2010 Langston University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

Langston University's Research and Extension Programs work collaboratively to make a positive difference in the lives of stakeholders in Oklahoma, the nation and globally. The three major areas being reported on for 2010 are Goat Research/Extension, Aquaculture Research/Extension, 4-H and Youth Development and Family & Consumer Sciences.

Goat Research at the University is conducted through the American Institute for Goat Research. The scope of the small ruminant research being performed includes Angora, meat and cashmere goats. Nutrition studies are primarily oriented toward determining the nutrient requirements of goats with special emphasis on the high-producing dairy goat. Research is being conducted with goat milk and the development of value-added products from the milk. During 2010, research and extension personnel worked collaboratively to put on goat artificial insemination clinics. These clinics allow goat producers to use superior animals to improve the genetic composition of their goat breeding stock. In 2010, two artifical insemination workshops were conducted. The workshops had 41 participants. In order to provide the proper training, workshops had to be limited to a manageable number. Other goat research and extension efforts included enhanced dairy herd improvement, internal parasite control for small ruminants, web-based training and international collaborations. Records indicate that 1,486 goat producers have enrolled in the web-based on-line certification program and 193 goat producers have been certified via the site. Research findings from the institute are incorporated into fact sheets which are distributed by our Extenson Program. Data are often summarized in articles in the quarterly newsletter. In addition, research results are published in appropriate journals for goat research, including The Journal of Animal Sciences, Small Ruminant Research, Journal of Dairy Science, Canadian Journal of Animal Science, Sheep and Goat Research Journal and Animal Feed Sciences and Technology.

Aquaculture Research and Extension Programs provide information and technology needed by Oklahoma Aquaculturists, pond owners and others. Materials provided by these programs assist producers and enthusiasts in properly managing fish farms and ponds in a profitable and ecologically sustainable manner. Research is being conducted with alternative aquaculture species to test the profitability of additonal fish species for Oklahoma producers. During 2010, research and extension personnel had face-to-face contact with fish producers during workskhops, site visits, meetings and at the University's Annual Aquaculture Field Day. Information was shared from our studies which show bigmouth buffalo as a potential alternative fish species for Oklahoma producers. The Aquaculture Water Gardens Program gave presentations to stakeholders interested in developing and or managing ornamental ponds. Information was presented at the annual meeting of the Kansas Aquaculture Association, the Langston University Aquaculture Field Day, and during group sessions. A book on ornamental ponds drafted in 2008 was used to provide best management practices to assist stakeholders in the construction and maintenance of ornamental ponds. Research and extension work in the Phytoplankton Program provided information to fish producers to help them reduce the off-flavors in their catfish by controlling phytoplankton levels in their ponds.

4-H and Youth Development and Family & Consumer Sciences provide needed programs to youth and families in Oklahoma. Langston University's Cooperative Extension Program views the youth population of Oklahoma as one of the state's most important resources. A learning-by-doing approach is used to enable youth to develop the knowledge, attitudes, and skills they need to become competent, caring, and contributing citizens of our society. Today's young people are living in an exciting time; with an increasingly diverse society, new technologies, and expanding oportunities. Two challenges facing

many of our youth are deficiencies in reading and mathematics. Helping youth to develop and maintain high skill levels in these areas is being addressed by the Youth Development Unit at Langston University. The Extended Education Program includes a youth summer program offered to students in Pre-kindergarten through Fifth Grade (ages 5-11). In 2010, sixty-eight youth participated in the program. After seven weeks of training 100% demonstrated an improvement in reading comprehension and 96% showed improvement in understanding mathematical concepts and operations. This summer program helps youth maintain math and reading skills over the summer months and positions them to achieve well when school starts in the fall. During 2010, the Science, Engineering and Technology (SET) Program was used to supplement our Extended Education and Food and Nutrition Programs. SET activities reached over sixty students and enhanced their knowlege of the agricultural, biological and related sciences.

Program areas included in this Executive Summary play vital roles in reaching and making a difference in the lives of youth, families, producers, consumers and citizens in the State of Oklahoma.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	20.0	0.0	22.0
Actual	0.0	16.7	0.0	26.6

II. Merit Review Process

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

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

2. Brief Explanation

The merit review process for research programs included individuals from within the University, external reviewers, advisory groups and USDA/CSREES personnel.

The merit review from extension programs included individuals from within the University, advisory groups and staff members.

The merit review conducted by the Advisory Council for our goat programs provided input on ways to improve these programs. These suggestions included design more programs aimed at better internal parasite control, modification of cattle barb wire fencing with electric fencing for goats and invest in developing more studies on alternative dewormers. These merit review points were incorporated into our programs during 2010.

The merit review for our aquaculture programs was conducted by an advisory group. Suggestions for improving the programs included engaging the Oklahoma Department of Wildlife Conservation regarding the sale of triploid grass carp; address angler organizations regarding the possibilities of transferring aquatic nuisance species; and suggestions on modifying project proposals and fact sheets. These merit review points were incorporated into our programs during 2010.

The merit review for 4-H, Youth Development and Family &Consumer Sciences was conducted by an advisory group consisting of 4-H volunteer leaders, parents and concerned community members. Suggestions for improving our programs included tailoring 4-H activities for the needs of members based upon their financial resources and geographical location; suggestions on ways to improve

the mathematics and reading curriculum of our extended education program; and suggested action plans to enhance our programs. These merit review points were incorporated into our programs during 2010.

III. Stakeholder Input

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

- Survey of traditional stakeholder individuals
- Survey of the general public

Brief explanation.

Stakeholders were contacted directly and/or through print, radio, televison or the web media; and invited to participate in meetings, workshops, demonstrations and field days. Meetings were arranged to fit the stakeholder's schedule. Stakeholders were openly encouraged to share their input and appreciation was expressed for their comments.

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 External Focus Groups

Brief explanation.

Dialogue with individual stakeholders led to the identification of additional stakeholders. Stakeholders were also identified at field days, meetings, workshops, farm visits and through e-mail correspondence. When people contacted us to request information on published materials, they were identified as stakeholders and placed on our contact lists. New stakeholders were identified via these methods in 2010.

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
- Other (Telephone surveys of stakeholders.)

Brief explanation.

Questions/evaluations completed by our stakeholders during field days, workshops and other sessions are very important. Stakeholders take advantage of the opportunities to help us tailor our programs and activities to fit their needs.

We know that when it comes to research, extension and education, there is no such thing as "one size fits all." Surveys are completed on-line and/or via mail. Again, they serve as another bital link between us and the needs of our stakeholders. Person-to-peron contacts are invaluable when it comes to gathering stakeholder input.

Some stakeholders ae on the other side of the digital divid or simply will not respond to electronic or paper questionnaires or surveys. Therefore, person-to-person contact works well for those stakeholders.

3. A statement of how the input will be considered

- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs

Brief explanation.

We take the input received from our stakeholders very seriously. In the same way that a doctor asks the patient where he/she hurts, we want to know that we are poking anc concentrating in the right areas. Stakeholder input has directed our effots to such areas as anthelminire research; modification of barbed wire with electric fencing for goat production; development of curriculum that's more usere friendly; curriculum developed to address specific needs of children in nutrition, mathematics and reading; and deciding when to have certain field days and other events to accommodate our stakeholders' schedules.

Brief Explanation of what you learned from your Stakeholders

We learned about some of the needs of our stakeholders.

Examples
(i) Youth participating in the extended program need ways to maintain and/or strengthen their mathematics and reading skills over the summer months.
(ii) Fish producers need to diversify their production systems to increase their profits and control phytoplankton.
(iii) Clientle need to enhance their knowledge and skills in purchasing healthy foods and preparing healthy meals.
(iv) Meat goat producers need accurate performance measurements to project the productivity of their meat goat bucks.
(v) There is a need for a dependable (non-chemical) method for internal parasite control in goats.
(vi) Goat milk producers need to learn value-added techniques to help increase their profits.

We learned about some of the challenges faced by our stakeholders

Examples
(i) Internal parasite problems in goats
(ii) Off-flavor taste of catfish from phytoplankton build-up in ponds.
(iii) Poor diets contributing to health problems.
(iv) Youth digressing over the summer months and losing many of the skills learned during the previous school year in mathematics and reading.

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	1955026	0	2187553

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	292146	0	240353
Actual Matching	0	192660	0	141284
Actual All Other	0	600481	0	355019
Total Actual Expended	0	1085287	0	736656

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	0	624328	0	362819

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger: Enhanced Goat Production in the South-Central United States

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		30%		30%
307	Animal Management Systems		30%		30%
313	Internal Parasites in Animals		20%		20%
502	New and Improved Food Products		20%		20%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	3.6	0.0	9.1
Actual	0.0	0.7	0.0	2.5

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	40742	0	116564
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	31619

V(D). Planned Program (Activity)

1. Brief description of the Activity

We will publish scientific articles, present research papers at scientific meetings, with newsletter and present workshops and demonstrations.

2. Brief description of the target audience

All present/potential goat producers in Oklahoma and surrounding states.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	400	500	25	50

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

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	12	12

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research projects completed on Enhanced Goat Products

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers learning new goat production techniques.
2	Number of goat producers using new goat production techniques.

