

2009 Kansas State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

The land-grant university system has a three-part mission of teaching, research, and extension that we like to refer to as learning, discovery, and engagement. To accomplish our mission, we must achieve a private and a public good from all our endeavors. We continually evaluate our programs to ensure we are making the best use of our resources and reaching out to Kansas citizens. We have many more tools because of technology, but the purpose has not changed to serve the wants, desires, needs, and dreams of Kansas citizens. We have established valuable partnerships around the state, the nation, and the world. We accomplish our goals when we have positive impact on individuals, but our ultimate goal is achieved when we also provide social impact. We view new discoveries and engaging people we serve as benefiting both individuals and society.

K-State Research and Extension is reaching out in new ways to new audiences, while still serving our traditional clientele. Here are a few examples:

The PRIDE community development program provides structure and guidance to organize and connect with all the resources of a community in planning, development, and actions. Serving 70 communities through the PRIDE program in 2009 resulted in over 85,000 volunteer hours and nearly \$1,000,000 of new investment into rural, small Kansas communities.

Our military partnering has gotten underway with a new office on the Fort Riley post, staffed by five professionals, four assistants, and an office professional. This office is partnering with government agencies to offer services to military families before, during, and after troop deployments. Areas of emphases that are beginning to take shape include pre-natal and newborn care when without a spouse, nutrition and diet, using gardening and horticultural work as therapy for stressed military families, and gaining financial literacy.

The demographics of Kansas have changed and will continue to change. K-State Research and Extension is reaching out to both underserved and traditional audiences through new venues. Educational programming is having an impact on new immigrants by helping them to assimilate into local communities, find the resources of their cultural interest, and understand how cultures differ in the community.

Kansas 4-H has a long tradition of training leaders for the future. The Citizenship in Action program encourages teenagers to learn more about how government functions and how to actively participate in the legislative process. Also, the 4-H SET program focuses on preparing more youth who are proficient in science, engineering, and technology. Youth are learning skills in such areas as global positioning systems and computer interface.

Research on biofuels is another important topic for Kansans &ndash those who will use biofuels to heat their homes and those who produce the crops that are converted to fuel.

We are effectively using our statewide network of offices to share research-based information related to the environment, families, communities, and production agriculture.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	422.0	0.0	212.0	0.0
Actual	422.0	0.0	266.0	0.0

II. Merit Review Process

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

- Internal University Panel

- Combined External and Internal University Panel
- Expert Peer Review

2. Brief Explanation

All new and renewing K-State Research and Extension Action Plans/Projects undergo a review process coordinated locally at the department or unit level, with input, as needed or requested from the experiment station grants and contracts office. Department heads and unit leaders are given latitude to employ strategies for evaluation of new plans and projects for their scientific merit and their relevance to programmatic focus. Guidance is provided to unit heads and unit leaders regarding the process by which review may take place. Most employ a panel of on-campus reviewers; many use a combination of on and off-campus expert reviews; and a few choose to utilize completely external off-campus review. This past year, at least two model review outlines were made available for review of new and continuing projects. Department heads and unit leaders could utilize these review templates as written or add/modify elements of the review to fit unique nuances specific to their respective discipline or to accommodate special input from stakeholders. When reviews are complete, the Department Head or Unit Leader meets with the applicant(s) to discuss the reviews and identify necessary revisions. A final revised version of the proposal is reviewed by the Associate Director for Research and/or Extension, and approved as appropriate for final review by National Program Leaders at USDA/NIFA. This process ensures that action plans adequately and appropriately address issues that make a positive difference in the lives of stakeholders. On a regular basis, as projects are conducted, investigators and team leaders meet with stakeholders from all sectors to validate the goals, objectives, and on-course progress of the program.

III. Stakeholder Input

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

- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Other (Survey of underserved, minority groups)

Brief explanation.

K-State Research and Extension is rich with advisory panels, teams, councils, and committees through every discipline of research and extension work. In Kansas, local Cooperative Extension is organized with elected Program Development Committees (PDCs). Individuals throughout the community are targeted to seek election for their experience and interest broadly in needs and issues of agriculture, family, youth, and community. Six individuals are elected to each of the four committees in all counties across the state. This equates to roughly 2500 private citizens taking an active roll as stakeholders in setting programmatic priorities for extension programming at the local level. Each year, the individuals involved in leadership activities of these local councils is invited to a one-day training and dialog event at four locations across Kansas. This day-long meeting includes updates on their roles and responsibilities as stakeholders for the extension program.

In 2009, a system-wide survey was conducted to focus on issues of agreed importance for which K-State Research and Extension must focus. Stakeholders from all 105 counties in Kansas provided feedback and input into the prioritization process. The survey consisted of a series of seven strategic opportunities and several statements within each opportunity to describe the work plan focus. Stakeholders provided feedback on those statements as to their relative importance to Kansas. That process has resulted in areas of emphasis for our on-going research and extension plans. Every academic discipline and our outstate research and extension centers also operate with advisory groups. Those advisory groups are recruited through defined criteria to see that a broad set of interests and backgrounds are represented. Typically, advisories meet with administration and faculty once or twice annually to review progress on key initiatives and to gather input on future directions and priorities for the discipline or the center.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use External Focus Groups
- Open Listening Sessions

Brief explanation.

