

2010 Kentucky State University and University of Kentucky Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

Kentucky 's Research and Extension efforts for 2010 reflects the work put forth by county and state level personnel in order to benefit the millions of Kentuckians throughout the state.

Some of our 2010 accomplishments include: Educational programs that relate to Science, Engineering, and Technology Initiatives in 4-H continue to evolve and grow exponentially. Over 20,000 citizens in 101 counties were involved in Second Sunday, a statewide event dedicated to getting people to increase their physical activity level; The Kentucky Extension Homemakers Association reached the \$1 million mark in funds it has raised for ovarian cancer research Moneywise Web site at <http://ces.ca.uky.edu/moneywise/> was developed, where Kentuckians can find our best resources for dealing with economic challenges. High impact educational programs such as Horse College, Master Grazer, and Master Logger resulted in significant improvements in animal nutrition, farm income, natural resources utilization. New support programs were initiated with military personnel and their dependents.

Agricultural research through Kentucky's land grant programs has been providing new opportunities to farmers and residents for more than 130 years. With external grants and contracts now reaching over \$30 million a year, agriculture researchers address problems of agribusiness, consumers, international trade, food processing, nutrition, community development, soil and water resources, and the environment with over 300 externally funded projects. The research continuum reaches from basic to applied science, with new fundamental knowledge as well as applied knowledge that has impacts on the lives of Kentuckians and people across the world.

In 2010, we began incorporating an issues flow process into the county Plan of Work process. This include leaders and agents talking about what is needed at the county level. We were very careful to maintain the ideas generated across the state, building programming in response to what we have heard. The issues flow is a dialogue made possible by our presence in all 120 counties. It is powerful, and it enables Kentucky Cooperative Extension and Research Programs to stay relevant and of value to our stakeholders. It is our pledge to use this conversation to maintain programs that address the right issues so we can make a positive difference for Kentucky's farms, families, and communities.

As a result of interaction with councils and other stakeholders, the 2010 program year emphasis as defined by the number of contacts is as follows:

27%Global Food Security and Hunger 6% Social and Economic Opportunity
25%Life Skill Development 6% Childhood Obesity
13%Leadership and Volunteerism 3% Food Safety
13% Diet, Nutrition and Healthy Lifestyles 1% Sustainable energy
6%Agricultural and Environmental Quality

Joint activities between the University of Kentucky and Kentucky State University remains an expectation of faculty and staff. This collaboration resulted in Kentucky receiving a nationally competitive grant which will allow for the development of a comprehensive educational program for beginning farmers and ranchers. The project is well under way. Faculty and specialist continue to collaborate on many

projects, thus allowing the institutions to operate as a single program. Agents and program assistants are both located in county offices, sharing not only office space but also budget, supervision and facility management responsibilities. This strong bond has resulted in shared program efforts, many of which are reported in this document. Efforts include programming and research in such areas as:

Grapes and Wine	Environmental Education for Youth	Youth Entrepreneurship
Goats eXtension	Small Business Development	
Cattle Production	Tobacco Sector Farming Adjustments	Business Retention & Expansion
Pawpaws	U.S. Animal Identification Program	Family Financial Management
Sm. Farm Programs	Organic Ag and Vegetable Programs	E-commerce
Aquaculture	AgrAbility Health & wellness	
Sustainable Ag	Limited Resource Families	Home Horticulture
Youth Dev.	Entrepreneurial Coaching Institute	Childhood Obesity

Kentucky State University and the University of Kentucky share adjunct faculty with at least three positions in entomology, three positions in horticulture, three positions in animal sciences, and two positions in agricultural economics.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	470.0	40.0	59.6	36.8
Actual	628.0	41.6	85.6	49.6

II. Merit Review Process

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

- Internal University Panel
- External University Panel
- External Non-University Panel
- Combined External and Internal University Panel
- Combined External and Internal University External Non-University Panel
- Expert Peer Review
- Other (State Extension Advisory Committee)

2. Brief Explanation

The Kentucky Cooperative Extension has defined merit review as a process used to judge the degree to which a planned program (1) is relevant to needs expressed by stakeholder groups, (2) draws upon current research and knowledge, (3) is congruent with quality standards and best practice, and (4) is likely to produce anticipated outcomes. Merit review for research is similar in that it uses the criteria of (1) consideration for potential impact, (2) relevance to the needs of stakeholders, and (3) appropriateness within the mission and priorities of the experiment station, USDA, and the land grant mission.

The Plan of Work has been built on program goals that the Cooperative Extension Service identified

through extension advisory committees, developed through logic model program committees and reviewed through program area committees made up of Extension assistant directors, extension agents, department chairs, and specialists. The program area assistant directors selected featured programs based on identified needs in the greatest number of counties, current and planned research and educational resources, and the ability to effectively deal with the issues. Forty-four non-university individuals who comprise the State Extension Council representing both the University of Kentucky and Kentucky State University, all geographic regions of Kentucky as well as agriculture, youth, families, business, industry, and public education served as reviewers of the Plan of Work using the criteria identified above.

The University of Kentucky Agricultural Experiment Station focuses on scientific peer review and merit review on individual research projects. Scientific review is evaluation by other researchers who possess the expertise to conduct the same or similar research. Such review includes technical feasibility, originality and scientific/disciplinary significance of the research. Project proposals go through an initial anonymous peer review. If satisfactory expertise is not available within the department or on campus, external reviews are solicited. After multiple reviews (usually three) a project committee recommends approval, rejection or revision. Only approved projects move forward for review at the college level. The college review committee conducts further scientific peer review by highly qualified individuals as well as a designated statistician and other appropriate faculty. Outside expertise, including researchers around the nation and stakeholder review, are also used.

Kentucky State University requires all project-based proposals to be peer-reviewed based on scientific merit and relevance to state, national and regional USDA priorities and the KSU mission. All Evans -Allen supported proposals are first sent for external peer-review by at least two scientists outside KSU to ensure the relevance and quality of the science. University of Kentucky faculty are often included on the proposal review panels in addition to peer reviews via, regional, national, and professional association colleagues.

III. Stakeholder Input

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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey specifically with non-traditional groups
- Other (Training stakeholders in expectations relative to program needs)

Brief explanation.

The Kentucky Extension Advisory Council System has served as a primary mechanism for gaining input into program direction and development. For programs to meet the needs of the audiences they intend to serve, county level councils are to be diverse enough to represent the various constituencies within the counties including underserved and underrepresented audiences. Their purpose on the council is to express their own needs as well as to gain additional resident perspectives through traditional and non-traditional means in order to provide input into

development of local extension programs. These representatives of the various audiences are not only involved in planning but also implementation and evaluation of those programs. In addition to a county extension council, each county also has an agricultural advisory council, homemaker's council, home economics advisory council, and 4-H council. They communicate research and resource needs to the universities. Through an Issues Gathering Process, topics of greatest importance are brought forward through district and state meetings attended by leaders, extension agents, extension program coordinators, and district directors. The issues identified are then presented to state program leaders, extension specialists, and department chairs for response.

As full partners, the Cooperative Extension Service and Kentucky Agricultural Experiment Station set priorities for research activities with information from the county extension councils, regional issues and program committees, and the University of Kentucky Council for Agricultural Research, Extension and Teaching (UK-CARET). UK-CARET functions as an advisory and advocacy group for the College of Agriculture. Members have an opportunity to advise in the development of college priorities and assist in generating public support for those priorities at state and national levels. UK-CARET is representative of the full scope of the land-grant mission: extension, research, instruction, and service. Membership is comprised of active and progressive leaders in agricultural and natural resource enterprises. UK-CARET provides a direct link to the national CARET organization. Two members of UK-CARET are designated as national CARET representatives.

In addition, the experiment station meets formally with other entities: quarterly with the Kentucky Tobacco Research Board to set priorities for research by the Kentucky Tobacco Development Center to assist in the transition from the tobacco-based economy; quarterly with the Equine Initiative advisory committee; quarterly with the Livestock Disease Diagnostic Center Advisory committee; bi-annually with the board of the Gluck Equine Research Center to discuss priorities for the equine industry; and regularly with the Tracy Farmer Center for the Environment on conservation-based research. Input is also received through the Community Farm Alliance, the Sierra Club, and other environmental groups through the UK Biotechnology Research and Education Initiative.

KSU also has representative on the KY-CARET committee and four representatives on the State Advisory Council. KSU receives feedback from various commodity groups including the KY Goat and Sheep Producers and various small and limited resource farmer groups. Outreach is conducted with Latino constituent groups and various community based organizations that address individual, family, and business interests.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Use Surveys
- Other (Program participants; Project Collaborators)

Brief explanation.

The Kentucky Cooperative Extension program development process is based on a grassroots,

six-stage model that begins with the engagement of local advisory councils for agriculture, 4-H, Family and Consumer Sciences and Extension Homemakers. All program committees used a variety of methods for capturing input, including council dialogue and discussion, focus groups, surveys, program evaluations, and working with other local agencies and organizations. Information from program committees was then shared with the total county extension councils. Membership on these councils includes a broad cross-section of the people in the county representing all demographic and economic segments as well as government, business, education, and community organizations in addition to those identified as under-represented and underserved audiences in extension programs. Through an analysis of data and facilitated dialogue, councils identified program opportunities through which extension and local community organizations could effectively bring about positive change. County extension councils then established program priorities for which county program plans and outcome goals were written. In all, 11,862 people were involved in the process of establishing local program priorities. Most counties utilize a process for examining their council makeup and utilize membership committees and a rotation system to insure new blood and continued broad based support.

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

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Survey of the general public
- Meeting specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Other (Serving on advisory groups/councils for organizations)

Brief explanation.

Even when Extension advisory councils appear to be broadly representative of the local population, it is possible that established program priorities fail to target important issues. Agents count heavily on their council members to identify program needs but recognize it is a mistake to think that the personal experiences of 15-40 individuals serving on the local Extension council can adequately identify the needs of the total population. Agents are trained to broaden that expression by involving members of the council in conducting a 'situation analysis.'

Councils use three major sources of information useful in conducting a situation analysis. (1) The first is data that have been collected by someone else. This is typically called secondary or existing data.(2)The second is resident perspectives about issues, problems, resources and opportunities.(3)The third information source is current research and knowledge which may have implications for county programming. Extension Councils began the program development process by collecting situational data from these three sources. Council members and Extension staff together or independently pulled this information together. Additional meetings of councils are held to review the data and discuss the implications of the findings. The product of this discussion is a list of program opportunities which may merit Extension's involvement. While existing data and current research and knowledge are as close as a computer and the internet, the council delegates themselves must be diligent in capturing local resident perspectives through one or more of several methods. Agents and local leaders were trained in the following methods:

Community Forums - Community forums are public meetings in which individuals are invited to share and discuss their perspectives on issues facing the community.

Focus Group Interviews - A focus group interview is a structured discussion with a small group of eight to twelve individuals on a clearly defined topic.

Key Informant Interviews - In any community, there is a number of individuals who, because of their unique position within the community, can provide important information about local issues and needs.

Surveys - Surveys are a cost effective way of gathering data from a large number of people.

Media Scan - A systematic review of the content of news articles and editorials appearing in local newspapers and on local radio and television stations provides more information about the community.

3. A statement of how the input will be considered

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

Brief explanation.