Outcome #1

1. Outcome Measures

Number of goat producers learning new goat production techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	600

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Goat enterprises are important components of many farms and farming systems in the United States; particularly among small and resource-poor units. There is a growing number of farms where sales of goats or goat products provide th majority of their income. Many large operations have diversified by adding goats to more conventinal production systems to benefit from the unique feeding habits of goats. Therefore, this project cand lead to improvements in goat management practices, production systems, and use of goat products for increased levels and efficiencies of goat productivity and economic returns. This program is important to a large number of goat industry producers and consumers in Oklahoma, other parts of the United States and numerous contries worldwide.

What has been done
A number of experiments was conducted in 2010. Principal outputs of the project have been disseminated via abstracts and associated poster presentations at scientific meetings. Scientific manuscripts were published. Moreover, information gained has been disseminated through the website of the American Institute for Goat Research and Extension activities such as the Annual Goat Field Day and various workshops held throughout the year.

Results
The resources employed and activities undertaken by this project are contributing to a better understanding of goat production, management and utilization of goat products. Both small and large diversified farming operations that utilize goats have been able to use the technology and information resulting from this project to increase their goat production levels, reduce losses in their herds and increase production efficiency. These facts have helped producers increase their economic returns.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of goat producers using new goat production techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
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4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems
313	Internal Parasites in Animals
502	New and Improved Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

An advisory Council evaluated the scientific merit and usefulness of this project. It was deemed acceptable and on-track in its efforts.

Key Items of Evaluation

The project was examined for its scientific merit and to establish if it could produce useable results.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Childhood Obesity: 4-H Clubs

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	1.4	0.0	0.0
Actual	0.0	1.0	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	52223	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	12844	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	62508	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The 4-H program will conduct meetings, training sessions, classes and used other learning vehicles to help youth develop life skills.

2. Brief description of the target audience

Youth in Oklahoma who qualify for the program.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	112	225

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of of Research Projects completed in the 4-H Club Program.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of youth learning new informations from the 4-H Club Program.
2	Number of youth using information learned in the 4-H Club program.
3	Youth who develop life skills.

Outcome #1

1. Outcome Measures

Number of youth learning new informations from the 4-H Club Program.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	145

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for 4-H Clubs in Oklahoma counties was identified as an issue by concerned parents and community leaders. Most Oklahoma communities offer limited youth education programs for young people. Consequently, there is an unacceptably high number of students susceptible to the negative effects of drugs, alcohol, teen pregnancy, peer pressure, gang violence and school drop out. Inactivity among youth has also led to another health challenge for youth in the form of obesity.

What has been done
Langston University Cooperative Extension staff worked with 4-H volunteer leaders in order to help them maintain their volunteer certification. The staff visited each leader and provided training that included 4-H orientation, steps in starting new 4-H community clubs and serving as effective project leaders. The staff also provided information and materials to leaders in order to help them implement specific projects and events. Clubs conducted meeting during 2010 and presented tailored curriculum to youth. Club members worked on 4-H projects including gardening, woodworking, horses, goats, fabrics and fashion, computer graphics, photography, visual arts, platiculture, entrepreneurship, money management and public speaking. Activities were also conducted to get youth to move and exercise.

Results
During 2010, over 110 youth were reached on a regular basis through Langston University 4-H Club efforts. Many, if not all, of these youth improved their skills in leadership, public speaking and proper human interaction. Youth were challenged to increase their science IQs in hopes of developing a population of future scientists and engineers. Materials were presented and sessions conducted that will hopefully result in more youth choosing to stray away from gangs and drug involvement and become high school graduates.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Number of youth using information learned in the 4-H Club program.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	225

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for 4-H Clubs in Oklahoma counties was identified as an issue by concerned parents and community leaders. Most Oklahoma communities offer limited youth education programs for young people. Consequently, there is an unacceptably high number of students susceptible to the negative effects of drugs, alcohol, teen pregnancy, peer pressure, gang violence and school drop out. Inactivity among youth has also led to another health challenge for youth in the form of obesity.

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4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Youth who develop life skills.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	225

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for 4-H Clubs in Oklahoma counties was identified as an issue by concerned parents and community leaders. Most Oklahoma communities offer limited youth education programs for young people. Consequently, there is an unacceptably high number of students susceptible to the negative effects of drugs, alcohol, teen pregnancy, peer pressure, gang violence and school drop out. Inactivity among youth has also led to another health challenge for youth in the form of obesity.

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4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Appropriations changes
- Competing Public priorities

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Pre and post evaluations of activities showed them to be effective.

Key Items of Evaluation

- Build self-confidence
- Improved math skills
- Improved reading skills

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Childhood Obesity: Extended Education

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	1.1	0.0	0.0
Actual	0.0	1.0	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	52223	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	62508	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension personnel will conduct classes and mini camps in reading, writing, math, science, engineering and technology for youth in Oklahoma.

2. Brief description of the target audience

Youth in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	102	397

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects competed on Extended Education.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of youth taught extended education techniques.
2	Number of youth grasping and using extended education techniques.
3	Number of youth who improved their academic performance and catch up in the classroom.

Outcome #1

1. Outcome Measures

Number of youth taught extended education techniques.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	80	92

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for 4-H Literacy in Action summer program in Logan County was identified as an issue by concerned parents and community leaders. Logan County offers limited youth education programs for young people during the summer months. Consequently, there is an unacceptably high number of latchkey students. Students who do not participate in skills building and recreation programs during their summer vacation are more likely to experience a diminishment in their reading and math capabilities and health and physical fitness. Students who do not have something constructive to do are more susceptible to becoming engaged in destructive situations. There is a national effort through 4-H to increase the number of youth involved in programs in science, engineering and technology. We also addressed that challenge in 2010.

What has been done
Langston University Cooperative Extension staff planned and conducted an annual Literacy in Action Summer Reading Program designed to help Oklahoma Logan County youth, in grades pre-kindergarten through fifth, learn developmental concepts that helped to maintain their academic capabilities and strengthen their overall well being. A setting was created that motivated life skill development during the months of June through July. Sixty-eight students received group and individualized instructions and hands-on practice in math, reading and writing. They participated in nutrition education workshops and performed physical fitness exercises daily. With the child obesity epidemic presently facing our country, physical fitness and proper nutrient were essential daily components of the program. We also developed curriculum that was age-specific in science, engineering and technology (SET). This was part of a program launched during the summer and fall of 2008. College support students, volunteers and university faculty and staff helped deliver the program.

Results
The sixty-eight students who participated in our 4-H Literacy Program received reinforcement

over the summer to help maintain or strengthen their skills in reading and mathematics. Post testing showed the success of the reading and mathematics components of this program. At the conclusion of the program 100% of youth participants demonstrated improvement in reading comprehension. 96% showed improvement in understanding mathematical concepts. Students who participated in the 4-H SET Summer Program received age-specific training in biotechnology, GIS/GPS, map making computer technology, robotics and other areas to create within them a thirst for science, engineering and technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Number of youth grasping and using extended education techniques.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	80	397

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for 4-H Literacy in Action summer program in Logan County was identified as an issue by concerned parents and community leaders. Logan County offers limited youth education programs for young people during the summer months. Consequently, there is an unacceptably high number of latchkey students. Students who do not participate in skills building and recreation programs during their summer vacation are more likely to experience a diminishment in their reading and math capabilities and health and physical fitness. Students who do not have something constructive to do are more susceptible to becoming engaged in destructive situations. There is a national effort through 4-H to increase the number of youth involved in programs in science, engineering and technology. We also addressed that challenge in 2010.

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academic capabilities and strengthen their overall well being. A setting was created that motivated life skill development during the months of June through July. Sixty-eight students received group and individualized instructions and hands-on practice in math, reading and writing. They participated in nutrition education workshops and performed physical fitness exercises daily. With the child obesity epidemic presently facing our country, physical fitness and proper nutrient were essential daily components of the program. We also developed curriculum that was age-specific in science, engineering and technology (SET). This was part of a program launched during the summer and fall of 2008. College support students, volunteers and university faculty and staff helped deliver the program.

Results
The sixty-eight students who participated in our 4-H Literacy Program received reinforcement over the summer to help maintain or strengthen their skills in reading and mathematics. Post testing showed the success of the reading and mathematics components of this program. At the conclusion of the program 100% of youth participants demonstrated improvement in reading comprehension. 96% showed improvement in understanding mathematical concepts. Students who participated in the 4-H SET Summer Program received age-specific training in biotechnology, GIS/GPS, map making computer technology, robotics and other areas to create within them a thirst for science, engineering and technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Number of youth who improved their academic performance and catch up in the classroom.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	70	397

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for 4-H Literacy in Action summer program in Logan County was identified as an issue by concerned parents and community leaders. Logan County offers limited youth education

programs for young people during the summer months. Consequently, there is an unacceptably high number of latchkey students. Students who do not participate in skills building and recreation programs during their summer vacation are more likely to experience a diminishment in their reading and math capabilities and health and physical fitness. Students who do not have something constructive to do are more susceptible to becoming engaged in destructive situations. There is a national effort through 4-H to increase the number of youth involved in programs in science, engineering and technology. We also addressed that challenge in 2010.