Following are three examples of processes used to select advisories. First, the Director of K-State Research and Extension and Dean of the College of Agriculture has an advisory that is carefully selected through a nomination process. The individuals invited to serve are selected based upon the target audience represented, gender, race, ethnicity, and leadership. This group meets three times annually to review programs and provide advice to the Dean and Director on key initiatives to strengthen the programs in research, extension, and teaching. A second example is with the State Extension Advisory Council. This group is elected through their leadership on local Extension Boards. Individuals are approached and encouraged to accept nomination to the process. Then their peers go through an election process to identify the representatives they wish to serve on this advisory. This advisory meets twice annually with the Extension director and the administrative team to identify priorities and opportunities to fulfill the mission. In our family programming areas, Program Development Committee (PDC) members were asked to identify people to survey that reflected the demographics of their communities, based on age, gender, race/ethnicity and income. They were asked to identify people that were not familiar with Extension as well as those who were. Each PDC member was asked to deliver a survey to six individuals. Those surveyed were asked to rate on a 1 to 5 scale the need for selected topics within their community. Completed surveys were received from more than 2,000 people and the results are being used locally and at the state level to prioritize work for the next few years.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**1. Methods for collecting Stakeholder Input**

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

Brief explanation.

Stakeholder input is a continuous process across the breadth of programming for research and extension educational programs in an effective grass-roots organization like K-State Research and Extension. Stakeholder input happens through local, regional, state, multi-state, and national input processes. The stakeholder input process is a comprehensive effort to seek focus on critical issues and problems needing research and answers that fit well within our defined mission priorities. This input continues throughout planning, project implementation, and program delivery. Specifically, face-to-face meetings that include strategic planning, small group process, and reporting back to the recipient institution are commonly used. Nominal group processes are employed to assure hearing of all voices. With the State Extension Advisory Council, that group is given the task to seek input from others outside of the face-to-face meeting, and to bring that knowledge and experience to the meetings through their sharing of such input. In seeking specific input, we have employed telephone random survey processes to help us understand how well we market our information, education, and programs as an organization. This information goes into a strategic market planning process to help us to reach a broader clientele, especially minority and under-served audiences. We have stakeholder groups who focus on our non-traditional audiences and programming. Specifically, the Kansas Center for Sustainable Agriculture and Alternative Crops operates with an advisory council for the expressed purpose of providing input on projects and ideas across both research and extension. This group assists in identifying opportunities for directing seed grant funds to research and extension faculty to better reach nontraditional needs and audiences. The breadth of advisory groups giving input and sharing needs and ideas range from the traditional Dean's advisory council to advisories working through every academic department and research/extension center to every local Extension office. Within program areas, we have advisors made up of stakeholders in areas of family nutrition, meat science, food science, crop commodity groups, livestock commodity groups, agricultural bankers, and the list goes on. We estimate that at any given time K-State Research and Extension has formal relationships with more than 200 advisory stakeholder groups who provide continuous input and feedback on research and extension initiatives, priorities, and direction.

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.

Budget priorities are established through input on creating or redirecting funds to a new position or program direction based in part upon discussions with stakeholder groups as we identify priorities they have that match with our funding opportunities. For example, grape and wine industry developments are small in Kansas. Yet, through discussions with that interest group, we have placed resources in a multi-state initiative to bring greater expertise and problem solving to the grape producers and wine makers in Kansas. In 2005, a strategic planning process for the Cooperative Extension mission of K-State Research and Extension was completed. The 34-member task force that worked to complete this process was carefully constructed to involve a balance of key leadership among our broad stakeholders and personnel within our faculty and agent ranks. The purpose of the strategic planning was to identify key principles that must be given attention to assure the future to a relevant, sustainable, quality Extension Service in Kansas. The process included three facilitated day-long meetings and interim reports posted on our website to solicit further external input. Focus was given to organizational structure and staffing, resource development, systems of education and information dissemination, and constituent development and marketing. A series of recommendations was identified by the task force. In 2006, the strategic planning recommendations were distributed widely within and outside the organization and planning and implementation processes developed to address key issues. Some of those issues include strengthening professional development, increasing program depth and focus of our local extension programs, moving forward on multi-county models of program delivery, multistate programming initiatives, and enhanced training for stakeholders in the advocacy process. * In 2007, that strategic planning process has resulted in targeting \$275,000 annually over the next three years towards enhanced professional development for our faculty in becoming more effective Extension professionals. A redesign of our employee resource website was undertaken to make it easier for our faculty and staff to organize and plan for their personal professional development. We targeted hires of Extension faculty who are multi-lingual and able to interact more directly with our Latino families. We organized a new Center for Engagement to bring the broader resources of the campus to the issues and needs of the people of Kansas. We streamlined our hiring process to refill positions in a shorter time frame while at the same time maintaining our high standards of affirmative action process. We brought faculty together to address critical emerging issues in energy, bio-security, immigration, rural development, and our aging populations in rural Kansas. In 2009, while significant budget reductions have resulted in loss of faculty and staff positions, we continue to use the priorities set forth in that strategic plan to provide guidance on communication, professional development, and structural reorganization to meet those goals, along with budget realities.