We pride ourselves on being locally driven, grassroots organizations. Information from stakeholders drives research and extension agendas including our pursuit of resources to conduct research and educational programs. In addition, stakeholder input has been utilized across the board for hiring, budget development, resource acquisition, program implementation, and evaluation. Our stakeholders have also served as tremendous advocates in communicating the successes of the organization to campus administrators as well as to outside and nontraditional groups and decision makers.

Brief Explanation of what you learned from your Stakeholders

Some of the issues that were identified and/or were under discussion in FY10 include:
Financial Management- Videos and webinar were utilized to teach families, children and college students about financial literacy.

Environmental Issues- A See Blue Go Green website has been launched with educational resources for clientele on environmental stewardship related to the home, farm, woodlands, travel, garden, youth and work.

Teaching about Climate Change - a workshop was developed to bring the science of climate change into the classroom; Experiments and activities were used to illustrate the concepts of greenhouse gases and carbon in the atmosphere

Resources to combat influenza - webinars were conducted to educate community leaders with the most up-to-date information and resources about various types of influenza (including H1N1).

Kentucky Goat College - a series of webinars were developed to provide research-based information to goat producers. This will be a collaboration between University of KY, Ky State University and Purdue.

Weight Management - web-based resources were available to promote the expansion of programs related to exercise and health including the updated Weight the Reality Series (Body Image).

Operation Military Kids - Families were brought together to raise public awareness about issues and challenges affecting military families, particularly those with deployed family members. KSU continued a series of in-service trainings to meet the need for job opportunities.

Disaster Education Program - an in-depth workshop was developed to help producers plan for agricultural disasters, from emergency management to law enforcement to local Extension personnel. The team of Kentucky agents and specialists are actively engaged in the national Extension Disaster Education Network (EDEN)

KSU hosted the Foreign Animal Zoonotic Disease Defense (FAZD) Species Specific Educational Resource Teams (SSERTs) for the 1890's to provide advance animal biosecurity practices among small and disadvantaged livestock and poultry owners to protect U.S. food and agriculture infrastructure regarding animal disease prevention..

Concerns over costs of travel and distance - resulted in the installation of Distance Learning Technology to enhance communications and educational efforts through network of videoconferencing sites in key Kentucky counties, saving clientele and personnel time and travel expense and expediting issue response time. This also led to the planning for an upcoming Extension Communications Conference.

Information Flow from County to State - Extension Council members are now involved in implementing a new "issues flow" process which strengthens leader involvement. Stakeholders were involved in various levels of program planning, budget management and resource allocations for supporting county level Extension programs.

Camp Improvement Initiative - Kentucky 4H camps received \$2 million appropriated by the state legislature to provide higher quality facilities for Kentucky youth.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
9111818	3162051	5734264	3414101

2. Totalled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	7926774	2844932	4501045	1388446
Actual Matching	9111818	2649350	26187484	687576
Actual All Other	0	0	0	0
Total Actual Expended	17038592	5494282	30688529	2076022

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	3810529	105	1784745	997

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Life Skill Development
2	Leadership and Volunteerism
3	Diet, Nutrition and Healthy Lifestyles
4	Social and Economic Opportunity
5	Global Food Security and Hunger
6	Competitive Agriculture - Agricultural and Environmental Quality
7	Food Safety
8	Sustainable Energy
9	Childhood Obesity
10	Climate Change

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Life Skill Development

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	7%	57%	0%	0%
802	Human Development and Family Well-Being	93%	28%	40%	0%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%	4%	40%	0%
805	Community Institutions, Health, and Social Services	0%	0%	20%	0%
806	Youth Development	0%	11%	0%	0%
	Total	100%	100%	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	98.0	16.0	0.5	0.0
Actual	126.0	3.2	1.3	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
1981694	470201	125896	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2277955	435099	595321	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

Through extension specialists, agents, project coordinators, and program assistants, CES will partner with schools, businesses, and local agencies to present programs designed to build life skill opportunities and improve quality of life in adults and youth. Examples include:

- In-service training for extension agents on planning and retirement
- Agents and specialists conducting estate planning and retirement workshops and meetings for adult citizens of Kentucky
- Agents providing extension homemaker lessons on wills and retirement
- Small Steps to Health and Wealth and GPS Programming have become life skills featured programs
- Estate planning and retirement publications will be made available to the public through the web, meetings and activities and county extension offices
- Agents and community collaborators training parents, grandparents and community partners in attachment and literacy building, child development, and preventive and non-violent discipline
- 4-H project groups with six hours or more of teaching time
- One-day 4-H project groups
- Camp classes
- Senior conference track: Child Care- Beyond Babysitting
- Middle school career classes - in school and on Web
- Alternative school day calendar programs
- School-sponsored day care centers for faculty and students
- Family Development and Management program for limited resource families,
- Entrepreneurship Camp for High School Students

Through research, faculty in the departments of Community and Leadership Development, Family Studies, and Agricultural Economics explore topics such as family firms and policy and the interactions of individuals, families, and communities in the context of the mental and physical health of diverse rural, low-income families.

2. Brief description of the target audience

- Agents, community collaborators, and adults interested in financial management and retirement
- Adults with low financial literacy
- Parents with children and grandparents
- 4-H youth from 9 - 19 for project work
- 4-H youth 11 and up for Babysitting and Beyond Youth entrepreneurs

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	593504	438610	1095490	814562

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	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals demonstrating informed and effective decision making.
2	Number of youth participating in Extension 4-H Youth Development Programs
3	Dependent care providers (adult or child) report changes in knowledge, skills, opinions or aspirations as a result of programs conducted by Extension.
4	Number of youth or adults who demonstrate increased practical living skills.
5	Number of individuals reporting changes in knowledge, skills, opinions or aspirations related to parenting, personal relationships, or career choices.

Outcome #1

1. Outcome Measures

Number of individuals demonstrating informed and effective decision making.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	75000	97839

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Most residents of this country fail to create the necessary estate plans and documents. Seventy percent of all probated estates are estates without a will, in other words, intestate. In order to pass on hard earned assets and reduce taxes and expenses in settling estates, it is important for families to be aware of what is involved in estate planning, gain knowledge about the proper documents for their situation and take action to put them in place. The information is so vast, that participants cannot absorb everything in one meeting.

What has been done

In FY10, Extension offered Estate and Financial Planning workshops in 13 Kentucky counties. The programs focused on estates, estate planning, attorney roles in planning, records and record keeping systems and the purpose and value of a durable power of attorney. Sixteen 2-day seminars focusing on income taxes were also held. Youth were also engaged in high school financial planning workshops.

Results

One hundred percent of the participants indicated they increased their knowledge of estate planning because they had attended the classes. Fifty three percent said the information was totally new and indicated they had increased their knowledge of the subject. One hundred percent of the participants indicated they would implement at least one area of the program because of the knowledge learned from the class. A total enrollment of 1,603 participants was involved in the income tax seminars. Three months after youth completed their experience with a financial literacy curriculum, it was found that: 59% of the students indicated that they had changed their spending patterns and 60% indicated that they had changed their savings patterns. Those who reported having changed their savings habits, 80% said they now save for what they really need or want and 20% indicated that they now save every time they receive money.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services
806	Youth Development

Outcome #2

1. Outcome Measures

Number of youth participating in Extension 4-H Youth Development Programs

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	195000	248275

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

America faces a significant challenge. Young people are not prepared with the necessary science, engineering and technology workforce skills to compete in the 21st century. According to the National Assessment of Educational Progress only 18 percent of high school seniors are considered proficient in science. A mere 5 percent of college undergraduates earn degrees in science and engineering. 4 H is uniquely positioned to foster discovery of and passion for science, engineering and technology through non formal experientially based delivery methods that address science abilities (process) and science anchors (content) in a hands on way under guidance of a trained 4-H volunteer.

What has been done

In FY10, 4 H Science, Engineering and Technology activities reached over 102,000 youth. Programs included, but were not limited to: Aerospace/rocketry; biotechnology; Electronics/electricity; energy; Geospatial Science (GPS/GIS); and Robotics with hands on learning experiences through 4 H clubs and careers in SET. Kentucky 4-H received additional

grant funds and equipment and established collaborations with the UK College of Engineering, Kentucky Arts Council, Challenger Learning Centers, and others in support of this program.

Results

Kentucky 4H received grant funding from National 4-H Council and JC Penney Afterschool (JCPASF) to pilot a new 4-H Robotics program. The grant of \$50,000 will allow for the formation of ten 4-H Robotics Clubs and eight FIRST Robotics Challenge (FRC) teams. Several participants of SET programming have indicated before their experiences that they enjoyed their math and science classes but they now more fully understood the principles they were learning. A majority were now more seriously considering pursuing careers in engineering or technology because they could see how these classes related to the real world.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services
806	Youth Development

Outcome #3

1. Outcome Measures

Dependent care providers (adult or child) report changes in knowledge, skills, opinions or aspirations as a result of programs conducted by Extension.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5000	5504

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the U.S. Census Bureau Survey of Income and Program Participation (SIPP), 63 percent of all children under age five are in some type of regular childcare arrangement. One quarter of these children are cared for in organized facilities, with day care centers (13 percent)

being more commonly used than nursery or preschools (6 percent). To ensure that child care providers in these facilities are knowledgeable about proper childcare methods and developmental appropriate practices, all workers are state mandated to engage in twelve hours of training conducted by a certified provider.

What has been done

FCS agents partner with state and local agencies to provide little or no-cost trainings to personnel from childcare organizations including in-home day cares, licensed day care organizations and Family Resource Youth Service Centers. Trainings focus on organizational skills, child abuse prevention, communication with parents, age appropriate activities, and nutrition, self control and discipline.

Results

A special grant funded project was conducted by FCS agents in six Kentucky counties during FY 2010, reaching a total of 52 parents and grandparents raising children. Immediately after the session, 100 percent of participants felt better equipped to help their child achieve or maintain a healthy weight, 94 percent learned three new ways to fix family problems without fighting, and 86 percent intended to purchase or make at least two healthy after-school snacks in the week immediately following the workshop. After two months, written follow-up surveys indicated that 95 percent ate on average two additional meals together each week; 91 percent tried to set a better example of healthy habits for their children, 86 percent practiced better portion control, and 77 percent were moving more and sitting less.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
806	Youth Development

Outcome #4

1. Outcome Measures

Number of youth or adults who demonstrate increased practical living skills.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	85000	175661

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is critical that all citizens develop effective communication skills. Competencies in written and oral communication are foundational to an individual's growth and development. Youth leaders as well as adults who are serving or want to serve in leadership roles must be able to express their ideas, thoughts and feelings to groups and within community settings.

What has been done

Speeches and demonstrations remains as one of the seven core content areas in Kentucky 4H. Communication events take place in county based clubs, teaching youth various techniques in giving effective presentations. A state level competition is held every year.

Results

During FY2010, nearly 100,000 youth reported acquiring one or more life skills as a result of participation in non-formal youth development programs conducted by Extension. Out of this number 36,465 youth were involved in communication projects on a regular basis. Over 14,000 indicated that their participation has helped improve their proficiency in the Language Arts and over 6000 indicated using their skills to assume new leadership roles.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
806	Youth Development

Outcome #5

1. Outcome Measures

Number of individuals reporting changes in knowledge, skills, opinions or aspirations related to parenting, personal relationships, or career choices.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	18000	24923

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In Kentucky, more than 57,000 children live in households headed by grandparents, and more than 12,000 are living with other relatives, according to the AARP Foundation and other social programs. That is about 7 percent of Kentucky's children. Of those combined numbers, more than 30,000 children have no parent present in the home where they live. The reasons for this include drug use by parents, imprisonment, illness or death of the parent.