What has been done

Langston University Cooperative Extension staff planned and conducted an annual Literacy in Action Summer Reading Program designed to help Oklahoma Logan County youth, in grades pre-kindergarten through fifth, learn developmental concepts that helped to maintain their academic capabilities and strengthen their overall well being. A setting was created that motivated life skill development during the months of June through July. Sixty-eight students received group and individualized instructions and hands-on practice in math, reading and writing. They participated in nutrition education workshops and performed physical fitness exercises daily. With the child obesity epidemic presently facing our country, physical fitness and proper nutrient were essential daily components of the program. We also developed curriculum that was age-specific in science, engineering and technology (SET). This was part of a program launched during the summer and fall of 2008. College support students, volunteers and university faculty and staff helped deliver the program.

Results

The sixty-eight students who participated in our 4-H Literacy Program received reinforcement over the summer to help maintain or strengthen their skills in reading and mathematics. Post testing showed the success of the reading and mathematics components of this program. At the conclusion of the program 100% of youth participants demonstrated improvement in reading comprehension. 96% showed improvement in understanding mathematical concepts. Students who participated in the 4-H SET Summer Program received age-specific training in biotechnology, GIS/GPS, map making computer technology, robotics and other areas to create within them a thirst for science, engineering and technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

The sixty-eight students who participated in our 4-H Literacy program received reinforcement over the summer to help maintain or strengthen their skills in reading and mathematics. Post testing showed the success of the reading and mathematics component of this program. At the conclusion of the program 100% of youth participants demonstrated improvement in reading comprehension. And 96% showed improvement in understanding mathematical concepts.

Key Items of Evaluation

- Built self-confidence
- Improved math skills
- Improved reading skills

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Food Safety: Family and Consumer Sciences

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.5	0.0	0.0
Actual	0.0	0.2	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	14368	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	62508	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

No data for 2010.

2. Brief description of the target audience

Primarily citizens of Oklahoma in underserved areas.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	100	100	100	100

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Family and Consumer Sciences

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of participants who learned about Family and Consumer Sciences.
2	Number of participants who used Family and Consumer Sciences resources.
3	Number of families that improved their quality of life at least in part from this program.

Outcome #1

1. Outcome Measures

Number of participants who learned about Family and Consumer Sciences.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Public officials continue to sound the alarm about America's mounting obesity epidemic; which is no respecter of age, gender, race, or socioeconomic status. With the downturn in the economy, many Americans are facing issues in stretching food, housing and medical dollars. The Family and Consumer Sciences Program at Langston University assist clientele in combating these challenges.

What has been done
Meetings were conducted and demonstrations carried out on healthy food selection, good nutrition and tailoring diets. Exercise type and intensity were also emphasized during sessions.

Results
Program participants reported that they were more selective in their food choices; choosing more healthy foods. Some participants introduced more fruits and vegetables into their meals. These adopted changes in food choices have resulted in weight lost and put some participants on the road to healthy living by way of their diets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2

1. Outcome Measures

Number of participants who used Family and Consumer Sciences resources.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	40	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Public officials continue to sound the alarm about America's mounting obesity epidemic; which is no respecter of age, gender, race, or socioeconomic status. With the downturn in the economy, many Americans are facing issues in stretching food, housing and medical dollars. The Family and Consumer Sciences Program at Langston University assist clientele in combating these challenges.

What has been done
Meetings were conducted and demonstrations carried out on healthy food selection, good nutrition and tailoring diets. Exercise type and intensity were also emphasized during sessions.

Results
Program participants reported that they were more selective in their food choices; choosing more healthy foods. Some participants introduced more fruits and vegetables into their meals. These adopted changes in food choices have resulted in weight lost and put some participants on the road to healthy living by way of their diets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

Number of families that improved their quality of life at least in part from this program.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Public officials continue to sound the alarm about America's mounting obesity epidemic; which is no respecter of age, gender, race, or socioeconomic status. With the downturn in the economy, many Americans are facing issues in stretching food, housing and medical dollars. The Family and Consumer Sciences Program at Langston University assist clientele in combating these challenges.

What has been done
Meetings were conducted and demonstrations carried out on healthy food selection, good nutrition and tailoring diets. Exercise type and intensity were also emphasized during sessions.

Results
Program participants reported that they were more selective in their food choices; choosing more healthy foods. Some participants introduced more fruits and vegetables into their meals. These adopted changes in food choices have resulted in weight lost and put some participants on the road to healthy living by way of their diets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Evaluations revealed positive changes in food selection, preparation and storage. Improved money management resulted in more efficient use of food dollars.

Key Items of Evaluation

- Improved food selection
- Improved food preparation and storage skills.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Food Safety: Food and Nutrition

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
504	Home and Commercial Food Service		100%		0%
	Total		100%		0%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	1.5	0.0	0.0
Actual	0.0	0.7	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	42410	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	62508	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension personnel will conduct classes, seminars, workshops and hold community forums to teach healthy food and nutrition concepts.

2. Brief description of the target audience

Primarily limited families, youth and the elderly.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	200	200	600	650

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects competed on Food and Nutrition.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of participants who learned about food and nutrition.
2	Number of participants who used knowledge/guidelines presented during food and nutrition sessions.
3	Number of participants who improve their lifestyles by following food and nutrition guidelines.

Outcome #1

1. Outcome Measures

Number of participants who learned about food and nutrition.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Food and nutrition practices play a key role in the health of a nation. Many common diseases or conditions leading to diseases such as diabetes, hypertension and heart disease are linked to poor food and nutrition choices. This is especially true within the minority population. Oklahoma, and especially rural Oklahoma, ranks high among the stats when it comes to overweight and obesity.

What has been done
During 2010, over twenty-five sessions on nutrition, healthy eating, exercise, calorie conscience food shopping and food safety were conducted in selected Oklahoma Counties. Sessions were conducted on the MY-Pyramid to teach both adults and youth U.S. Dietary Guidelines. Proper food storage and its relationship to food safety were also addressed.

Results
Written and verbal responses from session participants indicated that most of them increased their knowledge of better food and nutrition practices and some have adopted these healthier nutrition practices. A post-test showed that the majority of participants are retaining the information being presented. Over time, we expect to see more lifestyle changes in terms of participants buying and consuming more nutritious foods, eating more green and leafy vegetables and fruits and exercising more. The results of these long-term lifestyle changes will be healthier.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

Outcome #2

1. Outcome Measures

Number of participants who used knowledge/guidelines presented during food and nutrition sessions.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Food and nutrition practices play a key role in the health of a nation. Many common diseases or conditions leading to diseases such as diabetes, hypertension and heart disease are linked to poor food and nutrition choices. This is especially true within the minority population. Oklahoma, and especially rural Oklahoma, ranks high among the stats when it comes to overweight and obesity.

What has been done
During 2010, over twenty-five sessions on nutrition, healthy eating, exercise, calorie conscience food shopping and food safety were conducted in selected Oklahoma Counties. Sessions were conducted on the MY-Pyramid to teach both adults and youth U.S. Dietary Guidelines. Proper food storage and its relationship to food safety were also addressed.

Results
Written and verbal responses from session participants indicated that most of them increased their knowledge of better food and nutrition practices and some have adopted these healthier nutrition practices. A post-test showed that the majority of participants are retaining the information being presented. Over time, we expect to see more lifestyle changes in terms of participants buying and consuming more nutritious foods, eating more green and leafy vegetables and fruits and exercising more. The results of these long-term lifestyle changes will be healthier.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

Outcome #3

1. Outcome Measures

Number of participants who improve their lifestyles by following food and nutrition guidelines.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Food and nutrition practices play a key role in the health of a nation. Many common diseases or conditions leading to diseases such as diabetes, hypertension and heart disease are linked to poor food and nutrition choices. This is especially true within the minority population. Oklahoma, and especially rural Oklahoma, ranks high among the stats when it comes to overweight and obesity.

What has been done
During 2010, over twenty-five sessions on nutrition, healthy eating, exercise, calorie conscience food shopping and food safety were conducted in selected Oklahoma Counties. Sessions were conducted on the MY-Pyramid to teach both adults and youth U.S. Dietary Guidelines. Proper food storage and its relationship to food safety were also addressed.

Results
Written and verbal responses from session participants indicated that most of them increased their knowledge of better food and nutrition practices and some have adopted these healthier nutrition practices. A post-test showed that the majority of participants are retaining the information being presented. Over time, we expect to see more lifestyle changes in terms of participants buying and consuming more nutritious foods, eating more green and leafy vegetables and fruits and exercising more. The results of these long-term lifestyle changes will be healthier.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Government Regulations
- Competing Public priorities

Brief Explanation

External factors did not affect outcomes

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

Evaluation Results

Participants indicated that they are making better decisions and choices related to food, nutrition, budgeting and balanced diets.

Key Items of Evaluation

- Improvement in food selection, preparation and storage skills
- Development of better budgeting skills.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Global Food Security and Hunger: Biotechnology

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%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.2	0.0	1.0
Actual	0.0	0.2	0.0	1.1

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	9981	0	56110
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	43949

V(D). Planned Program (Activity)

1. Brief description of the Activity

Researchers will develop a local peanut nucletide database and build a bio-informatics pipeline for peanut gene discovery.