Brief Explanation of what you learned from your Stakeholders

Industry trends, entrepreneurial interests, gaps in knowledge and understanding, problems and pitfalls in adaptations of knowledge and technology, lack of information within a given commodity production or processing system are all common learning experiences for faculty and administration in our listening relationship with key stakeholders. In times of budgetary strain, stakeholders continue to emphasize the importance of local presence, attention to the long-term issues and problems of Kansas, and finding ways to improve our efficiency without sacrificing the effectiveness. The result has been in deeper discussions and development of multi-county Extension units, greater use of technology to deliver training, updates, and public education. We are dramatically increasing the use of computer-based educational delivery, while still finding ways to maintain the desires of interaction and connectedness to our clientele. An example has been in our listening to the interests and needs of the grape and wine producers in Kansas. While research and extension within Kansas State University does not have an investment of human resource to address the knowledge and technology needs of the grape producers, we have listened to their interests and needs and we are currently working out an agreement among Kansas State University, the University of Missouri, Kansas Department of Agriculture, and Kansas Department of Commerce to bring educational programs and support to that industry through a joint agreement where the University of Missouri has that expertise. We have similar discussions ongoing with the fruit growers and industry interests.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
5225408	0	3765089	0

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	2986590	0	3419264	0
Actual Matching	12574310	0	32221645	0
Actual All Other	19266120	0	4638019	0
Total Actual Expended	34827020	0	40278928	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from				
Carryover	1704024	0	1395427	0

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Healthy Communities: Youth, Adults and Families
2	Safe Food and Human Nutrition
3	Economic Development through Value-Added Products
4	Natural Resources and Environmental Management
5	Competitive Agricultural Systems

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Healthy Communities: Youth, Adults and Families

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
724	Healthy Lifestyle	20%		10%	
801	Individual and Family Resource Management	10%		15%	
802	Human Development and Family Well-Being	15%		20%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	15%		15%	
806	Youth Development	40%		10%	
903	Communication, Education, and Information Delivery	0%		30%	
Total		100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	0.0	0.0
Actual	160.0	0.0	25.0	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
1051880	0	321225	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
4351960	0	3028475	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
6338670	0	435900	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Develop/identify theory- and evidence-based educational programs to promote healthy communities: youth, adults, and families.

- Disseminate, implement, and evaluate effectiveness of programs to promote healthy communities: youth, adults, and families.
- Strengthen collaborative capacity within K-State Research and Extension and among communities/ organizations to promote healthy communities: youth, adults, and families.
- Provide technical assistance and educational programs to citizens seeking to make their communities healthy and sustainable places for meeting human needs.
- Establish links between community development researchers and practitioners for cooperative efforts that result in healthy, sustainable communities.
- Provide experiential learning opportunities for children and youth to address key and emerging issues that affect their growth and development.
- Deliver and evaluate evidence-based community-development strategies for positive youth development in structured out-of-school settings (e.g., after-school programs, youth-serving organizations, clubs).
- Strengthen the support for a volunteer development system through training and education on the experiential learning model, 4-H essential elements, ISOTURE model, age appropriate learning experiences and emerging aspects of youth development.
- Provide imaginative, motivational, and experiential learning experiences to help youth build competencies and master life skills.

2. Brief description of the target audience

- Families and individuals of all ages living in Kansas, including populations with limited resources; low literacy skills; varying ethnicities; disabilities, diseases, or impairments; and documented or identifiable health disparities
- Economic stakeholders, and policy and funding agencies
- Health care and education professionals
- K-State Research & Extension faculty and staff with responsibilities for healthy communities: youth, adults, and families

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	19000	0	12000	0
Actual	27394	0	113966	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	6	2	
Actual	2	0	2

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Number of educational programs delivered to increase knowledge of healthy communities: youth, adults, and families

Year	Target	Actual
2009	500	902

Output #2**Output Measure**

- Number of program participants

Year	Target	Actual
2009	20000	56739

Output #3**Output Measure**

- Number of educational programs to increase knowledge of volunteer development, ISOTURE, experiential learning and youth development competencies

Year	Target	Actual
2009	40	554

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Percentage of participants who participate in regular physical activity
2	Percentage of participants intending to increase their physical activity
3	Number of substantial community projects that reflect shared participation in addressing community goals
4	Number of volunteer hours of community members engaged in community improvement programs
5	Number of volunteers, faculty and staff who understand and demonstrate the use of youth development competencies, life skills development, and the essential elements of a positive learning environment.
6	Number of youths who improve connectedness with parents, peers and other adults; improve their sense of social place/integration; improve attachments to prosocial/conventional institutions; express confidence in one's personal efficacy; demonstrate good emotional self regulation, coping, and conflict management skills.
7	Increased number of participants who have established financial goals to guide financial decisions toward financial security

Outcome #1

1. Outcome Measures

Percentage of participants who participate in regular physical activity

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	10	35

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Walking and other easily accessible physical activities are known to improve cardio-respiratory health, mental health/alertness and social connectedness in communities. Physical activity at recommended levels promotes overall health and well-being.

What has been done

Walk Kansas, one of KSRE's largest, sustained programs, contributes to the health and well-being of adults and children in nearly every county in Kansas. The 8-week physical activity campaign and team-challenge encourages adults to establish a physical activity "habit" that can be sustained throughout a lifetime.

Results

In 2009, 21, 271 Kansas adults participated in the 94 Walk Kansas teams. Local Extension professionals coordinated the local program with support and evaluation from state-level specialists. Kansas school-age youth also participated in Walk Kansas, but primarily through a school-based adaptation of the adult Walk Kansas program.

20% Walk Kansas; 15% Community Youth Development participated in regular physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Percentage of participants intending to increase their physical activity

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	20	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Walking and other easily accessible physical activities are known to improve cardio-respiratory health, mental health/alertness and social connectedness in communities. Physical activity at recommended levels promotes overall health and well-being.

Additionally, youth who lead physical activity and health promotion programs (e.g, Health Rocks, Get It - Do It!, Kansas Teen Leadership for Physically Active Lifestyles) in their communities have been known to improve their own physical activity levels while modeling a physically active lifestyle for others. Adult mentors of teen-led programs also confirm that youth who are engaged in their communities engage in fewer risk behaviors, express more connection to their community and are more likely to re-invest back into their community at adulthood.