What has been done

The 8th annual Kentucky Grandparent Raising Relatives Conference was presented to 403 participants (from 51 KY counties). The conference included 18 workshops focusing on positive parenting skills, research based information relative to understanding and seeing children in a new light, Family Court views, guardianship and custody, kinship caregiving; support of caregivers with substance abuse in children, care of the caregiver, and valuable networking opportunities. Thirty-five legal answer sessions were provided free of charge by judges and family practice lawyers at a value of \$6,000. FCS Extension's role included more than 50 hours of conference coordination and program presentation.

Results

Pre and post surveys showed impact: 65% of caregivers are frustrated by their role; 34% feel isolated from friends; 50% do not have the financial resources needed to raise the children of relatives; over 50% do not have the information needed to raise their children while 90% who evaluated the conference said the workshops were helpful in developing their parenting knowledge and skills. Six months after the programs 77% indicated they had tried new parenting techniques; 68% had a better understanding of grandchild's emotional development; 84% could recognize the sign of substance abuse; 90% were better informed regarding assistance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

Pre and Post Surveys

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Leadership and Volunteerism

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	0%	10%	0%	0%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	100%	35%	0%	0%
903	Communication, Education, and Information Delivery	0%	55%	0%	0%
	Total	100%	100%	0%	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	77.0	1.5	1.0	0.0
Actual	84.0	8.7	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
1030481	251323	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1184536	235337	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

- Community leadership development programs will be conducted for the general public as well as training for those serving in leadership roles in extension councils and district boards, extension homemaker organizations and 4-H programs. •Extension will continue to utilize SEAL (Strengthening Extension Advisory Leadership) materials with extension leaders and in training facilitators to conduct local community programs. •Counties will identify volunteers and send them to certification workshops, thereby reaching more 4-H members across Kentucky. •Kentucky 4-H members will receive consistent, uniform education through school enrichment programs, after-school programs, day and /or summer camps and through communications events in the 4-H "Step Up to Leadership" and 4-H Communications - Speeches and Demonstrations projects and programs.

- Agricultural Leadership Program
- 4-H Club Handbook serves as a guide for 4-Hers, volunteer leaders, and agents in organizing the 4-H program
- Kentucky Forestry Leadership Program
- 24,580 youth and 13,617 adult volunteers increased their leadership potential through engaging in outreach
- Extension specialists coordinated community visioning processes and the development of community plans
- Researchers explored the natural causes and consequences of change within farm families and farm-dependent communities.
- Kentucky Entrepreneurial Coaches Institute provided training for individuals who will mentor future entrepreneurs.
- Business Retention and Expansion Program is a community-based research project in which the community determines the needs of existing businesses so as to retain them.
- UK partners in the "Engaging Youth Serving Communities" program that stresses youth and adults working together to promote community change.
- Clothing construction was taught to 108 Master Clothing Volunteers
- Extension facilitates many community coalitions that sponsor community activities such as health fairs, Five-a-Day nutrition programs, Backpack for Hunger, Workplace Wellness, senior day cares, and day camps.

KSU collaborated with Bluegrass Community and Technical College to implement "Grow Training" to develop leadership skills among Latino volunteers with sessions on effective communication and interpersonal practices, peer mentoring skills, and team building.

2. Brief description of the target audience

- General public as well as those serving in leadership roles on extension councils and district boards, extension homemaker organizations and 4-H programs
- Volunteers from Kentucky counties with appropriate background and experience in subject matter that we can build on for 4-H subject matter and leadership training
- Leadership curriculum and activities are designed for youth in grades K-12 Community-based non-profit organizations
- Kentucky teens with an interest in higher levels of civic engagement
- Local businesses, entrepreneurs and those receptive to developing leadership abilities and becoming more engaged in the community.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	562268	410539	321128	241110

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

- Published research journal articles

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of citizens indicating increased leadership knowledge, skills, or confidence through participation in leadership programs.
2	Number of adults and youth utilizing improved skills in communication, problem solving, or group process in addressing community issues and needs.
3	Number of people who are involved in addressing significant community issues.

Outcome #1

1. Outcome Measures

Number of citizens indicating increased leadership knowledge, skills, or confidence through participation in leadership programs.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	38000	58377

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Identifying individuals with the wherewithal to serve as effective leaders for Extension can be challenging. Many have the potential, but are in search of additional skills critical to functioning as community leaders who can also serve as advocates for extension. Due to an influx of a younger workforce over the past few years, there is also a need to provide agents with the skills to work with and train clientele on topics related to personal leadership development.

What has been done

Focusing on Extension agents as well as community audiences, new content has been developed in the leadership development realm offered as Extension publications, seminars and in-services. One example of this new content is the Empowering Leaders in Kentucky (ELK) publications, aimed at developing agents as well as being used as a resource to teach volunteers and other Extension audiences.

Results

In FY2010, 141,159 adults and youth reported utilizing improved skills acquired from Extension programs (communication, problem solving, group process) to address community issues and needs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and

903 Communities
Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Number of adults and youth utilizing improved skills in communication, problem solving, or group process in addressing community issues and needs.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	53000	141159

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Young people are consistent in demonstrating how they are compassionate towards others. Hence, they are frequently making attempts to demonstrate the leadership skills developed in 4-H activities that can aim to enhance their communities. However, youth often lack the experience needed to participate in high levels of civic engagement. Adults often make decision on behalf of youth, with little input from young people who are directly affected by the issues within a community.

What has been done

More opportunities are being offered to provide youth with a change to become civically engaged. Youth have helped to identify critical issues affecting today's young person across the state. A number of 4-H youth in countywide teen clubs, along with adults from the perspective counties, have conducted town forums that engaged over 70 youth and adults. Through the forum discussions, various issues such as drug use, hunger, and lack of structured out-of-school time was identified as leading community issues. Youth and adults from counties in Western Kentucky formed partnerships with their local family resource centers, churches and businesses.

Results

Over the past few years, this 4-H youth-led effort has leveraged over \$9,000 in cash and in-kind support. Youth and adults have contributed over 6,000 hours to the project at a value of over \$400,000.00. According to USDA and National 4-H Council (the organization funding this project), for every Federal dollar invested in this project, there has been a return on investment of \$57.00. The project is steadily decreasing hunger a little at a time. However, another major reward

includes youth developing leadership skills that are transferable. They have also developed a sense of belonging and connection to their community.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Number of people who are involved in addressing significant community issues.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20000	96065

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is estimated that by the year 2015, approximately 25% of rural Americans will be self-employed. These trends have been occurring for the past decade and will more than likely increase due to the economic downturn of the state's tobacco farmers. It is critical that rural Kentucky be prepared for this transition, especially, in areas which have been devastated by such changing tobacco markets.

What has been done

The Kentucky Entrepreneurial Coaches Institute is a \$2.1 million leadership program which was designed to nurture and build entrepreneurial leaders and an entrepreneurial friendly culture in 42 tobacco-dependent counties. Approximately 120 individuals have completed the program and are expected to take part in 22 days of intensive seminars over a 16 month period including national and international mobile learning tours and significant volunteer commitment. There is a current class of 30 individuals participating.

Results

Recent survey responses of 55 graduates who made a 2 year volunteer commitment to the region indicated the following: Over 9,000 hours of service were conducted within the community and region; 758 presentations were given to groups and organizations; a total of 68 entrepreneurial-friendly community initiatives were administered; Approximately 42 jobs were saved as part of coaching efforts (valued at approximately, \$1,528,380 for a one year period)

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Individual surveys, follow-up phone interviews.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Diet, Nutrition and Healthy Lifestyles

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	0%	0%	26%	0%
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	5%	0%
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	24%	68%
703	Nutrition Education and Behavior	96%	7%	0%	0%
721	Insects and Other Pests Affecting Humans	0%	0%	21%	0%
722	Zoonotic Diseases and Parasites Affecting Humans	0%	0%	5%	0%
723	Hazards to Human Health and Safety	0%	0%	16%	0%
724	Healthy Lifestyle	4%	84%	3%	32%
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	9%	0%	0%
	Total	100%	100%	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	100.0	2.0	1.0	11.0
Actual	100.0	0.9	4.5	7.4

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1030481	125683	160897	238556
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1184536	116300	1134383	137672
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

- Contacts with clientele related to diet, health and food safety will include volunteer training, health fairs, Extension Homemaker leader lessons, safe night programs, healthy homes programs, and more.
- Multidisciplinary programs aimed at strengthening local food systems. Examples of programs to be offered will include: 4-H school enrichment, after-school programs and day and/or summer camp programs on 4-H Jump into Foods and Fitness. Weight--the Reality Series - Body Image and Get Moving Kentucky physical activity and weight management programs, LEAP-Literacy, Eating and Activity for Preschool Program and Exploring MyPyramid with Professor Popcorn for elementary school age children. •EFNEP - Expanded Food and Nutrition Educational Program for low income families with children. •Multi-agency activities related to diet and health. •Continued research in the areas of nutrient effects on high-fat diets, antioxidant effects on cancer prevention, environmental effects on nutrient requirements and more.

Major research efforts in this program area include: • Food consumption and physical activity are being examined as indicators of risk for obesity in preschool children. •The combined effects of selected vegetables on bone metabolism are under study as it pertains to osteoporosis. • The health and safety of agricultural workers. • Bioprotective effects of phytochemicals to mediate immunity and antigenotoxic potential • Biology and behavior of the bed bug and tiger mosquito to help improve control methods

Extension conducted programs with and for clientele related to diet, health, weight loss, and physical activity. Programs included volunteer training, health fairs, Extension Homemaker leader lessons, and safe night programs.

Collaborated with 2,162 non-Extension organizations that focus on health maintenance.

Kentucky State University FDM Program helped coordinate Lunch and Learn Classes for a special interest group of African American women.

UK researchers are determining the association between diet and exercise behaviors in diabetes and nondiabetes diagnosed adolescents

Family and Consumer Sciences Extension, and the Kentucky Department of Agriculture have launched the Kentucky Proud Recipe Database Project, a collection of recipes that have been updated to include healthier ingredients which are locally grown

The programs "Small Steps to Health and Wealth" and Get Moving Kentucky" combined weight management and exercise.

"Second Sunday," an Extension led effort, closed off streets so people could increase their physical activity by walking, biking, and skateboarding in 105 counties

Researchers found that shoppers desire more local food in the marketplace

"Weight: The Reality Series" an Extension weight reduction program, was offered in 45 counties with

1,463 participants.