2. Brief description of the target audience

All peanut producers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	25	120	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	6	6

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Biotechnology.

Year	Actual
2010	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers learning about the peanut nucelotide database.
2	Number of farmers using the peanut nucleotide database.
3	Farmers who use the peanut nucleotide database or new peanut gene discoveries to improve their peanut production system.

Outcome #1

1. Outcome Measures

Number of farmers learning about the peanut nucelotide database.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a need for developing improved peanut and daylily genotypes that are higher yielding and more diseased and insect resistant. Improved nutritional varieties would include higher protein levels but alleviation of plant DNA that causes allergens. The pace for developing these improve genotypes will be accelerated through the use of modern techniques such as those used in the Biotechnology Program at Langston University.

What has been done
Year 2010 has focused on microarray and cell biology activities. On peanut microarray, organ mRNAs were isolated for probe preparations. The latter were used to screen more that 20,000 clones that were spotted earlier on genes chips for organ specific genes identification. Developmental organ tissues were freshly collected from plants grown in the greenhouse. Sample tissues from roots and stems were used to isolate total RNA and mRNA. cDNA molecules that were copied from mRNAs were labeled as probes with microarray dyes for chips hybridizations. The optimization of the protocol resulted in initial successful screening of root and stem-specific genes. During the same period, cell biology research was conducted on both peanut and daylily. The results led to the development of peanut with a more efficient method for plant formation in cotyledonary tissue. An efficient protocol for cell shoot-commitment was developed for individual peanut organs, other than cotyledon. Expanded screening for additional daylily varieties was also conducted and resulted in more efficient protocol for daylily plant formation in vitro. These activities were used for year-round laboratory hands-on research experience for 12 undergraduate students. Overall 14 students and faculties participated in the local Langston University and regional Oklahoma Research Day meetings, where they all presented experimental results. Six manuscripts were written and submitted to peer-reviewed journals.

Results
During 2010, twelve Langston University students were provided training which allowed them to develop new skills in biotechnology and scientific inquiry. One out of two daylily varieties tested responded positively to quality improvement treatments. This has increased the hopes of Oklahoma daylily farmers for solutions to insect and drought problems. Successful cell biology study of peanut hair developmental morphogenesis will provide an added research value for potential new direction and funding opportunities for genetic studies in this crop. This success has already generated foundational information for expanding related genomic research scope for our biotechnology program. The successful spotting of peanut gen clones has laid the ground work for successful transitioning of related genomic research into its final phase.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of farmers using the peanut nucleotide database.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a need for developing improved peanut and daylily genotypes that are higher yielding and more diseased and insect resistant. Improved nutritional varieties would include higher protein levels but alleviation of plant DNA that causes allergens. The pace for developing these improve genotypes will be accelerated through the use of modern techniques such as those used in the Biotechnology Program at Langston University.

What has been done
Year 2010 has focused on microarray and cell biology activities. On peanut microarray, organ mRNAs were isolated for probe preparations. The latter were used to screen more that 20,000

clones that were spotted earlier on genes chips for organ specific genes identification. Developmental organ tissues were freshly collected from plants grown in the greenhouse. Sample tissues from roots and stems were used to isolate total RNA and mRNA. cDNA molecules that were copied from mRNAs were labeled as probes with microarray dyes for chips hybridizations. The optimization of the protocol resulted in initial successful screening of root and stem-specific genes. During the same period, cell biology research was conducted on both peanut and daylily. The results led to the development of peanut with a more efficient method for plant formation in cotyledonary tissue. An efficient protocol for cell shoot-commitment was developed for individual peanut organs, other than cotyledon. Expanded screening for additional daylily varieties was also conducted and resulted in more efficient protocol for daylily plant formation in vitro. These activities were used for year-round laboratory hands-on research experience for 12 undergraduate students. Overall 14 students and faculties participated in the local Langston University and regional Oklahoma Research Day meetings, where they all presented experimental results. Six manuscripts were written and submitted to peer-reviewed journals.

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4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Farmers who use the peanut nucleotide database or new peanut gene discoveries to improve their peanut production system.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	3	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a need for developing improved peanut and daylily genotypes that are higher yielding and more diseased and insect resistant. Improved nutritional varieties would include higher protein levels but alleviation of plant DNA that causes allergens. The pace for developing these improve genotypes will be accelerated through the use of modern techniques such as those used in the Biotechnology Program at Langston University.

What has been done
Year 2010 has focused on microarray and cell biology activities. On peanut microarray, organ mRNAs were isolated for probe preparations. The latter were used to screen more that 20,000 clones that were spotted earlier on genes chips for organ specific genes identification. Developmental organ tissues were freshly collected from plants grown in the greenhouse. Sample tissues from roots and stems were used to isolate total RNA and mRNA. cDNA molecules that were copied from mRNAs were labeled as probes with microarray dyes for chips hybridizations. The optimization of the protocol resulted in initial successful screening of root and stem-specific genes. During the same period, cell biology research was conducted on both peanut and daylily. The results led to the development of peanut with a more efficient method for plant formation in cotyledonary tissue. An efficient protocol for cell shoot-commitment was developed for individual peanut organs, other than cotyledon. Expanded screening for additional daylily varieties was also conducted and resulted in more efficient protocol for daylily plant formation in vitro. These activities were used for year-round laboratory hands-on research experience for 12 undergraduate students. Overall 14 students and faculties participated in the local Langston University and regional Oklahoma Research Day meetings, where they all presented experimental results. Six manuscripts were written and submitted to peer-reviewed journals.

Results
During 2010, twelve Langston University students were provided training which allowed them to develop new skills in biotechnology and scientific inquiry. One out of two daylily varieties tested responded positively to quality improvement treatments. This has increased the hopes of Oklahoma daylily farmers for solutions to insect and drought problems. Successful cell biology study of peanut hair developmental morphogenesis will provide an added research value for potential new direction and funding opportunities for genetic studies in this crop. This success has already generated foundational information for expanding related genomic research scope for our biotechnology program. The successful spotting of peanut gen clones has laid the ground work for successful transitioning of related genomic research into its final phase.

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

- Competing Public priorities

Brief Explanation

- Time series (multiple points before and after program)

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

Evaluation Results

Annual progress with mapping pathways and develoing DNA libraries for improving test species.

Key Items of Evaluation

Developing DNA libraries.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Climate Change: Water Gardens (Aquaculture)

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
401	Structures, Facilities, and General Purpose Farm Supplies		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.6	0.0	0.3
Actual	0.0	0.1	0.0	0.1

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	6045	0	1852
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	30089

V(D). Planned Program (Activity)

1. Brief description of the Activity

Studies were conducted on water garden filtration utilizing native submergent aquatic vegetation and on biological filter design for koi ponds.

2. Brief description of the target audience

All aquaculture farmers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	250	300	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Water Gardens

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers learning water garden techiques.
2	Number of farmers using water garden techniques.
3	Farmers who improve the water quality of their water gardens and reduce operational costs.

Outcome #1

1. Outcome Measures

Number of farmers learning water garden techiques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	300	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers and sellers of fish and hard goods for ornamental ponds need accurate information and appropriate technologies to grow their businesses and purchasers need proper information and technology to sustain their enthusiasm for the hobby.

What has been done
During 2010, we conducted the Annual Field Day and attended the meeting of the Kansas Aquaculture Association. Presentations were made during the Langston University Small Farms Conference regarding the opportunities for aquaculture production and sales in Oklahoma and surrounding states. Results of research performed in university research ponds were also presented. Research was initiated that investigated the configuration of floating bead filtration systems for ornamental ponds. Fact sheets were written and posted on the Aquaculture Program website.

Results
Hobbyists increase the efficiency of their pond filtration systems and they reported fewer problems associated with water quality than in previous years. Producers experienced fewer cases of fish health problems. More producers reported being able to extend their fish production and harvesting season. The prolonged season resulted in increased opportunities for fish sales and profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies

Outcome #2

1. Outcome Measures

Number of farmers using water garden techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	70	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers and sellers of fish and hard goods for ornamental ponds need accurate information and appropriate technologies to grow their businesses and purchasers need proper information and technology to sustain their enthusiasm for the hobby.

What has been done
During 2010, we conducted the Annual Field Day and attended the meeting of the Kansas Aquaculture Association. Presentations were made during the Langston University Small Farms Conference regarding the opportunities for aquaculture production and sales in Oklahoma and surrounding states. Results of research performed in university research ponds were also presented. Research was initiated that investigated the configuration of floating bead filtration systems for ornamental ponds. Fact sheets were written and posted on the Aquaculture Program website.

Results
Hobbyists increase the efficiency of their pond filtration systems and they reported fewer problems associated with water quality than in previous years. Producers experienced fewer cases of fish health problems. More producers reported being able to extend their fish production and harvesting season. The prolonged season resulted in increased opportunities for fish sales and profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies

Outcome #3

1. Outcome Measures

Farmers who improve the water quality of their water gardens and reduce operational costs.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers and sellers of fish and hard goods for ornamental ponds need accurate information and appropriate technologies to grow their businesses and purchasers need proper information and technology to sustain their enthusiasm for the hobby.