What has been done

Walk Kansas, one of KSRE's largest, sustained programs, contributes to the health and well-being of adults and children in nearly every county in Kansas. The eight-week physical activity campaign and team-challenge encourages adults to establish a physical activity "habit" that can be sustained throughout a lifetime.

Twenty community youth development health promotion programs have been established and supported. Through the USDA-funded "Kansas Teen Leadership for Physically Active Lifestyles" project three Kansas communities established youth-led after school programs focused on health promotion. "Kansas Health Rocks" trained 60 youth volunteers who returned to their communities to conduct summer day-camps, after school health leadership programs and in-school health sessions. The "Get It - Do It!" program worked with Kansas PRIDE to establish 6 community teams of youth and adults who planned and implemented localized health promotion programs and "built environment" improvements.

Results

100% Walk Kansas; 100% Community Youth Development indicated intent to increase physical activity. Local Extension professionals coordinated the local program with support and evaluation from state-level specialists. Kansas school-age youth also participated in Walk Kansas, but primarily through a school-based adaptation of the adult Walk Kansas program

Ninety Kansas youths led 20 community-based physical activity and health promotion programs reaching 727 other youth. Evaluations revealed that youth felt more positive about their home community and more likely to continue being physically active after the programs were completed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

Number of substantial community projects that reflect shared participation in addressing community goals

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	600	1183

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The philosophy of community development that Kansas PRIDE encourages is based on the fundamental valuing of volunteer citizen participation. Public participation involves the development of political and social capital.

What has been done

This is exactly what organizing for community improvement through PRIDE does. PRIDE not only helps citizens to identify and utilize their own capital resources, but also serves as a vehicle to create community and organize to provide a venue for expanding and sharing community social/political power. Public involvement in community improvement efforts enhances the sustainability of social groups in communities, generates a sense of pride among citizens, and builds the capacity of individuals and groups within the community to effectively address current and future community development issues.

Results

In 2009, 70 Kansas communities were actively enrolled in PRIDE. Because each community identifies and follows their own community goals, the activities of PRIDE vary. Through the 1183 projects community PRIDE groups completed in 2009, it is safe to say the each was important to the quality of life for the people involved in each community.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #4

1. Outcome Measures

Number of volunteer hours of community members engaged in community improvement programs

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	70000	170642

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The philosophy of community development that Kansas PRIDE encourages is based on the fundamental valuing of volunteer citizen participation.

What has been done

One way that Kansas PRIDE measures public participation is by tracking opportunities for involvement using volunteerism to the community as an indicator. The strength of communities with a high degree of cohesiveness and collaboration is also demonstrated through their ability to establish and collaboratively work toward a community vision, pool resources, and invest in projects that benefit the community.

Results

Seventy active communities invested 171,036 hours and leveraged \$723,606 to accomplish 1,183 projects with 592 collaborative partner organizations to build better communities. Because each community identifies and follows its own goals, the activities of PRIDE vary. However, the people involved consider each local project important to the quality of life for 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
806	Youth Development

Outcome #5

1. Outcome Measures

Number of volunteers, faculty and staff who understand and demonstrate the use of youth development competencies, life skills development, and the essential elements of a positive learning environment.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	2000	7927

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Development and learning are lifelong pursuits that enhance self-determination, independent thinking and self-esteem, and learning-by-doing promotes practical skills, confidence and experience for both youth and adults. Positive youth development outcomes are more important than the method or the process. 4-H youth development creates positive youth development settings, featuring critical elements and accountability to the mastery of positive life skills.

What has been done

Engaging teens in organized, relevant citizenship experiences equips them to become active engaged adults who can confidently address civic issues. In addition to countless local citizenship activities planned and conducted at the 4-H club and county level, two state level 4-H events directly created citizenship learning opportunities. There were 45 youths and 5 adults who participated in the 12-day Citizenship Washington Focus experience in Washington D.C.

Results

The two-day study in government introduces youth to the state legislative process. Conference delegates were asked to research and consider three current legislative issues: (1) loss of revenue and subsequent budget crunch; (2) energy, including the development of coal-fired plants; and (3) proposed age changes in driver's licensing. Students discussed the topics before taking their seats in the House Chamber to debate the issues and make recommendations for public policy.

The firsthand experience with Kansas' legislative process brings citizenship and service to life. The conference generates interest in government and public service as a career.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

Number of youths who improve connectedness with parents, peers and other adults; improve their sense of social place/integration; improve attachments to prosocial/conventional institutions; express confidence in one's personal efficacy; demonstrate good emotional self regulation, coping, and conflict management skills.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
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2009

750

98784

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Community connectedness and improved social capital are the results of volunteerism among youth and adults. The more opportunities youths have to be mentored in citizenship and "giving back" to their communities, the greater the likelihood that attitudes, behaviors, and life goals will improve.

What has been done

Ninety young people were trained to deliver "Health Rocks," to lead "Get It--Do It!" community health projects and manage after school programs as part of the "Kansas Teen Leadership for Physically Active Lifestyles" USDA grant project. Across all three efforts, young people were empowered--with the help of adult mentors--to design and deliver health-related community projects. Those projects increased health awareness and health literacy in communities, and provided opportunities to practice citizenship.