Ready 101: A Kentucky State University Approach to Preparing Communities for an Infectious Disease Outbreak; survival kits were assembled and distributed to limited resource families

2. Brief description of the target audience

- Extension agents
 - Community agencies
 - Volunteer leaders
 - Parents
 - Grandparents
 - General public
 - Public housing residents
 - Scientific community
 - Jump into Food and Fitness
- participants: curriculum designed for youth ages 8-11

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	572014	404023	340103	247627

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	43	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	41

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals who experience a change in knowledge, opinion, skills, or aspirations regarding lifestyle changes (diet, exercise, etc.) that improve personal health.
2	Number of citizens reporting making lifestyle changes for the purpose of improving their health.
3	Number of individuals implementing personal health protection practices appropriate for their life stage (preventive health practices, participation in screening and detection opportunities, immunizations, etc.).
4	Number of individuals adopting at least one new safety practice (bicycle helmet, smoke detector, radon detector, fire extinguisher, farm safety devices, ATV safety, etc.).
5	Number of individuals indicating they gained knowledge related to safe food storage, handling, and preparation.
6	New information on the behavior and ecology of insect vectors of human disease and methods of control

Outcome #1

1. Outcome Measures

Number of individuals who experience a change in knowledge, opinion, skills, or aspirations regarding lifestyle changes (diet, exercise, etc.) that improve personal health.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	85000	196560

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

One of the causes of the obesity epidemic among Kentuckians is the lack of adequate exercise through physical activity. Many residents have become accustomed to a sedentary lifestyle (i.e., riding instead of walking, sitting in front of the TV or computer rather than getting outside and exercising. There is a extreme need for more physical activity within our communities.

What has been done

Two programs focusing on nutrition and physical activity is the Literacy Eating and Activity for Preschoolers program (LEAP) and the "Weight-The Reality Series" program. A total of 86 counties offered the LEAP program, while 45 counties offered the Weight-The Reality Series program.

Results

A total of 1,463 participants were involved in the Weight-The Reality Series program. Out of that number, 232 indicated maintaining the weight loss, while 164 reported that they have continued to lose weight. As for the LEAP program, out of the 20,255 participants, 19,579 reported eating more fruits and vegetables and 15,868 children engaged in more physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Number of citizens reporting making lifestyle changes for the purpose of improving their health.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	40000	103761

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Kentucky is the fourth most obese state in the nation and the situation is not getting any better. The two factors that explain a good share of the reason for Kentuckians being overweight are the food that is being consumed and the low level of physical activity. Both of these factors are under the control of the individual. There is a need for program that empower residents to take control of their health and well-being.

What has been done

"Weight - the Reality Series" is a 10-week weight-reduction program developed to change the behavior of individuals concerning their food consumption practices and their habits in terms of level of physical activity. In addition to the educational sessions, agents are working to establish organized activities and support groups to insure long term success.

Results

During FY2010, a total of 1463 individuals participated in "Weight-The Reality Series", with 591 succeeding in losing at least 5% of their initial weight during the program. The average loss per participant was 8 pounds. Several (176) indicated having a more positive self image.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

Number of individuals implementing personal health protection practices appropriate for their life stage (preventive health practices, participation in screening and detection opportunities, immunizations, etc.).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	26000	33340

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Because of a high percentage of individuals who do not visit a health professional on a regular basis, many health conditions such as high blood pressure, diabetes and cancer go undetected and untreated.

What has been done

Extension in collaboration with health providers and public agencies organize health fairs or screenings for specific segments of the population. In addition to Extension, such events usually involve the county health department, hospitals, clinics, local physicians, home health care professionals, nurses, and nurse practitioners. Most have been organized within a local community and sometimes in combination with a festival or fair. A total of 255 lessons on "Small Steps to Health and Wealth" were taught to local residents.

Results

In FY2010, of the 3,617 participants involved in the program, 2,363 set at least one specific health-related goal for themselves after participating in the program. More than 2000 reported an increase in the amount of time spent engaged in physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
721	Insects and Other Pests Affecting Humans

722	Zoonotic Diseases and Parasites Affecting Humans
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #4

1. Outcome Measures

Number of individuals adopting at least one new safety practice (bicycle helmet, smoke detector, radon detector, fire extinguisher, farm safety devices, ATV safety, etc.).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	26000	31901

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Everyone in Agriculture knows someone whose life has been affected by a farm related injury or death. Even more tragic is that some of these accidents could have been prevented if simple safety precautions had been taken. Household chemicals, farm implements, ATVs, electricity, tornados, floods, school buses, and fire can all pose safety concerns for children, as well as for adults. Not knowing how to deal with such hazards, can surely result in injury or even death.

What has been done

Extension in collaboration with other organizations and agencies such as hospitals, Emergency Medical Services, farm implement dealers, ATV sales representatives, electrical contractors, and health departments have sponsored safety days for children and adults. Some of these events have been conducted with the entire school population and others have been organized as family events in the evening or on the weekend.

Results

The Webster County Extension Service was the lead agency in a multi-organizational effort for the "21st Youth Ag and Safety Days". The purpose of Youth Ag and Safety Day was to teach youth the importance of agriculture and to address safety at home and on the farm. A total of 170 fourth graders participated. Students gained knowledge of electrical safety, drug awareness, equipment safety and fire safety. The students were asked what they were going to change at home or on the farm as a result of attending Youth Ag Days. The top 4 answers were: staying away from farm equipment, not going around power lines or climbing trees near them, mowing

safety and fire safety.

4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety

Outcome #5

1. Outcome Measures

Number of individuals indicating they gained knowledge related to safe food storage, handling, and preparation.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25000	79763

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

This outcome was moved to the "Food Safety" Planned Program

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
723	Hazards to Human Health and Safety

Outcome #6

1. Outcome Measures

New information on the behavior and ecology of insect vectors of human disease and methods of control

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Infestations of the bed bug are increasing around the world at an alarming rate and have become a major public health concern. Because resistance to pyrethroid insecticides is widespread in the U.S. there is a great demand for novel approaches for pest control, and a renewed effort to learn characteristics of bed bug behavior.

What has been done

The presence of bed bug populations resistant to pyrethroids demands the development of new control tactics, including the use of insecticides with new modes of action. Insecticides that disrupt oxidative phosphorylation in insects' mitochondria can be an option. We measured with laboratory assays the toxicity of chlorfenapyr to susceptible strains and two strains highly resistant to pyrethroids. We also compared the effectiveness of two chlorfenapyr-based formulations and evaluated the behavioral responses of bed bugs to dry residues of aerosol sprays.

Results

Chlorfenapyr was effective against all bed bug strains, killing them at a similar rate, regardless of their susceptibility status to pyrethroids. Dry residues aged for four months were as toxic as fresh dry residues. The aerosol formulation had contact activity and caused a faster mortality than a water-based formulation. Bed bugs did not avoid resting on surfaces treated with aerosol. Chlorfenapyr is an option for controlling pyrethroid-resistant bed bugs. While it does not cause quick knockdown, long residual activity and no avoidance behavior of bed bugs to dry residues appears to make this insecticide suitable for bed bug control. A faster insecticidal effect is obtained with the aerosol formulation, suggesting greater bioavailability of the toxicant. The results of this research has added a tool to the arsenal for controlling this resurging human pest.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
721 Insects and Other Pests Affecting Humans

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Social and Economic Opportunity

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
131	Alternative Uses of Land	0%	0%	6%	0%
601	Economics of Agricultural Production and Farm Management	6%	7%	13%	100%
602	Business Management, Finance, and Taxation	0%	0%	14%	0%
603	Market Economics	0%	0%	9%	0%
604	Marketing and Distribution Practices	5%	0%	4%	0%
605	Natural Resource and Environmental Economics	0%	0%	14%	0%
606	International Trade and Development	0%	0%	9%	0%
607	Consumer Economics	0%	0%	4%	0%
608	Community Resource Planning and Development	89%	93%	21%	0%
610	Domestic Policy Analysis	0%	0%	6%	0%
	Total	100%	100%	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	25.0	2.5	3.5	3.8
Actual	32.0	8.3	5.5	1.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
475606	1227255	347080	54503
1862 Matching	1890 Matching	1862 Matching	1890 Matching
546709	1135636	2045837	19895
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

- Delivery of educational programming and workshops on topics such as understanding community dynamics, asset analysis, business planning, marketing and hospitality management
- Efforts to educate producers about marketing and adding value to Kentucky Agricultural products including MarketMaker, Agritourism, Farmers Markets, Kentucky Proud Campaign, specialty livestock markets and marketing programs, Kentucky Entrepreneurial Institute, etc.
- Formation of non-traditional advisory councils in the areas of community and economic development, tourism, agritourism, and arts where appropriate need and resources are identified
- Research projects including estimating how changing agricultural trade policies and macroeconomic conditions influence U.S. agricultural exports, university engagement in community-based organizations in the Black Belt South, and urban vs. rural food access and cost
- The Family Economics and Management Program will focus on Earned Income Credit and Tax Credit opportunities for Kentucky Families. Youth entrepreneurship education Entrepreneurial development and outreach to educate local officials and leaders on the importance of planning for economic development
- UK research is developing a survey on the public perception of the economic, environmental, and health risks of nanotechnology
- Researchers are examining the role of labor market policies on supply and demand for workers in rural areas
- Created the Community and Economic Development Initiative of Kentucky to catalyze integrated research, extension and education programs to help create economically viable communities.

KSU has research projects are focusing on aquaculture and livestock integrated into a farm analysis for limited resource farmers and socially disadvantaged farmers in Kentucky.

2. Brief description of the target audience

- county extension agents
- Kentucky crop, livestock, produce producers
- entrepreneurs
- agritourism providers
- active and potential community leaders
- 4-H members
- scientific community
- High school students, teachers, and counselors; lending institutions

Locally elected and appointed officials

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	321867	231587	93658	69175

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	14	14

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	13

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of people involved in addressing significant community issues.
2	Number of ongoing coalitions with which extension is actively involved.
3	Number of people who are ready to enter the workforce.
4	Number of individuals reporting changes in knowledge, opinions, skills or aspirations related to economic or enterprise development.

Outcome #1

1. Outcome Measures

Number of people involved in addressing significant community issues.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20000	31307

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Research has shown that despite the increase in youth volunteerism within communities, and service learning opportunities in schools, the challenge remains in getting more youth civically engaged. Programs that are available to youth during structured out-of-school time can provide youth with the chance to help develop the skills and confidence to make a contribution in their communities.

What has been done

This marks the 8th year for youth and adults participating in the Engaging Youth, Serving Communities (EYSC) initiative and the final year of the grant funded projects. Monroe County's backpack program continues to provide snacks and toiletries to children and their families. Lyon County also has a backpack program that is being supported by the community. Todd County completed renovations to a third park in the county, thus providing more recreational opportunities for youth and their families. The goals remain the same for each county - to promote leadership skills among youth that are transferable, thus enabling them to serve their communities in various capacities.

Results

As a result of this project, youth have developed social competencies, a stronger sense of community and demonstrated more confidence in their leadership, communication and decision-making skills. Todd County identified land near downtown and converted it into a playground and walking trail and installed a pavilion at another park (this pavilion has been used as a central location for several events held in the park. Lyon County youth is working with the family resource center to provide food for children in need. Monroe County has received donations from local organizations and businesses and has recruited a number of adult groups to serve as volunteers.

The backpack project has become a signature program in the county and will be sustained even after the grant ends. A coalition of community churches has decided to take over the Monroe County backpack program as its major project.

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
604	Marketing and Distribution Practices
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

Number of ongoing coalitions with which extension is actively involved.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	2100	3093

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Viable agritourism enterprises differ from traditional tourism attractions in that family farm locations are usually not easily accessible from population centers and major transportation routes. The critical need for additional access signage and joint marketing efforts for increased profitability was targeted by state and regional agritourism networks.

What has been done

Extension Agents continued initiating and facilitating agritourism leadership discussions. Publicity of agritourism has been in effect with signage on public highways. The Community and Economic Development Initiative of Kentucky (CEDIK) was formed to promote agritourism via Extension programming across the state.