What has been done
During 2010, we conducted the Annual Field Day and attended the meeting of the Kansas Aquaculture Association. Presentations were made during the Langston University Small Farms Conference regarding the opportunities for aquaculture production and sales in Oklahoma and surrounding states. Results of research performed in university research ponds were also presented. Research was initiated that investigated the configuration of floating bead filtration systems for ornamental ponds. Fact sheets were written and posted on the Aquaculture Program website.

Results
Hobbyists increase the efficiency of their pond filtration systems and they reported fewer problems associated with water quality than in previous years. Producers experienced fewer cases of fish health problems. More producers reported being able to extend their fish production and harvesting season. The prolonged season resulted in increased opportunities for fish sales and profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Development of best management practices for the water garden industry.

Key Items of Evaluation

Sharing best management practices with clientele.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Global Food Security and Hunger: Alternative Species (Aquaculture)

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
307	Animal Management Systems		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.4	0.0	0.2
Actual	0.0	0.3	0.0	0.2

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	15686	0	9233
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	30089

V(D). Planned Program (Activity)

1. Brief description of the Activity

Buffalo fish species will be tested for sustainability and profitability in Oklahoma.

2. Brief description of the target audience

All aquaculture farmers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	350	380	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 1

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Alternative Species

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers learning alternative fish species techniques.
2	Number of farmers using alternative fish species techniques.
3	Farmers who improved their yearly income by using alternative fish species.

Outcome #1

1. Outcome Measures

Number of farmers learning alternative fish species techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	80	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need additional marketing venues and opportunities to withstand uncertainties. Consumers want more product choices, including kinds and sizes of live fish vs. fish processed by any means. Consumers also want, but seldom find, high quality temperate, scaled fish. Aquaculture production of buffalo fishes and grass carp can meet consumer desires and provide additional income opportunities for channel catfish producers. Hobbyist awareness of Oklahoma sources of garden pond fish can increase sales by local farmers.

What has been done
We conducted the annual Langston University Aquaculture Field Day and attended the annual meeting of the Kansas Aquaculture Association. During these two events, we presented research results comparing the production of smallmouth vs. bigmouth buffalo to both sets of farmers. Research findings were presented to attendees at the Langston University Small Farms Conference regarding the opportunities for aquaculture production and sales in Oklahoma and surrounding states. We initiated contact between local retail outlets and Oklahoma fish farmers to increase sales of cultured grass carp and buffalo.

Results
Activities in this program helped fish producers explore or develop existing and new markets for their fish crops. During 2010, more fish farmers were encouraged by this program to develop direct contact with end buyers to sale their fish. The results of these efforts were more profits for fish producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #2

1. Outcome Measures

Number of farmers using alternative fish species techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	30	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need additional marketing venues and opportunities to withstand uncertainties. Consumers want more product choices, including kinds and sizes of live fish vs. fish processed by any means. Consumers also want, but seldom find, high quality temperate, scaled fish. Aquaculture production of buffalo fishes and grass carp can meet consumer desires and provide additional income opportunities for channel catfish producers. Hobbyist awareness of Oklahoma sources of garden pond fish can increase sales by local farmers.

What has been done
We conducted the annual Langston University Aquaculture Field Day and attended the annual meeting of the Kansas Aquaculture Association. During these two events, we presented research results comparing the production of smallmouth vs. bigmouth buffalo to both sets of farmers. Research findings were presented to attendees at the Langston University Small Farms Conference regarding the opportunities for aquaculture production and sales in Oklahoma and surrounding states. We initiated contact between local retail outlets and Oklahoma fish farmers to increase sales of cultured grass carp and buffalo.

Results
Activities in this program helped fish producers explore or develop existing and new markets for their fish crops. During 2010, more fish farmers were encouraged by this program to develop direct contact with end buyers to sale their fish. The results of these efforts were more profits for fish producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #3

1. Outcome Measures

Farmers who improved their yearly income by using alternative fish species.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need additional marketing venues and opportunities to withstand uncertainties. Consumers want more product choices, including kinds and sizes of live fish vs. fish processed by any means. Consumers also want, but seldom find, high quality temperate, scaled fish. Aquaculture production of buffalo fishes and grass carp can meet consumer desires and provide additional income opportunities for channel catfish producers. Hobbyist awareness of Oklahoma sources of garden pond fish can increase sales by local farmers.

What has been done
We conducted the annual Langston University Aquaculture Field Day and attended the annual meeting of the Kansas Aquaculture Association. During these two events, we presented research results comparing the production of smallmouth vs. bigmouth buffalo to both sets of farmers. Research findings were presented to attendees at the Langston University Small Farms Conference regarding the opportunities for aquaculture production and sales in Oklahoma and surrounding states. We initiated contact between local retail outlets and Oklahoma fish farmers to increase sales of cultured grass carp and buffalo.

Results
Activities in this program helped fish producers explore or develop existing and new markets for their fish crops. During 2010, more fish farmers were encouraged by this program to develop direct contact with end buyers to sale their fish. The results of these efforts were more profits for

fish producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Determine whether bigmouth or smallmouth buffalo fish can result in profitable polyculture fish crops for fish growers.

Key Items of Evaluation

- Production cost analyses
- Feasibility study on use of alternative fish species.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Global Food Security and Hunger: Fishery Management (Aquaculture)

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
307	Animal Management Systems		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.4	0.0	0.4
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

No activity to report this year.

2. Brief description of the target audience

All aquaculture farmers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Fishery Management.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers learning new fishery management techniques.
2	Number of farmers using new fishery management techniques.
3	Farmers who have improved thier production efficiency and raised their profits with the new fishery management techniques.

Outcome #1

1. Outcome Measures

Number of farmers learning new fishery management techniques.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No activity accured during 2010.

What has been done
No activity accured during 2010.

Results
No activity accured during 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #2

1. Outcome Measures

Number of farmers using new fishery management techniques.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No activity accured during 2010.

What has been done
No activity accured during 2010.

Results
No activity accured during 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #3

1. Outcome Measures

Farmers who have improved thier production efficiency and raised their profits with the new fishery management techniques.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No activity accured during 2010.

What has been done
No activity accured during 2010.

Results
No activity accured during 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes

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

Evaluation Results

Overall improvement in urban pond water quality at specific sites and consequently improvement in the quality of some watershed streams.

Key Items of Evaluation

- Increase in water quality for specific residential ponds.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Global Food Security and Hunger: Sustainable Internal Parasite Control for Small Ruminants

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
313	Internal Parasites in Animals		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.2	0.0	0.1
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	14850	0	2383
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	31619

V(D). Planned Program (Activity)

1. Brief description of the Activity

Internal parasites are the most important health issue in small ruminants; causing greater morbidity, mortality and lost production than the next three most important diseases. The problem with internal parasites include lack of knowledge on biology and management practices to control them, internet misinformation and dewormer resistance.

2. Brief description of the target audience

During 2010, we conducted seven goat parasite workshops to teach producers techniques in integrated pest management as applied to internal parasites. Two hundred goat producers were trained. Parasite workshops were held in areas where producers requested them. We are evaluating the feasibility of implementing a web-based interactive training workshop. We are also in the process of surveying producers who attended our workshops over the last several years to evaluate the long term impact of the workshops and areas that need to be emphasized more. An article on parasites in goats was published in the Goat Rancher Magazine. Five presentations were also given on parasite management and two hundred thirty-five producers were in attendance.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	{NO DATA	{NO DATA	{NO DATA	{NO DATA

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

Patent Applications Submitted

Year: 2010

Actual: {No Data

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	{No Data Entered}	{No Data Entered}	{No Data Entered}

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on sustainable internal parasite control.

Year **Actual**

2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers learning internal parasite control techniques.
2	Number of goat producers using internal parasite control techniques.
3	Goat producers who have gotten internal parasites under control by using the learned control technique.

Outcome #1

1. Outcome Measures

Number of goat producers learning internal parasite control techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	409

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Internal parasites are the most important health issue in small ruminants; causing greater morbidity, mortality and lost production than the next three most important diseases. The problem with internal parasites include lack of knowledge on biology and management practices to control them, internet misinformation and dewormer resistance.

What has been done
During 2010, we conducted seven goat parasite workshops to teach producers techniques in integrated pest management as applied to internal parasites. Two hundred goat producers were trained. Parasite workshops were held in areas where producers requested them. We are evaluating the feasibility of implementing a web-based interactive training workshop. We are also in the process of surveying producers who attended our workshops over the last several years to evaluate the long term impact of the workshops and areas that need to be emphasized more. An article on parasites in goats was published in the Goat Rancher Magazine. Five presentations were also given on parasite management and two hundred thirty-five producers were in attendance.

Results
In 2010, we had numerous compliments from producers on information presented that resulted in them reducing their goat herd parasite problems. One producer said that parasites are no longer a significant management problem. Participants in our parasite workshops were surveyed by the Southern Consortium for Small Ruminant Parasite Control. 94% of participants said that FAMCHA training (part of our parasite workshop) helped them to better monitor or control parasites. 74% indicated that they had reduced parasite problems as a result of taking the workshop. 87% of the participants were using the FAMACHA procedure to determine the necessity for deworming animals and 73% said that they dewormed their animals less often.