Results

The Get It--Do It! program reached 911 individuals who generated \$36,8000 (@ \$7.15/hr) in additional support to promote physical activity and make improvements to places such as city squares, parks, walking trails. Volunteer leaders successfully learned how to write and manage grants and implement a planned, evidence-based project through "Get It--Do It!" These new found skills have resulted in five communities submitting grant proposals to other funders.

In addition to learning how to foster adult and youth partnerships and compete in grant submissions, "Get It--Do It!" communities have gained collaboration skills by working with their local K-State Research and Extension professionals. Those local Extension professionals, who are required to endorse local Get It--Do It! grant submissions and confirm their active involvement in the projects, have discovered that Get It--Do It! is a viable mechanism to blend effectively and efficiently their community development, youth development and health promotion work. At post-project interviews, Extension agents responded positively their willingness to continue with Get It--Do It! programs in their communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #7**1. Outcome Measures**

Increased number of participants who have established financial goals to guide financial decisions toward financial security

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	200	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many individuals and families are experiencing financial crisis because of inadequate savings, health care costs, too much debt, and poor planning for potential major life events. Saving--the ability to set aside some money routinely from a stream of income--is at the heart of household asset development.

Extension targets programs for financially vulnerable populations. The overall goal is for people to acquire the knowledge, skills, and motivation to make behavior changes that will build financial security, which is the cornerstone of prosperous communities, nurturing neighborhoods, and strong families.

What has been done

The nationwide America Saves Campaign is used as a broad marketing umbrella for all financial educational programs with the goal to encourage individuals and families to change behaviors and take action to save and build financial security. Agents provide information through presentations and classes to assist those who wish to pay down debt, build an emergency fund, save for retirement, save for a home/ business/education, save on health insurance or income taxes. The KSRE Financial Management program received a Kansas Department on Aging (KDOA) \$60K grant with a short 6 month window. The goal was to reach targeted low-income Kansans who were income eligible but not currently receiving the Medicare Extra-Help/Low Income Subsidy (LIS) assistance with information about how to apply through Social Security.

Results

Inherent in the outreach goals of this grant was to spread the word to individuals, family members, caregivers, neighbors or caseworkers who might know of someone potentially eligible and encourage application for for this extra help. For many eligible recipients receiving the Medicare Extra Help subsidy meant money saved on health care costs provided additional funds for food and housing needs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

We are choosing the option to skip this section. Through an arrangement with the K-State Office of Educational Innovation and Evaluation, we will be increasing our attention to evaluation next year.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 2****1. Name of the Planned Program**

Safe Food and Human Nutrition

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
702	Requirements and Function of Nutrients and Other Food Components	15%		15%	
703	Nutrition Education and Behavior	30%		20%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	15%		15%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	30%		30%	
723	Hazards to Human Health and Safety	0%		10%	
724	Healthy Lifestyle	10%		0%	
802	Human Development and Family Well-Being	0%		10%	
Total		100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual	114.0	0.0	24.0	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
228480	0	308376	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
942320	0	2907336	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
8550230	0	418464	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

- Develop new rapid methods for the surveillance, detection, isolation, and quantification of microbes and chemical residues in animals, plants, and food products.
- Develop risk monitoring techniques to detect potential hazards in the distribution chain.
- Validate the efficacy of techniques in controlling and eliminating microbial and chemical hazards.
- Disseminate food safety and bio-security information through extension and research seminars, workshops, and resident and distance education programs, using a variety of media options and communication tools.
- Offer safe food production, handling, and sanitation education to groups involved in all levels of food production and service.
- Identify best management practices to prevent foodborne illness and to enhance the security of the food supply throughout the food chain.
- Increase understanding of the role of food and its components in improving human health and reducing the risk of nutrition related disorders.
- Develop technology to reduce the hazards and improve the quality of animal food products, which will complement the development of HACCP programs by USDA.
- Design systems to preserve, prepare, and store foods and agricultural products to enhance nutrients and bioactive compounds and educate consumers about these systems.
- Develop, complement, and maintain an aggressive technology transfer system that effectively communicates work about Safe Food and Human Nutrition to consumers, students, industry, government, and other scientific investigations.

2. Brief description of the target audience

- Growers and processors of agricultural commodities, commercial and non-commercial food service personnel, market and home gardeners, other food handlers, retail markets, consumers, and educators
- Families and individuals of all ages living in Kansas, including populations with limited resources; low literacy skills; varying ethnicities; disabilities, diseases, or impairments; and documented or identifiable health disparities
- Economic stakeholders, and policy and funding agencies
- Health care, education, and nutrition professionals
- K-State Research & Extension faculty and staff with responsibilities for food and/or nutrition
- Government
- Consumer groups (i.e., STOP)

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	500	0	500	0
Actual	1500	0	1500	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	20	
Actual	2	20	22

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of rapid methods developed for the surveillance, detection, isolation, and quantification of microbes and chemical residues in animals, plants, and food products
 Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of therapeutic, chemical, and physical treatments developed for animals and plants and their products to eliminate or reduce contamination with potential hazards
 Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of extension and research seminars, workshops, and other educational programs presented using a variety of media options and communication tools

Year	Target	Actual
2009	100	110

Output #4

Output Measure

- Number of attendees at educational programs (previous item) whether growers, processors, commercial and non-commercial food service personnel, market and home gardeners, retail markets, and consumers (including limited resource individuals, minorities, and other at risk populations)

Year	Target	Actual
2009	1000	1050

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Percentage of individuals and families who have reduced anxiety related to food security
2	Number of participants demonstrating increase in knowledge level and attitude of clientele in safe food production, handling, and sanitation programs; best management practices to prevent foodborne illness; and social, economic, and communications issues related to food safety and agricultural bio-security
3	Number of participants passing food service employees food handler certification
4	Number of individuals and families who have adopted best management practices for food handling and agricultural biosecurity
5	Number of participants passing food service manager/supervisor food handler certification
6	Number of food safety and security certificate graduate students

Outcome #1

1. Outcome Measures

Percentage of individuals and families who have reduced anxiety related to food security

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of participants demonstrating increase in knowledge level and attitude of clientele in safe food production, handling, and sanitation programs; best management practices to prevent foodborne illness; and social, economic, and communications issues related to food safety and agricultural bio-security

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of participants passing food service employees food handler certification

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	300	346

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Food safety education is necessary to help maintain health care cost, and to help ensure public health and maintain quality of life for all Kansans.