Results

An interested group of agents decided that a West Kentucky Quilt Trail could give people an appreciation of the past and draw visitors to the area, thereby increasing agri-tourism. The Kentucky Arts Council assisted by providing regional outreach personnel, providing grant dollars for materials and making adjudicated artists available. Staff at the Museum of the American Quilter's Society gave guidance. The Lincoln County and Fayette County 4-H Councils have promoted a program for middle school youth. The Pre-teen Tour Across the Bluegrass, which involves youth from an urban county and a rural county to give both groups of youth a different perspective of the trip and help them understand youth from both backgrounds as well as the impact of agri-tourism on the state's economy.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
606	International Trade and Development
607	Consumer Economics
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Number of people who are ready to enter the workforce.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5000	12940

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

4-H is helping Kentucky's youth grow smarter about money, careers, and making life decisions. It uses three programs Reality Store, Be the E (Entrepreneurship), Mini Society, and Dollars and Sense - to help kids acquire a skill of how to stretch dollars to thrive financially. These programs,

requested by school systems and supported by classroom teachers, chambers of commerce, and parents, have been immensely popular.

What has been done

To conduct Reality Store, Be the E(entrepreneur), Mini Society and Dollars and Sense programs, Extension Agents work with schools, local businesses and local government through fairs, workshops and simulations, youth make real life decision regarding education, careers and the related salary, and costs associated with life. Youth are forced to accept a salary associated with their chosen career (based on educational level they choose to achieve), budget that salary and seek out assistance through special 'helps' such as banks and government assistance programs when resources run short.

Results

A total of 23 youth across the state participated in the '4-H means business?' program. 4-H Means Business provided youth not only with the knowledge and skills of financial management, but gives them the hands-on opportunity to experience, in a real world setting, decision making, communication, budgeting, counting change, record keeping, marketing, customer relations, inventory tracking, business plan development, profit, loss, scarcity, and contracts. This initiative allows 4-H'ers to open a real business using real money. As entrepreneurs, the 4-H'ers take out real loans and take real risk. They learn the intricacies associated with owning a real business through experiential learning. They participate in both 4-H and non-4-H 'shows' where they set up their business and sell to the general public. All participants have indicated that this was an eye-opening experience, teaching them better money handling skills and principles.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

Number of individuals reporting changes in knowledge, opinions, skills or aspirations related to economic or enterprise development.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
-------------	----------------------------	---------------

2010

30000

24019

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

An important factor in limiting the sales of locally-produced products is the lack of information about possible buyers. What is needed is a communication system that links buyers with suppliers and in the process promotes and enhances the local food economy.

What has been done

An innovative web-based system is connecting Kentucky agricultural businesses, farmers and markets in a unique way to benefit consumers and producers alike. MarketMaker is a system that features a mapping function and census data on locales and enable buyers and sellers of food products to find each other more quickly and easier. Sellers use this interactive tool to identify potential markets and find processors for their goods. The program comes to Kentucky through the collaborative efforts of the UK College of Agriculture, the Kentucky Department of Agriculture, the Governor's Office of Agricultural Policy, and Allied Food Marketers. Access to the Web site is free and open to the public from any computer connected to the Internet. Kentucky is the fourth state to become part of this national program developed by University of Illinois Extension.

Results

Several Kentucky businesses are now featured on the website, allowing the general public easy access to local Kentucky products. A number of resources and publications are also available (e.g., Steps to Marketing Your Product, Preparing the Business Plan, Niche Markets, etc.)

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
610	Domestic Policy Analysis

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Global Food Security and Hunger

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	1%	12%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	9%	5%
205	Plant Management Systems	54%	0%	14%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	0%	13%	0%
212	Pathogens and Nematodes Affecting Plants	0%	0%	12%	0%
215	Biological Control of Pests Affecting Plants	0%	0%	9%	0%
216	Integrated Pest Management Systems	0%	0%	4%	12%
301	Reproductive Performance of Animals	0%	1%	7%	13%
302	Nutrient Utilization in Animals	0%	1%	9%	12%
303	Genetic Improvement of Animals	0%	1%	4%	10%
304	Animal Genome	0%	0%	3%	0%
307	Animal Management Systems	39%	1%	2%	12%
308	Improved Animal Products (Before Harvest)	0%	1%	0%	9%
311	Animal Diseases	0%	1%	10%	12%
401	Structures, Facilities, and General Purpose Farm Supplies	1%	1%	0%	3%
402	Engineering Systems and Equipment	0%	0%	3%	0%
601	Economics of Agricultural Production and Farm Management	0%	92%	0%	0%
604	Marketing and Distribution Practices	6%	1%	0%	0%
	Total	100%	100%	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	145.0	16.0	45.3	13.5
Actual	196.0	4.4	49.9	27.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2140229	644679	2718402	839740
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2460191	596551	15336501	411100
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The development and transfer of technical resources is a critical dimension of a strategy to advance agriculture and the competitiveness of the state's agricultural economy.

- Field days, demonstration programs, plotwork and hands-on training by agents and specialists will continue to be important mechanisms for disseminating technical information on production agriculture and horticulture
- Printed material, mass media, Web sites, audio, and electronic communications will be employed to disseminate the latest research findings on decision-making
- Featured programs for this plan of work cycle will include: Grain Crops Academy, Master Grazer Program, Horse College and the Innovative Tobacco Producer Program
- Goat Production and Management Programs
- Small Farm Program at KSU will focus on needs of small and limited resource farmers,
- The Kentucky Fruit and Vegetable Conference plays a major role in commercial horticultural producer education
- Third Thursday programs will be conducted at Kentucky State University and their research and demonstration farms will attract small and limited resource farmers and will also serve as training for County Extension Agents
- Aquaculture and Fish Disease/Management Programs
- Master Cattlemen and advanced Master Cattlemen programs will be conducted
- Educational programs qualifying producers to receive Tobacco Settlement funds in the areas of goats, forages, bull selection and hay storage will improve producer skills in these areas
- New Research findings from Kentucky State University's Aquaculture Research center, pawpaw, goats, and honeybees will be the subject of field days and meetings to bolster the expanding alternative in Kentucky and the Southern Region Demonstration and training for appropriate production and processing of pastured poultry and honey.
- Home-based processing training
- On-site food demonstrations

Research activities at UK included:

- Studying the hormonal regulation of reproduction in beetles is leading to new genetic targets for insecticide development.
- Elucidating mechanisms for insect resistance in hopes of developing hardier tomatoes.
- Testing & developing new biocontrol agents for improved plant protection from Phytophthora
- Understanding ecology & control of exotic invasive insect pests hampering efforts to restore chestnut tree populations in the US
- Testing new techniques to control Palmer amaranth & tall waterhemp, 2 new emerging weed problems in KY soybeans

KSU has active research areas in areas of:

- Aquaculture projects are concerned with the commercialization of paddlefish, nutrition and diet formulation for freshwater crustaceans, and developing technologies for raising largemouth bass.
- Doe and kid production evaluation for meat goats is a relatively new research and extension thrust for KSU.
- Pawpaw and primocane blackberries are under

development as niche crops in Kentucky. • The control of Nosema diseases is being researched as a potential cause of colony collapse disorder (CCD) of honey bees.

2. Brief description of the target audience

- Kentucky farmer operations with agents recruiting and selecting producers for participation in Grain Academy, Master Cattlemen, Innovative Tobacco Grower Program, Horse College, and Master Grazer Programs
- Farm owners, operators, absentee land owners with a variety of backgrounds and experiences
- Farmers' market members and potential members
- Community and farm leaders
- Consumers
- Extension agents
- FHA borrowers, aquaculture producers

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1979225	1163950	240329	189480

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

Patent Applications Submitted

Year: 2010

Actual: 5

Patents listed

"Methods for screening for genes and small molecules that activate mammalian receptor proteins." #7,737,327

"Inhibitors of plant peptide deformylase for use as broad-spectrum herbicides and methods for identifying the same." #7,745,693

"Vectors and methods for enhanced cell longevity and protein expression." #7,629,160

"Viral vectors useful in soybean and methods of use." #7,618,815

"Genetic insulator for preventing influence by another gene promoter." #7,605,300

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	20	137	157

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Graduate research assistants engaged in research

Year	Actual
2010	50

Output #2

Output Measure

- Published research journal articles

Year	Actual
2010	131

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting one or more practices resulting in increased profits.
2	Economic impact of the adoption of farming practices resulting in increased profits.
3	Number of producers adopting resource management technologies (IRM, IPM, soil testing, soil fertility management, etc.).
4	Number of producers completing Grain Academy and Master Grazer Programs receiving their certification.
5	Number of individuals reporting changes in knowledge, opinions, skills and aspirations related to impact of public policies on agriculture and the environment.
6	Number of producers reporting changes in forage preparation and grazing practices
7	Number of agents and producers reporting changes in forage preparation and grazing practices

Outcome #1

1. Outcome Measures

Number of producers adopting one or more practices resulting in increased profits.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	19000	18502

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Grain crops have overtaken tobacco as the most important crop in Kentucky. With more demand for grain crops for energy production, there is increasing potential for improved profits for Kentucky grain producers.

What has been done

A total of 61 producers with over 80054 acres of corn, soybeans, and wheat attended the Grain Crops Academy. The goal was to improve profitability and sustainability through a better understanding of the science of grain crops production.

Results

As a result of participating in the program: 32 learned how to scout for weeds, disease and insects; 40 practiced better timing of farming activities; 40 learned how to market grain more effectively.

4. Associated Knowledge Areas

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

215	Biological Control of Pests Affecting Plants
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
604	Marketing and Distribution Practices

Outcome #2

1. Outcome Measures

Economic impact of the adoption of farming practices resulting in increased profits.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	24000000	33434227

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many farmers in the state have grown the same or similar crops for most of their farming careers. In most cases, the choice of crop and the practices therein are not yielding maximum profits. There is a need to educate farmers on ways to capitalize on income potential. Options include diversifying farming operations and focusing on value added.

What has been done

Extension specialists and faculty have developed resources to provide county agents with information that will help improve profit margins.

Results

The Knox County Cooperative Extension Service used resources from the University through newsletters, demonstrations and personal farm visits to create ideas and solutions to meet the needs of the producers. Some producers elected to build greenhouses and sell plants, others elected to produce vegetables to sell commercially off the farm and at local farmer markets. Producers not interested in horticulture looked for other ideas for traditional crops. Some of these ideas were bailing straw for reclamation use, bagging shell corn, buying accumulators to handle square bale hay to resale more efficiently, and using farm machinery that had already been purchased to do roadside mowing. With the help of the Knox County Extension Service producers have had a wide range of results from a boost in income of \$2,000 to \$40,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
401	Structures, Facilities, and General Purpose Farm Supplies
604	Marketing and Distribution Practices

Outcome #3

1. Outcome Measures

Number of producers adopting resource management technologies (IRM, IPM, soil testing, soil fertility management, etc.).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	23000	27200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Because of Kentucky's vast forage base, numerous small farms and proximity to markets nationwide, beef production offers one of the greatest hopes for the agricultural economy in the commonwealth. Since the decline of the tobacco industry in Kentucky agricultural producers have

been looking for commodities to replace tobacco income.

