associated with temperature stress. Improved tolerance to temperature stress will greatly enhance crop yields.

What has been done

The complete sequence for some of the identified heat-inducible genes from turf grass are being cloned and will be prepared into constructs to transform tomatoes.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

Outcome #2

1. Outcome Measures

Temperature stress tolerant plant cultivars developed

2. Associated Institution Types

•1890 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)

The availability of temperature stress tolerant cultivars is critical to ensure crop production in years with abnormal temperatures, and expand the regions in which the plants can be successfully grown. This is important for growers, breeders, and consumers.

What has been done

Activity on this portion of the project will commence once the applicable genes have been identified.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #21

V(A). Planned Program (Summary)

1. Name of the Planned Program

Germplasm collection and evaluation of Goldenseal clones with superior properties

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
202	Plant Genetic Resources				100%
	Total				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	0.0	2.3
Actual	0.0	0.0	0.0	2.2

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	0	90999
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	69187
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Germplasm evaluation, DNA analysis, cultivation method development

2. Brief description of the target audience

Medicinal plant industry, small farmers, plant breeders, woodland garden designers, homeowners.

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	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Scientific articles pertaining to the identification and improved production practices of Goldenseal.

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- Development of new Goldenseal cultivars

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- Development of microproagation techniques for high berberine/hydrastine yielding cultivars

Year	Target	Actual
2007	0	0

Output #4

Output Measure

- Establishment of demonstration areas for improved cultural practices of Goldenseal

Year	Target	Actual
2007	0	0

Output #5

Output Measure

- Cost analysis for Goldenseal production

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of improved Goldenseal cultivars released
2	Number of techniques defined for improved Goldenseal production
3	Number of demonstration areas for improved Goldenseal production practices established

Outcome #1

1. Outcome Measures

Number of improved Goldenseal cultivars released

2. Associated Institution Types

•1890 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)

Small producers in agroforestry need a source of income while trees are growing and maturing. Goldenseal is one possible companion crop.

What has been done

Evaluation of germplasm has begun, including plants obtained form stakeholders.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #2

1. Outcome Measures

Number of techniques defined for improved Goldenseal production

2. Associated Institution Types

•1890 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)

Small producers in agroforestry need a source of income while trees are growing and maturing. Goldenseal is one possible companion crop.

What has been done

Plants have been collected from seven different locations and are being propagated in nursery containers with standard container growing media (soilless media).

Results

Preliminary techniques for growing plants in soilless media have been determined.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #3

1. Outcome Measures

Number of demonstration areas for improved Goldenseal production practices established

2. Associated Institution Types

•1890 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)

Small producers in agroforestry need a source of income while trees are growing and maturing. Goldenseal is one possible companion crop.

What has been done

Germplasm collection is underway, and planting area is under construction.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

- During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}