What has been done

Eighteen entry level foodservice employee classes were offered in Kansas counties. The employee level classes provide an end-of-session assessment of knowledge gained. KSRE provided more than 60 contact hours of food safety entry level training in 2009.

Results

Three hundred forty-six students completed training on food safety best practices during entry level foodservice employee training.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Number of individuals and families who have adopted best management practices for food handling and agricultural biosecurity

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Number of participants passing food service manager/supervisor food handler certification

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	200	315

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The National Restaurant Association has estimated that the average cost of a foodborne illness outbreak to an establishment is about \$75,000. The economic value of foodservice educational programs can be calculated by multiplying the number of establishments reached through the programs by the estimated economic burden of an outbreak (\$75,000).

What has been done

KSRE in collaboration with the Kansas Restaurant and Hospitality Association provided ServSafe Training in Kansas during January-December 2009. Two of the 20 classes offered were conducted in Spanish to reach out to Spanish speakers in the foodservice industry.

Results

Three hundred eighty-three completed the training, which extends knowledge gain beyond the 315 passing the certification exam. In addition, 25 extension professionals received training and/or technical help to establish or maintain professional ServSafe certification and/or licensing to be qualified to teach the ServSafe Certification Course. In 2009, 196 facilities reported having ServSafe trained employees which translates to a huge economic value considering the estimated cost of a foodborne illness outbreak per establishment!

4. Associated Knowledge Areas

KA Code Knowledge Area

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

Outcome #6

1. Outcome Measures

Number of food safety and security certificate graduate students

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	18

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Incidence of foodborne illness. Need for hazard detection, control, policy and education.

What has been done

The KSU Consortium Team continues the farm to table approach to address food safety challenges. The primary focus of the work continues to be methods development for the isolation, detection, and quantification of microbial and chemical hazards and the elimination of those hazards.

Results

Food Safety Consortium research has contributed to technology and information transfer which has been used by regulatory agencies to establish policy, by industry to establish safe processing and handling practices, and by consumers while preparing food. Additionally, this food safety research has also contributed to food security, protection, and defense strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

We are choosing the option to skip this section. Through an arrangement with the K-State Office of Educational Innovation and Evaluation, we will be increasing our attention to evaluation.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 3****1. Name of the Planned Program**

Economic Development through Value-Added Products

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	40%		40%	
502	New and Improved Food Products	0%		20%	
511	New and Improved Non-Food Products and Processes	40%		20%	
601	Economics of Agricultural Production and Farm Management	0%		10%	
603	Market Economics	20%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.8	0.0	0.0	0.0
Actual	13.0	0.0	19.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
114785	0	244131	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
481965	0	2301641	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
392290	0	331284	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

- Increase awareness of value of biobased products in the commercial marketplace.
- Develop new processes to modify agricultural-based materials into higher value products.

- Enhance utilization of co-products from processing of agricultural materials in various applications.
- Assess constraints and value opportunities for Kansas agricultural goods.
- Emphasize conversion of cellulosic materials to ethanol.

2. Brief description of the target audience

- Growing industry based on bioprocessing and bioconversion, including the existing ethanol and biofuels industry.
- International grain processors. Industrial products manufacturers: adhesives, composites, bio-based chemicals, solvents and lubricants.
- Entrepreneurs and investors seeking to enter this industry.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	300	0	120	0
Actual	477	0	100	0

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

Patent Applications Submitted

Year: 2009

Plan: 2

Actual: 2

Patents listed

Bio-nanocomposite packaging films based on polyvinyl alcohol, starch, clay, and plasticizers; Starch Esters and Methods of Preparation

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	0	5	
Actual	0	15	15

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of presentations at national and international conferences

Year	Target	Actual
2009	20	12

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of new processes to improve utilization of biological raw materials as bioconversion substrates
2	Percent growth in income and employment attributed to bio-based agriculture and food related businesses.
3	Number of new bio-based businesses created.
4	Percent growth in existing value-added business entities.

Outcome #1**1. Outcome Measures**

Number of new processes to improve utilization of biological raw materials as bioconversion substrates

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	2	3

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The U.S. consumes more than 140 billion gallons of transportation fuels annually. Due to finite reserves, non-uniform distribution, and volatile prices of fossil fuels, renewable fuels from biomass could make a significant contribution toward a more sustainable future. Recent legislation has called for this nation to annually produce 36 billion gallons of renewable fuel by 2022 to help offset impending concerns over climate change and energy security. Such targets have implications of national security, economic development, and sustainable practices for the future.