FAMACHA is a system developed in South Africa to manage parasite control in small ruminants and reduce the use of anthelminties. This results in significant savings for many ruminant producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
313	Internal Parasites in Animals

Outcome #2

1. Outcome Measures

Number of goat producers using internal parasite control techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	378

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Internal parasites are the most important health issue in small ruminants; causing greater morbidity, mortality and lost production than the next three most important diseases. The problem with internal parasites include lack of knowledge on biology and management practices to control them, internet misinformation and dewormer resistance.

What has been done
During 2010, we conducted seven goat parasite workshops to teach producers techniques in integrated pest management as applied to internal parasites. Two hundred goat producers were trained. Parasite workshops were held in areas where producers requested them. We are evaluating the feasibility of implementing a web-based interactive training workshop. We are also in the process of surveying producers who attended our workshops over the last several years to evaluate the long term impact of the workshops and areas that need to be emphasized more. An article on parasites in goats was published in the Goat Rancher Magazine. Five presentations were also given on parasite management and two hundred thirty-five producers were in attendance.

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4. Associated Knowledge Areas

KA Code	Knowledge Area
313	Internal Parasites in Animals

Outcome #3

1. Outcome Measures

Goat producers who have gotten internal parasites under control by using the learned control technique.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	15	318

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Internal parasites are the most important health issue in small ruminants; causing greater morbidity, mortality and lost production than the next three most important diseases. The problem with internal parasites include lack of knowledge on biology and management practices to control them, internet misinformation and dewormer resistance.

What has been done
During 2010, we conducted seven goat parasite workshops to teach producers techniques in integrated pest management as applied to internal parasites. Two hundred goat producers were

trained. Parasite workshops were held in areas where producers requested them. We are evaluating the feasibility of implementing a web-based interactive training workshop. We are also in the process of surveying producers who attended our workshops over the last several years to evaluate the long term impact of the workshops and areas that need to be emphasized more. An article on parasites in goats was published in the Goat Rancher Magazine. Five presentations were also given on parasite management and two hundred thirty-five producers were in attendance.

Results

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4. Associated Knowledge Areas

KA Code	Knowledge Area
313	Internal Parasites in Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Global Food Security and Hunger: Goat Internet Website

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
903	Communication, Education, and Information Delivery		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.1	0.0	0.1
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	6316	0	2772
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	31619

V(D). Planned Program (Activity)

1. Brief description of the Activity

Meat goat production is one of the fastest growing sectors of the livestock industry in the United States. New producers, as well as some established ones, have an expressed need for current, correct information on how to raise goats and produce safe, wholesome products in demand by the public. As the meat goat industry grows and evolves, a quality assurance (QA) program is essential. Such a QA

program ensures the production of a wholesome product that satisfies consumers and increases profit for the meat goat industry.

2. Brief description of the target audience

Langston University was awarded funding by the food safety and Inspection service of USDA to develop training and certification for meat goat producers. Langston University organized and led a consortium of 1890 universities and producer associations in this project. The consortium identified the subject topics most pertinent and pressing for the instructional modules. The consortium then identified experts on the selected subject topics and pursued these experts as module authors. These authors represent the most qualified persons in their field in academia as well as in the industry. Langston University translated the 22 instructional modules into web pages with accompanying images, and pre- and post tests for those producers wishing to pursue certification. All modules are also available in pdf for easy printing and the introductory module is available as a podchapter for downloading and listening on your favorite mp3 player. The web-site (http://www2.luresext.edu/goats/training/qa.html) was well received by the goat community.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Goat Internet Website.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers learning about information found on the goat internet website.
2	Number of goat producers using the goat internet website.
3	Goat producers who improved their operations with information from the goat internet website.

Outcome #1

1. Outcome Measures

Number of goat producers learning about information found on the goat internet website.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	600	450

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Meat goat production is one of the fastest growing sectors of the livestock industry in the United States. New producers, as well as some established ones, have an expressed need for current, correct information on how to raise goats and produce safe, wholesome products in demand by the public. As the meat goat industry grows and evolves, a quality assurance (QA) program is essential. Such a QA program ensures the production of a wholesome product that satisfies consumers and increases profit for the meat goat industry.

What has been done
Langston University was awarded funding by the food safety and Inspection service of USDA to develop training and certification for meat goat producers. Langston University organized and led a consortium of 1890 universities and producer associations in this project. The consortium identified the subject topics most pertinent and pressing for the instructional modules. The consortium then identified experts on the selected subject topics and pursued these experts as module authors. These authors represent the most qualified persons in their field in academia as well as in the industry. Langston University translated the 22 instructional modules into web pages with accompanying images, and pre- and post tests for those producers wishing to pursue certification. All modules are also available in pdf for easy printing and the introductory module is available as a podchapter for downloading and listening on your favorite mp3 player. The web-site (http://www2.luresext.edu/goats/training/qa.html) was well received by the goat community.

Results
One thousand four hundred eighty-six goat producers have enrolled in the on-line certification program and 193 goat producers have been certified via the site to date. They represent nearly every state in the United States, several provinces in Canada, and three foreign countries. Knowledge gained by producers for more efficient and effective goat production can potentially

result in increased profits for many of these 193 producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Number of goat producers using the goat internet website.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	600	48

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Meat goat production is one of the fastest growing sectors of the livestock industry in the United States. New producers, as well as some established ones, have an expressed need for current, correct information on how to raise goats and produce safe, wholesome products in demand by the public. As the meat goat industry grows and evolves, a quality assurance (QA) program is essential. Such a QA program ensures the production of a wholesome product that satisfies consumers and increases profit for the meat goat industry.

What has been done
Langston University was awarded funding by the food safety and Inspection service of USDA to develop training and certification for meat goat producers. Langston University organized and led a consortium of 1890 universities and producer associations in this project. The consortium identified the subject topics most pertinent and pressing for the instructional modules. The consortium then identified experts on the selected subject topics and pursued these experts as module authors. These authors represent the most qualified persons in their field in academia as well as in the industry. Langston University translated the 22 instructional modules into web pages with accompanying images, and pre- and post tests for those producers wishing to pursue certification. All modules are also available in pdf for easy printing and the introductory module is available as a podchapter for downloading and listening on your favorite mp3 player. The web-

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4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Goat producers who improved their operations with information from the goat internet website.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	48

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Meat goat production is one of the fastest growing sectors of the livestock industry in the United States. New producers, as well as some established ones, have an expressed need for current, correct information on how to raise goats and produce safe, wholesome products in demand by the public. As the meat goat industry grows and evolves, a quality assurance (QA) program is essential. Such a QA program ensures the production of a wholesome product that satisfies consumers and increases profit for the meat goat industry.

What has been done
Langston University was awarded funding by the food safety and Inspection service of USDA to develop training and certification for meat goat producers. Langston University organized and led a consortium of 1890 universities and producer associations in this project. The consortium

identified the subject topics most pertinent and pressing for the instructional modules. The consortium then identified experts on the selected subject topics and pursued these experts as module authors. These authors represent the most qualified persons in their field in academia as well as in the industry. Langston University translated the 22 instructional modules into web pages with accompanying images, and pre- and post tests for those producers wishing to pursue certification. All modules are also available in pdf for easy printing and the introductory module is available as a podchapter for downloading and listening on your favorite mp3 player. The web-site (http://www2.luresext.edu/goats/training/qa.html) was well received by the goat community.

Results

One thousand four hundred eighty-six goat producers have enrolled in the on-line certification program and 193 goat producers have been certified via the site to date. They represent nearly every state in the United States, several provinces in Canada, and three foreign countries. Knowledge gained by producers for more efficient and effective goat production can potentially result in increased profits for many of these 193 producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Eagerness of goat producers to register for and complete the goat producer certification module.

Key Items of Evaluation

Certified goat producers improve their goat production practices.

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Global Food Security and Hunger: Development of New Dairy Goat Products

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		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.3	0.0	0.3
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

No activity to report this year.

2. Brief description of the target audience

All goat producers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research projects completed on Development of New Dairy Goat Products

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers learning about techniques for developing new dairy goat products.
2	Number of goat producers using techniques for developing new dairy goat products.
3	Goat producers developing increasing yearly income from new dairy goat products.

Outcome #1

1. Outcome Measures

Number of goat producers learning about techniques for developing new dairy goat products.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No activity occured during 2010.

What has been done
No activity occured during 2010.

Results
No activity occured during 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

Outcome #2

1. Outcome Measures

Number of goat producers using techniques for developing new dairy goat products.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No activity occured during 2010.

What has been done
No activity occured during 2010.

Results
No activity occured during 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

Outcome #3

1. Outcome Measures

Goat producers developing increasing yearly income from new dairy goat products.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No activity occured during 2010.

What has been done
No activity occured during 2010.

Results
No activity occured during 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Natural Disasters (drought, weather extremes, etc.)

Brief Explanation

No activity occured during 2010.

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

Evaluation Results

No activity occured during 2010.