What has been done

The Kentucky Extension Beef group continues with its mission to improve beef production profitability and sustainability by enhancing education, cooperation, and opportunity of Kentucky beef producers. The Integrated Resource Management website provides a dynamic educational program that benefits beef producers of all sizes. The program uses an integrated approach to provide the beef industry of Kentucky with interdisciplinary, unbiased, research based training and resource material to enhance an individual's ability to make decisions.

Results

Multiple counties utilized resources from the website to help producers design new cattle handling facilities and implement better management practices. Agents are following up with visits to verify that recommendations were being used according to plans. Agents in the Green River Area hosted events focusing on all aspects of cattle production and marketing. An evaluation was completed by 40 producers 9 months after the last session to measure changes that were made on their farms as a result of attending Master Cattlemen. The evaluation showed 95% of producers wrote down their goals and mission statements and two have already met the goals they set for themselves; 89% put practices in place to improve hay quality. Changes to feeding programs were made by 89% of participants by using information learned from the nutrition session; 94% implemented practices to improve herd health. As a result of making these changes, 67% reported their return on investment was over \$1,000. According to University of Kentucky Research, adoption of recommended practices in the Master Cattlemen Program returned an additional \$5,500.00 for a 50-cow herd.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
205	Plant Management Systems
304	Animal Genome
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases

Outcome #4

1. Outcome Measures

Number of producers completing Grain Academy and Master Grazer Programs receiving their certification.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	150	175

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Kentucky Master Grazer Program is an integral part of the comprehensive effort underway to replace diminishing tobacco revenue by improving Kentucky's expanding beef forage operations.

What has been done

The program consists of multiple sessions that focus on management, nutrition, facilities, environmental stewardship, genetics, reproduction, herd health, and marketing. Materials are developed by Extension specialists from the University of Kentucky, who deliver the program and train extension personnel.

Results

The following results occurred among producers after participating in the program: A total of 83 producers implemented or improved rotational grazing practices; 69 renovated pastures with legumes; 87 improved management practices of animal grazing.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
307	Animal Management Systems

Outcome #5

1. Outcome Measures

Number of individuals reporting changes in knowledge, opinions, skills and aspirations related to impact of public policies on agriculture and the environment.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20000	26063

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farming is a business and as such, is subject to different tax laws than the average homeowner. For most farming businesses the changing tax laws, required documentation, depreciation of equipment, tax implications for the Reserve Program (CRP) and tobacco buyout payments and other public policy decisions create a tax situation which cannot be learned from a pamphlet or from a disk purchased in a box.

What has been done

The Department of Agricultural Economics conducts professional in service training for tax preparers, CPAs, farmers, attorneys, and related persons on new federal income tax law, Kentucky state tax provisions, and ethics. This is the largest tax education program in Kentucky and one of the ten largest in the U.S.

Results

The University of Kentucky Income Tax Program (based out of the College of Agriculture's Department of Agricultural Economics) hosted 16 two-day seminars with a total enrollment of 1,603 participants. Five seminars focusing on ethics were conducted, with a total of 279 participants.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Number of producers reporting changes in forage preparation and grazing practices

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	87

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Kentucky ranks seventh in number of goats with 74,000 head. Meat and dairy goat production is the fastest growing livestock sector in the state. The biggest growth is in meat goats, however there is new interest in dairy goats for milk production and the processing of cheese. The majority of new goat producers do not have agricultural experience.

What has been done

Trainings in all aspects of goat production were delivered as webinars over Centra to four sites. This is the first use of distance learning with goat producers and it was received very well. During the past year, feeding trials and marketing research through Hispanic grocery stores were conducted. Another field trial was the use of goats for purposes of vegetative management on covered landfills. The city did not have to mow the former landfills and the producers received pasture for their goats at no cost. During the past year, a farmer directed elite replacement doe sale has been organized. It is anticipated that 15 producers will consign does to the sale and at least 25 producers will purchase the animals.

Results

KSU offered workshops and technical assistance on goat management practices to producers. Evaluations revealed that 93% percent had made positive changes to their production systems, including grazing/pasture management, de-worming, feeding, forages, records, minerals, health, housing, kidding, and recordkeeping. This has resulted in improvements of production and profitability for KY goat enterprises

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
311	Animal Diseases

Outcome #7

1. Outcome Measures

Number of agents and producers reporting changes in forage preparation and grazing practices

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	87

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It has been estimated that there are over 135,000 ponds in KY. These ponds are used for a variety of purposes including: drinking water, irrigation, livestock watering, and recreation. Every spring and summer many days and thousands of dollars are spent attempting to control aquatic weed growth in these ponds. Uncontrolled, aquatic weeds can prevent agricultural and recreational use of these ponds causing loss of income and recreational opportunities. Failure to properly identify and treat aquatic weeds often leads to incorrect herbicide application and ineffective treatments. Furthermore, no training programs exist within a reasonable distance of KY residents to update certification for pesticide applicators permits.

What has been done

Educational programs were developed for Aquatic Weed Identification and Algae control training. Since January 2008, these two programs have been used for 6 statewide In service training programs reaching 100 attendees. The Aquatic Weed Identification training sessions were used to further expand the use of the internet/e mail for aquatic weed identification by illustrating the type photographs that are effective for on line weed identification. The Aquatic Weed Identification program/presentation was also placed on my Aquaculture Information Website to allow broader access by county agents, producers and the public.

Results

KSU is monitoring biological and physio-chemical parameters in rural municipal reservoirs as the paddlefish grow. They are also monitoring the growth and survival of the stocked paddlefish and are developing a model that will predict the energy requirements of paddlefish. Information collected from these studies will enable assessment of reservoir capacity for paddlefish stocking and aid in determination of optimal stocking rates. The paddlefish presently stocked have potential retail value of over 10 million dollars. Use of additional reservoirs in the United States could support a viable new fishing industry, coexist with current reservoir users and remove unsustainable harvest pressures from wild populations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Competitive Agriculture - Agricultural and Environmental Quality

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	0%	26%	17%	0%
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	24%	0%
112	Watershed Protection and Management	1%	0%	0%	59%
123	Management and Sustainability of Forest Resources	24%	58%	16%	0%
133	Pollution Prevention and Mitigation	0%	0%	3%	0%
135	Aquatic and Terrestrial Wildlife	0%	0%	21%	0%
136	Conservation of Biological Diversity	0%	0%	0%	41%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	4%	0%
205	Plant Management Systems	16%	0%	0%	0%
216	Integrated Pest Management Systems	0%	5%	0%	0%
403	Waste Disposal, Recycling, and Reuse	10%	0%	0%	0%
605	Natural Resource and Environmental Economics	49%	11%	8%	0%
610	Domestic Policy Analysis	0%	0%	7%	0%
	Total	100%	100%	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	25.0	1.0	7.3	8.5
Actual	40.0	0.2	12.2	5.1

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
475606	28094	504468	136986
1862 Matching	1890 Matching	1862 Matching	1890 Matching
546709	25997	3554184	91396
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The University of Kentucky and Kentucky State University are engaged in a wide range of programs geared towards achieving greater harmony between agriculture, people, and the environment. All components of the research and extension focus on the broader goal of practicing agricultural and related disciplines in a manner consistent with improving sustainability of resources and protecting ecosystem integrity. Program examples include:

- Master Gardener Program consisting of 12-15 three-hour sessions related to gardening, resource management, botany, soils, pesticides and pesticide safety
- Master Logger program consisting of three one-day sessions focusing on best management practices, safety, laws and regulations
- Integrated Pest Management programs including programs aimed at homeowner application of pesticides and fertilizers.

- Woodlot owner education program focusing on best management practices, harvesting, contracts, wood products and alternative forest products.
- Water quality, Water Pioneer, daycamps, and forestry camp programs aimed at developing a better understanding of stewardship between youth and the environment.

Agricultural and environmental research included:

- Assessment of risk from antibiotics and arsenic in poultry litter used to amend soils
- development of strategies to improve N use efficiencies and reduce fertilizer inputs
- developing new methods to use terrain analysis to identify targeted areas for maximized water quality best management practice implementation
- Multidisciplinary research advanced the ability to use spatial technologies for precision application of nutrients to reduce losses to the environment
- Demonstrated that feeding DDGS, a by-product from corn ethanol production, did not negatively impact animal performance or meat and egg quality.

KSU Extension Programs will include continued efforts in expanding and supporting

- Gardendata.org
- Organic Agricultural Programs

KSU research projects focusing on improving environmental quality include: soil conditioners and constructed wetlands for water quality improvement, the ecological impact of organic, conventional and biotechnology enhanced cropping methods are being evaluated using sweet corn as a model, weed control options in organic sweet corn and potato production is under study, and leaf beetle biodiversity is being used as an indicator of habitat biodiversity and environmental health in many Kentucky production and natural systems.

2. Brief description of the target audience

- General public
- Community volunteers advanced in horticulture instruction and willing to give back to the community
- Individual commercial loggers in Kentucky and those out of state wishing to do business in Kentucky
- Woodlot owners
- Farm owners and operators
- Homeowners

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	302441	204519	144234	96244

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	29	29

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Graduate student research assistants

Year	Actual
2010	20

Output #2

Output Measure

- Published research journal articles

Year	Actual
2010	26

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals adopting practices that protect water quality.
2	Number of people utilizing forest management practices.
3	Number of acres upon which new or additional conservation practices are used.
4	Number of individuals adopting one or more practices related to conserving, sustaining and/or protecting soil resources.
5	Number of farms certified as Organic

Outcome #1

1. Outcome Measures

Number of individuals adopting practices that protect water quality.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20000	33229

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) requires the restoration of post mining land use capability to a level 'equal to or better than' that which preceded mining. The majority of coal mined lands in Appalachia were forested prior to mining; however, most mined lands are reclaimed to pasture. The reasons are that reclamation practices tended to inhibit tree growth due to: 1) excessive compaction of the spoil, 2) unsuitable or sometimes toxic rooting material, and 3) competition for nutrients and water by aggressive and often invasive herbaceous species. The majority of coal mined lands in Appalachia were forested prior to mining; however, most mined lands are reclaimed to pasture. The reasons are that reclamation practices tended to inhibit tree growth due to: 1) excessive compaction of the spoil, 2) unsuitable or sometimes toxic rooting material, and 3) competition for nutrients and water by aggressive and often invasive herbaceous species.

What has been done

Researchers at the University of Kentucky have discovered that reforestation of these sites is possible using low compaction techniques (i.e. loosely dumping 6 to 8 feet of fresh spoil on a stabilized area). To date, this practice has not received widespread implementation due to unsubstantiated concerns over stability, sediment runoff, and aesthetics. The primary goal of this project is to determine which mine spoil (shale; brown weathered sandstone; gray unweathered sandstone; or a mixture of shale and sandstones) is most suitable for the rapid development of a soil medium capable of supporting plant life.

Results

During a three-day conference, more than 200 participants toured UK reforestation research projects at Star Fire Surface Mine in Perry County and Bent Mountain Surface Mine in Pike

County. At both of these sites, UK researchers used loosely dumped rocks and native tree seedlings to conduct several reforestation studies including determining which type of rock is more conducive to tree growth, which drains the best, which stores more water for the trees and which has less runoff. In a separate research project at Bent Mountain, UK scientists worked with The American Chestnut Foundation to see if they could reintroduce the once predominant native tree species on reclaimed lands. Another featured project at Bent Mountain tested the feasibility of growing materials for woody biomass on reclamation sites.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
133	Pollution Prevention and Mitigation
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

Number of people utilizing forest management practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	3500	12700

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Forests cover nearly half of Kentucky's landscape and are mostly privately owned. These forests provide an estimated economic impact of more than \$8 billion annually, more than 35,000 jobs, a wealth of recreational opportunities, clean water and a host of other benefits. However, the woodland owners of Kentucky generally know little about forestry and the benefits of forest management.