What has been done

Both fundamental and applied research has been conducted in the area of biofuel production. Key projects include (1) grain sorghum, sorghum biomass and sweet sorghum as a viable renewable resource for biofuels; (2) pelleting forages to increase cellulosic ethanol production; (3) syntheses of acid functionalized nanoparticles for hydrolysis and pretreatment of lignocellulosic biomass; (4) microalgae biorefining for biofuels; (5) biomass gasification for value-added utilization of agricultural residues; and (6) pyrolysis of biomass for bio-oil and bio-char production. These research projects were supported by NSS, USDA, DOE/USDA, DOT Sun Grant Initiative, United Sorghum Checkoff Program, and State of Kansas.

Results

We identified the key factors affecting the bioconversion process of sorghum and sorghum biomass and identified the best candidates of forage sorghum for biofuel production. Processing conditions for pretreatment, enzymatic hydrolysis, fermentation, pyrolysis and gasification were optimized for high final product yields. As research results, we published more than 15 peer reviewed papers, submitted one patent disclosure, and presented more than 10 meeting papers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
511	New and Improved Non-Food Products and Processes

Outcome #2

1. Outcome Measures

Percent growth in income and employment attributed to bio-based agriculture and food related businesses.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of new bio-based businesses created.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

About 8 billion pounds (~\$10 billion value) of adhesives are used annually in the United States in plywood, particleboard, lamination, and various composites for construction, packaging, furniture, etc. The adhesives currently on the market are mostly formaldehyde-based and made from fossil resources. Formaldehyde emissions have been an environmental issue. There is an urgent need to produce adhesives from biobased materials. Low-cost sorghum DDGS is rich in protein and oil content and is a good renewable source for the production of protein adhesive and biodiesel, which would benefit the bioethanol industry and contribute to the revival of rural economies in the sorghum growing areas in the USA.

What has been done

We have been working on development of the affordable and durable biobased adhesives from sorghum DDGS for wood applications. A Small Business Innovation Research grant was obtained from USDA-SBIR to help start up a small business for renewable protein adhesives. The protein adhesive project was also funded by United Sorghum Checkoff Program.

Results

We have identified the best method for protein extraction, evaluated the potential of sorghum protein adhesives, and optimized processing conditions for making plywood. As research results we published one peer reviewed paper and submitted one patent disclosure. In addition, we helped Ecoversion, located in Healy, Kansas to start their business for grain sorghum protein extraction and utilization of sorghum protein for adhesives. We are planning to submit Phase II proposal to commercialize the technology.

4. Associated Knowledge Areas

KA Code Knowledge Area

511 New and Improved Non-Food Products and Processes
603 Market Economics

Outcome #4

1. Outcome Measures

Percent growth in existing value-added business entities.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

We are choosing the option to skip this section.

Key Items of Evaluation

Through an arrangement with the K-State Office of Educational Innovation and Evaluation, we will be increasing our attention to evaluation.

V(A). Planned Program (Summary)**Program # 4****1. Name of the Planned Program**

Natural Resources and Environmental Management

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	15%		15%	
111	Conservation and Efficient Use of Water	30%		30%	
112	Watershed Protection and Management	30%		20%	
121	Management of Range Resources	15%		20%	
141	Air Resource Protection and Management	10%		15%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual	30.0	0.0	23.0	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
277010	0	295527	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1186970	0	2786197	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1631190	0	401028	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

- Review existing and ongoing research to evaluate utilization of precipitation and extent of protective land cover for semi-arid crop systems which differ in cropping intensity, (i.e., number of crops harvested in a rotation cycle).
- Emphasize the importance of integration of water and nutrient management to agricultural producers.
- Develop a decision model and improved management practices for limited irrigation.

- Evaluate improved management and disseminate information for improving water conservation in urban and suburban settings.
- Provide education and training in irrigation scheduling and new technologies for Certified Crop Advisors (CCAs).
- Use the Mobile Irrigation Lab to educate irrigators about water conservation and management and demonstrate improved technologies.
- Evaluate optimum cropping systems and dryland, no-till crop production systems using models and field trials.
- Demonstrate Best Management Practices (BMPs) to avoid groundwater pollution from application of manure to cropland.
- Conduct an educational program and public awareness campaign aimed at citizen action to meet TMDLs, especially abatement of fecal coliform bacteria.
- Provide educational and technical assistance for improved waste management to livestock producers.
- Evaluate BMPs for reducing phosphorus, sediment, and pesticides in surface runoff from cropland and grazing lands.
- Evaluate the benefits and design of riparian buffers and other kinds of vegetated filter strips for Kansas.
- Conduct water quality assessments for watersheds that drain into important public water supply reservoirs in Kansas.
- Protect existing riparian forest lands and implement BMPs to improve health and productivity to reduce non-point source pollutants in surface waters.
- Provide education and assistance in urban water quality restoration and protection planning for local governments.
- Validate and implement a Phosphorus Site Index in Kansas.
- Achieve a better understanding of nitrogen build up in soils where manure is applied and consequences of nitrogen buildup through research and experience with nutrient management planning. Identify trade-offs between N-based and P-based manure application.
- Provide education and training in water quality planning and management to local government entities.
- Evaluate "green technologies" for treating and managing storm water runoff in an urban setting (Topeka).
- Identify sources of fecal bacteria using bacteria source tracking in the Wichita area.
- Provide environmental education to youths through the EARTH program.
- Evaluate best management practices for the ability to sequester carbon and improve soil quality.
- Develop educational materials and Web sites for producers, the agricultural and energy industry, and policy makers on issues related to implementing a soil carbon sequestration program.
- Develop a scientific basis for policies that would enhance agricultural practices that enhance soil carbon sequestration and provide incentive for producers.
- Review, evaluate, and analyze existing information on crop production for biomass energy with the goal of synthesizing relationships between productivity, land class, water availability, and economic potential. From these relationships, build a decision support model that will evaluate cropping strategies for biomass energy production that enhance farm financial performance and minimize adverse environmental impacts.
- Develop educational materials and programs aimed at increasing the capacity to produce biomass for energy in Kansas.