Key Items of Evaluation

No activity occured during 2010.

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Global Food Security and Hunger: Demonstration Clinic: Artificial Insemination for Goats

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.1	0.0	0.0
Actual	0.0	0.1	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	3910	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	31619

V(D). Planned Program (Activity)

1. Brief description of the Activity

Hands-on artifical insemination (AI) workshops will be conducted to teach AI techniques to goat producers. These AI skills will allow goat producers to gain access to genetically superior sires for herd improvement.

2. Brief description of the target audience

All goat producers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	51	120	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of goat producers learning about artificial insemination techniques

Year	Actual
2010	51

Output #2

Output Measure

- Number of goat producers using artifical insemination techniques.

Year	Actual
2010	51

Output #3

Output Measure

- Goat producers who improved their herds by using artificial insemination techniques.

Year	Actual
2010	51

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers learning about artificial insemination techniques.
2	Number of goat producers using artificial insemination techniques.
3	Goat producers who improved their herds by using artificial insemination techniques.

Outcome #1

1. Outcome Measures

Number of goat producers learning about artificial insemination techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The use of superior sires is imperative in improving the genetic composition of breeding stock. Artificial insemination has long been used in the dairy cattle industry and is a simple technology that goat producers can acquire. However, opportunities for goat producers to the necessary skills via formal and practical instruction are not widespread. Langston University has instituted a practical workshop for instruction in artificial insemination in goats. Producers are instructed in the anatomy and physiology of the female goat, estrus detection and handling and storage of semen. Producers participate in a hands-on insemination exercise. An understanding of the anatomy and physiology enable the producer to devise seasonal breeding plans and to troubleshoot problem breeders

What has been done
In 2010, AI workshops were held on 09/11/10 at the Langston University campus and on 10/09/10 at the county fairgrounds in Antlers, Forty-one participants enrolled in the two workshops; 23 at Langston University and 18 in Antlers.

Results
Two workshops were held in AI for goats. Goat producers are under-served in this area because traditional AI courses are geared toward cattle and the AI techniques differ drastically between the species. Goat producers participating in the workshops can save money by being able to conduct their own herd artificial inseminations. They can also potentially improve their herds with access to genetic material from superior sires.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals

Outcome #2

1. Outcome Measures

Number of goat producers using artificial insemination techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The use of superior sires is imperative in improving the genetic composition of breeding stock. Artificial insemination has long been used in the dairy cattle industry and is a simple technology that goat producers can acquire. However, opportunities for goat producers to the necessary skills via formal and practical instruction are not widespread. Langston University has instituted a practical workshop for instruction in artificial insemination in goats. Producers are instructed in the anatomy and physiology of the female goat, estrus detection and handling and storage of semen. Producers participate in a hands-on insemination exercise. An understanding of the anatomy and physiology enable the producer to devise seasonal breeding plans and to troubleshoot problem breeders.

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Results
Two workshops were held in AI for goats. Goat producers are under-served in this area because traditional AI courses are geared toward cattle and the AI techniques differ drastically between the species. Goat producers participating in the workshops can save money by being able to conduct their own herd artificial inseminations. They can also potentially improve their herds with access to genetic material from superior sires.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals

Outcome #3

1. Outcome Measures

Goat producers who improved their herds by using artificial insemination techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	30	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The use of superior sires is imperative in improving the genetic composition of breeding stock. Artificial insemination has long been used in the dairy cattle industry and is a simple technology that goat producers can acquire. However, opportunities for goat producers to the necessary skills via formal and practical instruction are not widespread. Langston University has instituted a practical workshop for instruction in artificial insemination in goats. Producers are instructed in the anatomy and physiology of the female goat, estrus detection and handling and storage of semen. Producers participate in a hands-on insemination exercise. An understanding of the anatomy and physiology enable the producer to devise seasonal breeding plans and to troubleshoot problem breeders.

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Two workshops were held in AI for goats. Goat producers are under-served in this area because traditional AI courses are geared toward cattle and the AI techniques differ drastically between the species. Goat producers participating in the workshops can save money by being able to conduct their own herd artificial inseminations. They can also potentially improve their herds with

access to genetic material from superior sires.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Goat producers acquiring artifical insemination skills.

Key Items of Evaluation

- Goat producers saving money by performing artifical insemination on their own herds.
- Goat producers improving their herds via genetic material from superior sires.

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

Global Food Security and Hunger: Fish Marketing (Aquaculture)

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		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	0.0
Actual	0.0	0.3	0.0	0.2

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	15686	0	9233
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	30089

V(D). Planned Program (Activity)

1. Brief description of the Activity

Methods of marketing alternative fish species will be explored to increase fish producers' profits.

2. Brief description of the target audience

All aquaculture producers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	350	380	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Fish Marketing.

Year	Actual
2010	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers learning new fish marketing techniques.
2	Number of farmers using new fish marketing techniques.
3	Farmers who use new fish marketing techniques to increase their profits.

Outcome #1

1. Outcome Measures

Number of farmers learning new fish marketing techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need additional sale venues to withstand economic uncertainties. Competition from a state agency is an ongoing obstacle to sales. Aquaculture production of buffalo fishes and grass carp can meet consumer desires and provide additional income opportunities for channel catfish producers, but more buyers must be found for buffalo and grass carp.

What has been done
We used monthly campus sales to determine the sizes of channel catfish, grass carp and bigmouth buffalo preferred by local consumers. The information was primarily transferred to producers at the Langston University Aquaculture Field Day and at meetings of the Oklahoma and Kansas Aquaculture Associations.

Results
This program identified locations for fish farmers where direct sales of food fish could be made to the public. Producers were taught effective methods for conducting direct fish sales to the public. Even during a time of economic downturns, some producers realized profits from the direct sale of their fish. We assisted a small scale processor of smoked fish in starting a business.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of farmers using new fish marketing techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need additional sale venues to withstand economic uncertainties. Competition from a state agency is an ongoing obstacle to sales. Aquaculture production of buffalo fishes and grass carp can meet consumer desires and provide additional income opportunities for channel catfish producers, but more buyers must be found for buffalo and grass carp.

What has been done

We used monthly campus sales to determine the sizes of channel catfish, grass carp and bigmouth buffalo preferred by local consumers. The information was primarily transferred to producers at the Langston University Aquaculture Field Day and at meetings of the Oklahoma and Kansas Aquaculture Associations.

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This program identified locations for fish farmers where direct sales of food fish could be made to the public. Producers were taught effective methods for conducting direct fish sales to the public. Even during a time of economic downturns, some producers realized profits from the direct sale of their fish. We assisted a small scale processor of smoked fish in starting a business.

4. Associated Knowledge Areas

KA Code	Knowledge Area

601 Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Farmers who use new fish marketing techniques to increase their profits.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need additional sale venues to withstand economic uncertainties. Competition from a state agency is an ongoing obstacle to sales. Aquaculture production of buffalo fishes and grass carp can meet consumer desires and provide additional income opportunities for channel catfish producers, but more buyers must be found for buffalo and grass carp.

What has been done
We used monthly campus sales to determine the sizes of channel catfish, grass carp and bigmouth buffalo preferred by local consumers. The information was primarily transferred to producers at the Langston University Aquaculture Field Day and at meetings of the Oklahoma and Kansas Aquaculture Associations.

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4. Associated Knowledge Areas

KA Code	Knowledge Area

601 Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Development of new market or marketing methods for fish producers.

Key Items of Evaluation

- Fish producers improving their income via direct marketing of fish.

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Global Food Security and Hunger: Meat Buck Performance Test

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
303	Genetic Improvement of Animals		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.2	0.0	0.1
Actual	0.0	0.2	0.0	0.1

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	9774	0	2172
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	12844	0	12844
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	31859	0	31619

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension personnel will conduct the annual meat goat performance test for young, growing meat bucks to evaluate growth and fed efficiency.

2. Brief description of the target audience

All goat producers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	23	300	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Meat Buck Performance Test.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers learning about the meat buck performance test.
2	Number of goat producers using the meat goat performance test.
3	Goat producers who improve their herds via the meat buck performance test.

Outcome #1

1. Outcome Measures

Number of goat producers learning about the meat buck performance test.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
An influential aspect of meat goat production is the growth rate and/or efficiency of kids. Objective performance records are needed when making informed genetic selections to improve average daily gain, feed efficiency and/or residual feed intake. In order to compare animals from different ranches or environments, a central performance meat buck testing is conducted. In 1997, Langston University established a meat buck performance test to promote the identification and increased utilization of genetically superior sires.

What has been done
The 2010 annual meat buck performance test began on June 5th with 40 bucks enrolled from 9 different goat breeders. The geographical distribution for bucks tested was 3 from Missouri, 5 from Nebraska, 16 from Oklahoma and 16 from Texas.

Results
The Meat buck performance test enables goat producers to demand higher prices for goats sold on the market that have a positive performance test. Some producers have been able to purchase more superior goat breeds and improve their herds. This increases their potentials for future profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals

Outcome #2

1. Outcome Measures

Number of goat producers using the meat goat performance test.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	30	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
An influential aspect of meat goat production is the growth rate and/or efficiency of kids. Objective performance records are needed when making informed genetic selections to improve average daily gain, feed efficiency and/or residual feed intake. In order to compare animals from different ranches or environments, a central performance meat buck testing is conducted. In 1997, Langston University established a meat buck performance test to promote the identification and increased utilization of genetically superior sires.