What has been done

The Woodland Owners Short Course (WOSC) was developed to provide an enhanced educational opportunity for the more than 423,000 woodland owners of Kentucky. The WOSC is a

three-segment educational program focusing on woodland management, woodland economics, and woodland wildlife and recreation. The University of Kentucky co- sponsors this program with several state forestry and water resource agencies. County Extension Agents share significant roles with Extension specialists and researchers including program planning, presentations, and logistics. WOSC was held repeated three times this past year. More than 160 woodland owners representing 46,723 acres attended the average woodland owner owned 335 acres. Participants indicated they would use information from In the program own a total 53,665 acres.

Results

The WOSC is the largest woodland owner educational program offered in Kentucky and is supported by more than 10 forestry and natural resource agencies and organizations. Sessions were offered in FY2010, featuring three programming tracks: one for experienced woodland owners, one for inexperienced or new woodland owners, and a youth program. More than 160 people attended the 2009 WOSC representing 13,498 woodland acres. One hundred percent of the WOSC participants indicated they would use some of the information in the management of their woodlands. Experienced woodland owners attending the advanced track reported strong indications to use the information in managing their woodlands.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

Outcome #3

1. Outcome Measures

Number of acres upon which new or additional conservation practices are used.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	600000	639496

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many farmers are searching for ways to capitalize on land use. The UK Cooperative Extension Service is working to identify ways that can assist landowners in this endeavor, while also conserving the land.

What has been done

Kentucky has a diverse topography of woodlands and productive pasture/cropland, which provides for varied enterprise opportunities. One area which is often overlooked and undermanaged is the 167,632 acres of woodland, which encompass 44% of the total county acres, 100% owned by private landowners. Specialists and agents have organized field days and hosted programs for landowners to increase their awareness in the value woodlands hold and improve their management so as to better optimize its? income generating potential. Some of the programs have been presented to participants via the CENTRA system, with live webinar presentations by U.K. Forestry Extension personnel.

Results

In the fall of 2009, the "Forestry Fall Webinar Series" was offered to woodland owners across Kentucky. Four of the programs were offered in a cooperative effort between the U.K. Department of Forestry Extension and the Ohio County Cooperative Extension Service. Sessions in Ohio County were offered in ?Timber Harvesting?, Wildlife Management?, Non-Timber Forest Products? and ?Getting the Most From Your Woodlands?. Participants overwhelmingly found the webinar system an acceptable way to learn and their expectations were met or exceeded in the session. A total of 16 woodland owners in Ohio county reported the following: 79% increased knowledge of what a woodland owner can do with their woodland property; 72% increased their knowledge of how ?Non-Timber Forestry Products? can improve their farm income; 60% increased their understanding of the aspects of selling timber, and; 69% increased their awareness of the organizations and services available to manage their woodlands.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
123	Management and Sustainability of Forest Resources

Outcome #4

1. Outcome Measures

Number of individuals adopting one or more practices related to conserving, sustaining and/or protecting soil resources.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20000	36443

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Kentucky has more miles of navigable river than any other state in the country. Kentucky rivers, streams, lakes and reservoirs are not only used for drinking and recreation, but also for an expanding food production, food processing and landscape plant production industry. Kentucky's limited water supply is threatened by pollution and overuse. According to the Kentucky Division of Water, education and outreach are key elements in the effort to prevent pollution and to conserve water.

What has been done

Programs have been conducted to educate landowners on the importance of practicing good stewardship towards the land. Youth are also being educated on the importance of taking care of the environment.

Results

Water and environmental programs have been offered to youth in Johnson County for the last seven years. By conducting pre- and post tests with the young people on their understanding of water and water issues, it was found that they have learned 80 to 90 percent more than what they knew before participating in the program. The program has been an educational experience for students as well as the teachers.

KSU's COLTS PACT (Pathways & Access to Careers in Technology), created three lesson plans by a \$1,200 grant from the KY Environmental Education Council grant for 140 fifth, sixth, and seventh grade students to learn about plant life structures and water quality testing.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
123	Management and Sustainability of Forest Resources

Outcome #5

1. Outcome Measures

Number of farms certified as Organic

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Kentucky's demand for organic products far outstrips its organic production. Between 2002 and 2006 sales of organic products grew steadily in Kentucky but the number of certified organic operations fell by 90% to 12. The decline was due to the loss of an in state certifier, imposition of more stringent federal organic standards, and lack of extension information about practical techniques compatible with new national organic program standards. Growth of Kentucky's organic sector resumed at the beginning of 2006, when the Kentucky Department of Agriculture was approved as an organic certifier.

What has been done

Kentucky State University implemented an aggressive program to educate growers and extension agents about organic standards and organic production techniques. A website highlighting work of KSU's Organic Agriculture Working group members (<http://organic.kysu.edu>) attracted 12,215 unique visitors, with web traffic increasing each quarter. KSU organized three workshops and three farm tours highlighting organic production techniques and certification requirements. KSU staff contributed to organic agriculture workshops organized by the Southern Sustainable Agriculture Working Group, the University of Kentucky, The Kentucky Fruit and Vegetable Growers Association, Louisville's Refugee Agriculture Project, and local community gardeners. Approximately 345 people attended these events. A 'Fox in the Morning' television program highlighted growth of Kentucky's organic sector and work conducted at KSU.

Results

KSU provided trainings to over 200 landowners new to Extension on sustainable gardening methods. Over 70% have made a drastic change in their selection of products used in the garden opting for less toxic, greener pesticides or electing to have a hands-on approach and use physical removal as control. Also, 35% landowners are using vegetation that is resistant to pests or are making necessary improvements with more organic matter, compost, and drip irrigation to plant beds for more natural gardens.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Food Safety

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	0%	0%	55%	0%
601	Economics of Agricultural Production and Farm Management	4%	0%	0%	100%
703	Nutrition Education and Behavior	42%	2%	6%	0%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	48%	39%	0%
724	Healthy Lifestyle	54%	50%	0%	0%
Total		100%	100%	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
Actual	14.0	3.3	4.0	1.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
237803	90304	252900	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
273355	97589	1306368	27513
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

- Training and certification of vendors at farmers markets to insure the cleanliness of products
- Training provided to home-based food processors
- Hand washing taught to children
- EFNEP and FSNEP both taught food preparation methods to ensure safe home prepared meals
- KSU conducted programs on kitchen safety covering such topics as fire hazards around the stove, checking the smoke detector, extinguishing cooking fires, using a fire extinguisher
- Improvement of optical sensors for in-line monitoring of food quality and safety parameters
- Research improving the understanding of mycotoxin biosynthesis in fungi that infest grain and identification of new genetic targets for antifungal therapies
- Elucidating the impact of diet additives in swine and cattle on pathogenic bacteria and evaluating their potential use as preventative treatments to improve food safety
- UK researchers are evaluating the effects of food safety scares on long-term economic losses.

2. Brief description of the target audience

Extension Agents
 Community agencies
 Volunteer leaders
 Parents
 Children
 General public
 Animal and grain producers
 Food processors

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	125550	106770	49973	43610

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	9	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	8

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals who experience a change in knowledge, opinions, skills or aspirations regarding the safe production, storage, handling, or preparation of food (safe preservation techniques, hand washing, following time and temperature guidelines).
2	Number of individuals who implement recommended practices for the safe production, handling or preparation of food (safe preservation techniques, hand washing, following time and temperature guidelines)
3	Number of individuals who implement recommended practices for the safe storage, handling or preparation of food (safe preservation techniques, hand washing, following time and temperature guidelines)

Outcome #1

1. Outcome Measures

Number of individuals who experience a change in knowledge, opinions, skills or aspirations regarding the safe production, storage, handling, or preparation of food (safe preservation techniques, hand washing, following time and temperature guidelines).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	79763

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nationally as well as in Kentucky, there has been an increase in the incidence of illnesses and deaths due to the contamination of the food we eat. It is estimated that contaminated food cause 275,000 illnesses that cost the state more than \$480 million. It has been demonstrated that much of the problem could be eliminated, or at least reduced, through proper food handling techniques. The first step in reducing the incidence is to increase the knowledge and understanding of the risks and the ways to prevent contamination.

What has been done

Programs such as EFNEP, FSNEP, as well as those targeted to children, have stressed proper food handling techniques. Programs have covered such topics as proper hand washing, washing of fresh fruits and vegetables, cleanliness of the food preparation area, reducing cross contamination, proper thawing of frozen foods, etc.

Results

The Jefferson County EFNEP paraprofessionals taught 234 limited resource families how to serve more nutritious meals, to keep foods safe, and to utilize local food resources effectively. 98% families made an improvement in the nutritional quality of their diet; 54% of EFNEP graduate families consumed a diet of higher quality because they planned meals using the food guide pyramid; 51% of families increased the frequency of moderate physical activity for 30 minutes per day; 29% of families began feeding their children breakfast. 39% of families demonstrated and improvement in safe food handling practices and hand washing behavior.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
724 Healthy Lifestyle

Outcome #2

1. Outcome Measures

Number of individuals who implement recommended practices for the safe production, handling or preparation of food (safe preservation techniques, hand washing, following time and temperature guidelines)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	45904

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In order to insure a safe food source, it is necessary to protect the food from contamination from the time it is grown, harvested, processed and delivered to the consumer. It can be contaminated any place along the way.

What has been done

In collaboration with the Kentucky Department of Agriculture, the Grower and Direct Marketer Agricultural Practices Program (GAP) was developed to provide training in produce handling practices in order to reduce microbial contamination. Certificates were issued after the attendees passed a test of the program content.

Results

Adair, Green and Taylor County Family and Consumer Sciences Agents implemented a Food Preservation Boot Camp to teach participants the value and safety of preserving home grown foods. Two half day workshops allowed for demonstrations and hands on experiences. Freezing, drying, water bath and pressure canning techniques were taught. A total of 80% of participants revealed that they were confident that they could repeat the skills observed and practiced in the workshops. After the two sessions, 15 of the 23 participants returned evaluation forms reporting safely canning 415 quarts of produce and freezing 165 quarts. Agents won their state association award for food safety education.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
703 Nutrition Education and Behavior

Outcome #3

1. Outcome Measures

Number of individuals who implement recommended practices for the safe storage, handling or preparation of food (safe preservation techniques, hand washing, following time and temperature guidelines)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	45904

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Home-based food processors sell jams, jellies, breads, fruit pies, cakes, cookies and other prepared foods at farmers markets, roadside markets, and other retail outlets. In order to insure a safe food source, it is necessary to protect the food from contamination during the processing of the food.

What has been done

Home-Based Processing and Micro-processing training was offered multiple locations reaching over 100 individuals.

Results

Microprocessing businesses in Kentucky vary. One involves the processing of honey. Meade County's Beekeepers Association has forty-three members from four different counties that hold regularly scheduled meetings. These beekeepers generate over \$43,000 in honey in normal years not to mention the priceless benefit they have in managing the life and ecosystem of the honey bee.

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

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Sustainable Energy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	0%	0%	25%	100%
206	Basic Plant Biology	0%	0%	35%	0%
402	Engineering Systems and Equipment	17%	80%	0%	0%
511	New and Improved Non-Food Products and Processes	0%	0%	32%	0%
512	Quality Maintenance in Storing and Marketing Non-Food Products	0%	0%	8%	0%
723	Hazards to Human Health and Safety	83%	20%	0%	0%
	Total	100%	100%	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
Actual	5.0	0.1	6.1	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
79268	7393	323833	118661
1862 Matching	1890 Matching	1862 Matching	1890 Matching
91118	6841	1747651	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

The production of switchgrass as a biomass energy source is in the fourth year of a pilot project. Understanding dormancy and increasing germination rates to improve adoption of gamma grass as a biofuel Feasibility of the 25x25 initiative, the goal of having 25% of our expected energy produced from renewable resources in 2025.

- The Poultry House Evaluation Service kept producers abreast of the rising cost of feed
- Specialists have provided training for industry representatives, contractors, builders, and individuals on energy efficient design, green building certification, and Energy Star products.
- Developing improved methods for estimating grain storage inventories and research investigating the impact of storage on the quality of bioprocessing co-products important to the renewable fuel and product industry
 - Improving plants for renewable energy and carbon sequestration uses through research on cellulose biosynthesis pathways
 - Creating new soybean lines with improved oil characteristics for biofuels and bio-based products

2. Brief description of the target audience

Switchgrass producers
 Landowners
 Utility company personnel
 Community leaders
 General public

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	56415	44112	7453	6016

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	2	13	15

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Feasibility of growing and utilizing switchgrass as a fuel in power generation plants.

Outcome #1

1. Outcome Measures

Feasibility of growing and utilizing switchgrass as a fuel in power generation plants.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The production and utilization of switchgrass as a biomass energy source is being investigated. Switchgrass is tall-growing, warm-season, perennial bunchgrass native to portions of Kentucky. The question is whether it can be grown for its biomass to be used as fuel to generate electricity. The critical issues surround its production, the economics of production, and its utilization in existing power generation facilities.

What has been done

This past year was the fourth year of a five-year project in the production of switchgrass on farms in northeast Kentucky. In 2010, grass was harvested from 20 plots. The grass was then baled with conventional hay baling equipment and pelletized for mixing with coal for use in an East Kentucky Power generation plant.

Results

In cooperation with UK research specialists and farmers, the ANR agent in Rowan County has facilitated the establishment of approximately 12 acres of switchgrass. Educational efforts regarding growing and using switchgrass have included mass media, individual visits, and facilitating a field day on the project for young farmers. Over 15 tons of switchgrass have been harvested, delivered, and pelletized for use as a biofuel. Blends of switchgrass and coal (up to an 8-percent blend) has been tested with few problems. Production has been fairly stable even in drought years.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Childhood Obesity

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
609	Economic Theory and Methods	0%	0%	25%	0%
703	Nutrition Education and Behavior	24%	0%	75%	0%
724	Healthy Lifestyle	76%	0%	0%	0%
	Total	100%	0%	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
Actual	30.0	0.0	0.3	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
475606	0	46516	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
546709	0	120105	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

- Jump into Food and Fitness (JIFF)
- Literacy, Eating and Activity for Preschool and Primary Youth Health (LEAP) reached 19,895 youth

with nutrition and physical activity information

- KSU FDM Program helped coordinate Lunch and Learn Classes to teach proper nutrition.
- Small Steps for Health and Wealth
- Second Sunday, an Extension program that emphasizes physical activity in the community
- 4-H after school programs
- 4-H day camp and overnight camp
- The Longest Day of Play
- KSU researchers examining food consumption and physical activity as they relate to childhood obesity
- Get Moving Kentucky
- EFNEP for limited resource families
- FSNEP for Food Stamp recipients
- Pilot testing of two new healthy diet interventions aimed at improving the food choices of middle school students

Many of the diet, nutrition and physical activity programs were directed toward family members as they influence food choices, exercise, etc. of the children in the family.

2. Brief description of the target audience

- Preschool children
- Elementary-aged children
- Middle and high school students
- Children attending after-school programs
- Children of limited resource families
- 4-Hers

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	180211	120305	265148	180458

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
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Actual	11	0	11
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V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of children who experience a change in knowledge, opinion, skills or aspirations regarding lifestyle changes (diet, exercise, etc.) that improve personal health.
2	Number of pre-school children reporting making lifestyle changes for the purpose of improving their health.
3	Number of elementary aged children reporting making lifestyle changes for the purpose of improving their health.

Outcome #1

1. Outcome Measures

Number of children who experience a change in knowledge, opinion, skills or aspirations regarding lifestyle changes (diet, exercise, etc.) that improve personal health.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Kentucky is the 4th most obese state in the nation and every year the rate of physical activity is being reduced. According to the US Department of Health and Human Services, Center for Disease Control and Prevention, 87% of Kentucky youth ate fewer than five servings of fruit and vegetables daily during the past seven days. As portion sizes have grown in the last 20 years, so has the incidence of adult and childhood overweight and obesity. Many chronic diseases are directly related to poor eating habits, obesity and overweight.

What has been done

The Jump into Foods and Fitness (JIFF) program curriculum focuses on the daily practice of healthy lifestyle choices, increased physical activity, planning meals and serving correct portion size, new strategies for physical and mental relaxation and the implementation of gradual changes through the development of their personalized "My Pyramid". The program requires a minimum of 6 hours of instruction.

Results

Nearly 6000 youth in 33 Kentucky counties participated in the 4 H Jump Into Foods and Fitness Program with 96% of these youth reporting the adoption of at least one new health or nutrition habit during their participation in the program. Thirty percent of the participants completed personal activity logs and recorded health and nutrition habits and used pedometers to measure increases on physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

724 Healthy Lifestyle

Outcome #2

1. Outcome Measures

Number of pre-school children reporting making lifestyle changes for the purpose of improving their health.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	20255

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Obesity has reached epidemic levels among Kentucky children. Children form their eating and exercise habits early in life, so it is import to reach them with programs to instill healthy eating and physical activity routines at a young age.

What has been done

The program "Literacy, Eating and Activity for Preschool" (LEAP) was conducted in 86 counties and reached over 20,000 pre-school aged children. Programs were conducted wherever the pre-schooler aged children are located - in preschools, child care centers, libraries, Family Resource Centers, Head Start Programs, churches, and homes.

Results

The LEAP program was designed specifically to reach pre-school aged children with basic information on eating habits, physical activity, and cleanliness. As a result of the program, participants reported the following outcomes:

- *97% sampled a variety of foods including fruits and vegetables,
- *78% increased their physical activity level, and
- *69% demonstrated proper hand washing techniques.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Number of elementary aged children reporting making lifestyle changes for the purpose of improving their health.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	15527

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Current statistics on the health problems that face children indicate the need to educate young children about the importance of making healthy food choices and being physically active. The earlier children begin to practice healthy lifestyle habits, the more likely they are to continue those habits as teens and as adults.

What has been done

The program "Exploring My Pyramid with Professor Popcorn" was conducted in 49 counties with over 15,000 children participating. The program emphasized both eating behavior, cleanliness, and physical activity.

Results

Of the participants in the "Professor Popcorn" program in grades 1 through 2:

*85% were able to identify 2 or more foods from the grain, vegetable and milk groups

The following results pertain to those in grades 3 through 6:

*63% indicated eating different kinds of vegetables most days of the week

*59% indicated almost always washing their hands before touching or eating their food

*63% reported being physically active most days of the week

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Climate Change

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
121	Management of Range Resources	0%	0%	22%	0%
123	Management and Sustainability of Forest Resources	0%	0%	23%	0%
132	Weather and Climate	0%	0%	10%	0%
141	Air Resource Protection and Management	0%	0%	13%	0%
403	Waste Disposal, Recycling, and Reuse	0%	0%	22%	0%
604	Marketing and Distribution Practices	0%	0%	10%	0%
	Total	0%	0%	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
Actual	0.0	0.0	1.8	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	21053	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	347134	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

- Agricultural meteorologists provided weather information 24 hours a day, 365 days a year and issued severe weather alerts
 - Tracked daily, weekly, monthly and annual trends on temperature and moisture levels
 - In collaboration with other college departments, provided advisories on spraying and drying conditions, livestock heat stress, and drought levels
 - KSU reinvigorated a university-wide recycling program and hosted middle/high school students for an Environmental Fair. Students now collect recyclables regularly.
 - Agricultural economists provide support and training for county agents and producers in marketing strategies such as forward pricing in order to maximize returns
 - Initiated study on the effects of warming and changes in precipitation on the structure and function of managed grasslands
 - Researchers are investigating an algae-based system for mitigating carbon dioxide
- The Extension reporting system was not set up to collect information on professional FTEs, expenditures and contacts for Climate Change in FY10.

2. Brief description of the target audience

Crop farmers, livestock producers, horticultural producers, limited resource producers, Extension agents, homeowners, community and farm leaders, agribusinesses, general public

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	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research journal articles

Year	Actual
2010	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers utilizing new marketing opportunities
2	Incidences of when accurate weather information assisted producers or avoided crises

Outcome #1

1. Outcome Measures

Number of producers utilizing new marketing opportunities

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	7324

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agricultural production is inherently a risky economic endeavor. Production quantities, demand for the commodity, disease outbreaks, foreign trade, and weather conditions in the U.S. and abroad can cause substantial price fluctuations.

What has been done

Agricultural economists have developed decision making tools to aid grain farmers in assessing and mitigating risk in the marketing of their production. Different marketing strategies have been available, but producers have been slow to embrace them. The Grain Crops Academy is an educational program to help producers understand marketing strategies and how to implement them with their farming operation. Curriculum included risk management, technological updates, agronomic information, and research trial data. Participants will be provided the most up-to-date information to deal with changing climate and economic conditions.

Results

As a result of participating in the Grain Crops Academy, producers are more proactive in utilizing fertilizers appropriately, scouting for weeds/disease/insects, and storing grain. Many producers estimated that following recommendations from the Academy would increase their net incomes by \$10 per acre.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #2

1. Outcome Measures

Incidences of when accurate weather information assisted producers or avoided crises

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Weather-related surprises are vitally important to agricultural producers. The short term decisions can range from when to spray for insects to when to cut hay. Extreme weather conditions can result in catastrophic losses to crops, livestock, structures and life. The Agricultural Weather Center provides weather and climate information to prepare people for all conditions.

What has been done

The Agricultural Weather Center supplied information on temperature and moisture conditions that guide agricultural operations. However, it has also issued alerts and prepared county Extension staff to be storm-ready by providing weather radios, a disaster kit, an emergency action plan, and signage marking weather-safe locations. The Extension staff in all counties are to be ready for severe weather conditions and to assist the residents of the county.

Results

The Agricultural Weather Center assisted in the alert and recovery from a late spring freeze, a drought, and a colder than normal winter. Each of these weather-related situations brought on a response by the College of Agriculture. The late freeze led to an assessment of and a response to the damage to the fruit crop. The draught led to a shortage of hay for winter feeding of livestock the need to help farmers locate feed to carry their animals through the winter. Recommendations were provided to livestock farms during an early season arctic blast that could help reduce production losses from cold stress.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Weather conditions, market fluctuations, trade restrictions, governmental policies, economic situation all factor into decision making by producers.

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

Evaluation Results

Key Items of Evaluation