What has been done
The 2010 annual meat buck performance test began on June 5th with 40 bucks enrolled from 9 different goat breeders. The geographical distribution for bucks tested was 3 from Missouri, 5 from Nebraska, 16 from Oklahoma and 16 from Texas.

Results
The Meat buck performance test enables goat producers to demand higher prices for goats sold on the market that have a positive performance test. Some producers have been able to purchase more superior goat breeds and improve their herds. This increases their potentials for future profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals

Outcome #3

1. Outcome Measures

Goat producers who improve their herds via the meat buck performance test.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
An influential aspect of meat goat production is the growth rate and/or efficiency of kids. Objective performance records are needed when making informed genetic selections to improve average daily gain, feed efficiency and/or residual feed intake. In order to compare animals from different ranches or environments, a central performance meat buck testing is conducted. In 1997, Langston University established a meat buck performance test to promote the identification and increased utilization of genetically superior sires.

What has been done
The 2010 annual meat buck performance test began on June 5th with 40 bucks enrolled from 9 different goat breeders. The geographical distribution for bucks tested was 3 from Missouri, 5 from Nebraska, 16 from Oklahoma and 16 from Texas.

Results
The Meat buck performance test enables goat producers to demand higher prices for goats sold on the market that have a positive performance test. Some producers have been able to purchase more superior goat breeds and improve their herds. This increases their potentials for future profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Meat buck performance tests give got producers and accurate assessment of the market value of their animals.

Key Items of Evaluation

Some meat goat producers are able to demand higher market values for their animals because of an accurate buck performance test.

V(A). Planned Program (Summary)

Program # 16

1. Name of the Planned Program

Food Safety: Goat Dairy Herd Improvement (DHI) Laboratory

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
308	Improved Animal Products (Before Harvest)		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.1	0.0	1.0
Actual	0.0	0.1	0.0	0.1

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	4056	0	22129
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	31619

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension personnel will conduct goat milk quality tests in the Langston University Goat Dairy Herd improvement Laboratory.

2. Brief description of the target audience

All goat producers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	55	600	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	1	0	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Goat Dairy Herd Improvement (DHI) Laboratory.

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of goat producers who learned about the Goat Dairy Herd Improvement Laboratory.
2	Number of goat producers who are using the Goat Dairy Herd Improvement Laboratory.
3	Goat producers who have increased their production profits by utilizing the Goat Dairy Herd Improvement Laboratory.

Outcome #1

1. Outcome Measures

Number of goat producers who learned about the Goat Dairy Herd Improvement Laboratory.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1000	500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Dairy Herd Improvement Association (DHIA) has been serving cow producers for decades. However, for many years dairy goat producers had to deal with records written in cow language. This meant that the could not get accurate information in goat terms and that all the reports reflected cows, bulls and calves rather than does, bucks and kids. The records produced by our DHI lab are used to identify high producing does. These records are useful for the exportation of these does to foreign countries and accurate data could enhance the resale value of their does and offspring for the producers domestically as well.

What has been done
During 2010, we used a program developed in cooperation with other institutions to utilize goat language for accurate data measurements and recordings. Accurate records were produced on dairy goat breeds along with correct gender identification and expected delivery dates for pregnant does. Workshops were conducted on the benefits of having DHIA records and how to collect raw data and milk sample for DHI laboratory processing.

Results
Goat producers are now able to get records for their animals that reflect accurate information with the correct language. These records not only reflect higher fat and protein values for a doe, but also are easier to understand when used for genetic evaluation and for herd management. Currently, we are serving 130 goat producers in 35 states. Information provided by the Langston University DHI Laboratory has allowed goat producers to demand higher prices for their animals during sales. Of the 130 participating producers, information from this program helped them increase their profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)

Outcome #2

1. Outcome Measures

Number of goat producers who are using the Goat Dairy Herd Improvement Laboratory.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	150	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Dairy Herd Improvement Association (DHIA) has been serving cow producers for decades. However, for many years dairy goat producers had to deal with records written in cow language. This meant that the could not get accurate information in goat terms and that all the reports reflected cows, bulls and calves rather than does, bucks and kids. The records produced by our DHI lab are used to identify high producing does. These records are useful for the exportation of these does to foreign countries and accurate data could enhance the resale value of their does and offspring for the producers domestically as well.

What has been done
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University DHI Laboratory has allowed goat producers to demand higher prices for their animals during sales. Of the 130 participating producers, information from this program helped them increase their profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)

Outcome #3

1. Outcome Measures

Goat producers who have increased their production profits by utilizing the Goat Dairy Herd Improvement Laboratory.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	75	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Dairy Herd Improvement Association (DHIA) has been serving cow producers for decades. However, for many years dairy goat producers had to deal with records written in cow language. This meant that the could not get accurate information in goat terms and that all the reports reflected cows, bulls and calves rather than does, bucks and kids. The records produced by our DHI lab are used to identify high producing does. These records are useful for the exportation of these does to foreign countries and accurate data could enhance the resale value of their does and offspring for the producers domestically as well.

What has been done
During 2010, we used a program developed in cooperation with other institutions to utilize goat language for accurate data measurements and recordings. Accurate records were produced on dairy goat breeds along with correct gender identification and expected delivery dates for pregnant does. Workshops were conducted on the benefits of having DHIA records and how to collect raw data and milk sample for DHI laboratory processing.

Results
Goat producers are now able to get records for their animals that reflect accurate information with the correct language. These records not only reflect higher fat and protein values for a doe, but also are easier to understand when used for genetic evaluation and for herd management. Currently, we are serving 130 goat producers in 35 states. Information provided by the Langston University DHI Laboratory has allowed goat producers to demand higher prices for their animals during sales. Of the 130 participating producers, information from this program helped them increase their profits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Natural Disasters (drought, weather extremes, etc.)

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Goat producers are able to get accurate milk fat and protein records for their dairy goats.

Key Items of Evaluation

Goat producers are able to get accurate milk fat and protein values to use in marketing their does and improving their herds.

V(A). Planned Program (Summary)

Program # 17

1. Name of the Planned Program

Sustainable Energy: Phytoplankton (Aquaculture)

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water		100%		100%
	Total		100%		100%

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.6	0.0	0.3
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	3876	0	17905
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	12844	0	12844
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	31859	0	31089

V(D). Planned Program (Activity)

1. Brief description of the Activity

Water analysis and phytoplankton management practices will be tested to determine feasible methods of phytoplankton management for small scale fish farmers.

2. Brief description of the target audience

All aquaculture farmers in Oklahoma.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	200	300	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on Phytoplankton

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers learning phytoplankton management techniques.
2	Number of farmers using phytoplankton management techniques.
3	Farmers who adopted phytoplankton management techniques to contain or eradicate their phytoplankton problems.

Outcome #1

1. Outcome Measures

Number of farmers learning phytoplankton management techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	300	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need to manage phytoplankton in order to successfully raise and market fish. Private pond owners are concerned about control of nuisance alga blooms.

What has been done
Private pond owners were taught the importance of nutrient input in pond watersheds as a cause/effect of production of nuisance phytoplankton blooms. Fish farmers were polled and a list of best management practices for fish hauling was compiled.

Results
Fish haulers are now more conscientious concerning properly disinfecting fish hauling tanks and the proper disposal of fish hauling water. This decreases the chances of contaminating public and private waters with nuisance phytoplankton blooms

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

Outcome #2

1. Outcome Measures

Number of farmers using phytoplankton management techniques.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	80	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need to manage phytoplankton in order to successfully raise and market fish. Private pond owners are concerned about control of nuisance alga blooms.

What has been done
Private pond owners were taught the importance of nutrient input in pond watersheds as a cause/effect of production of nuisance phytoplankton blooms. Fish farmers were polled and a list of best management practices for fish hauling was compiled.

Results
Fish haulers are now more conscientious concerning properly disinfecting fish hauling tanks and the proper disposal of fish hauling water. This decreases the chances of contaminating public and private waters with nuisance phytoplankton blooms

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

Outcome #3

1. Outcome Measures

Farmers who adopted phytoplankton management techniques to contain or eradicate their phytoplankton problems.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture producers need to manage phytoplankton in order to successfully raise and market fish. Private pond owners are concerned about control of nuisance alga blooms.

What has been done
Private pond owners were taught the importance of nutrient input in pond watersheds as a cause/effect of production of nuisance phytoplankton blooms. Fish farmers were polled and a list of best management practices for fish hauling was compiled.

Results
Fish haulers are now more conscientious concerning properly disinfecting fish hauling tanks and the proper disposal of fish hauling water. This decreases the chances of contaminating public and private waters with nuisance phytoplankton blooms.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

External factors did not affect outcomes.

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

Evaluation Results

Helping fish farmers reduce or eliminate the off-flavors in their catfish caused by pond phytoplankton.

Key Items of Evaluation

Effectiveness of techniques shared with fish producers in phytoplankton management.