- Deliver education and technology transfer programs that address characterization and cost-effective abatement of airborne emissions from open lot feeding systems.

2. Brief description of the target audience

Agricultural producers, youths, policymakers/regulators, crop and livestock consultants

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	5000	0	1000	0
Actual	7500	0	1500	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	16	12	
Actual	16	12	28

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational programs delivered

Year	Target	Actual
2009	25	100

Output #2

Output Measure

- Number participating in educational programs

Year	Target	Actual
2009	600	700

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of producers adopting BMPs that protect environmental quality
2	Number of acres utilizing wastewater applications for crop production
3	Number of irrigators using evapotranspiration (ET)-based irrigation scheduling
4	Measurable improvement in water quality in the Little Arkansas River Watershed--percent reduction in atrazine

Outcome #1**1. Outcome Measures**

Number of producers adopting BMPs that protect environmental quality

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	100	111

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Restoring water quality requires a fundamental change in practices and behavior toward the land and water. Behavior change in agriculture with respect to improving water quality involves raising awareness of issues and problems, identifying options for action, securing technical and financial assistance, and implementing change.

What has been done

Best Management Practices (BMPs) were delivered through 100 workshops, demonstrations, and tours; 23 field days; and 73 public meetings to 9,000 face-to-face contacts. In addition, 335 on-farm environmental assessments and plans were developed.

Results

During 2009, BMPs such as adding grass buffers, reducing livestock numbers, adding waste storage facilities, controlling extraneous drainage, and alternative water sites for water quality issues were implemented by 111 individual producers involving more than 23,103 animal units. BMPs were implemented involving more than 14,991 acres of cropland on 90 farms.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
121	Management of Range Resources
141	Air Resource Protection and Management

Outcome #2**1. Outcome Measures**

Number of acres utilizing wastewater applications for crop production

Not Reporting on this Outcome Measure

Outcome #3**1. Outcome Measures**

Number of irrigators using evapotranspiration (ET)-based irrigation scheduling

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	450

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Approximately 15% of the harvested cropland in Kansas is irrigated and represents about 30% of the crop value produced each year. In heavily irrigated counties in western Kansas, the irrigated acreage base may approach 75% of the harvested acres and over 95% of the crop value produced. However in many areas of the state and, in particular, areas irrigated from the Ogallala Aquifer, water supplies are depleting and increasingly expensive to pump. To extend water supplies and minimize adverse economic from the loss of irrigated agriculture, extension education programs aimed at improving irrigation water productivity, conserving water resources, and maintaining positive economic impacts are targeted to help producers and irrigated agricultural business personnel make sound decisions with regards to the use of water supplies.

What has been done

Climatic-based or Evapotranspiration (ET)-based irrigation scheduling was first introduced in Kansas in 1979 using weather information from the KSU Colby Branch Experiment Station (now the NW Research Extension Center). ET information was broadcast weekdays through local radio stations and published in local newspapers. The distribution of ET information hindered acceptance of ET irrigation scheduling. With the development of new technology, weather and ET information is now available on demand to individuals via telephone or the internet. Irrigation scheduling software, such as KanSched, is readily available to water managers, agricultural consultants, and individual irrigators. KanSched is an approved irrigation scheduling program by the Kansas NRSC and is a required management procedure as part of any irrigation related cost share program.

Results

A survey of the major irrigation consulting firms in Kansas and many of the independent consultants indicated that an ET based irrigation schedule is now part of the basic irrigation service package provided to producers

contracting irrigation consulting services. A survey of selected agricultural agents in counties with major irrigation indicated 90% or more of irrigated lands are under contract for services by irrigation consultants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

Outcome #4

1. Outcome Measures

Measurable improvement in water quality in the Little Arkansas River Watershed--percent reduction in atrazine

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	27

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Little Arkansas Watershed is one of the most intensive agricultural watersheds in Kansas. Ninety-seven percent of the land area in the watershed is in agricultural production (78% cropland and 19% grazingland). This watershed provides drinking water to 205 public water suppliers, recreational and aquatic life habitat, and ground water recharge as well as irrigation, livestock and industrial uses.

What has been done

Watershed specialists have worked closely with local Watershed Restoration and Protection Strategy (WRAPS) groups. Trust relationships have been built with producers, which takes time and comes from not having regulatory responsibilities or control over money. The overall goal is abatement of nonpoint sources of pollution and improved water quality.

Results

Water quality monitoring found 65% lower atrazine concentrations in streams in targeted watersheds. There was an estimated 27% reduction in atrazine lost in runoff waters. More than 200 students in at least six classes across many disciplines were trained on the latest watershed sediment source and transport information and methods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

- 121 Management of Range Resources
- 141 Air Resource Protection and Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

We are choosing the option to skip this section.

Key Items of Evaluation

We've recently contracted with the Office of Educational Innovation and Evaluation to work with our Program Focus Teams and strengthen our evaluation skills.

V(A). Planned Program (Summary)**Program # 5****1. Name of the Planned Program**

Competitive Agricultural Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	5%		5%	
205	Plant Management Systems	30%		30%	
216	Integrated Pest Management Systems	5%		5%	
307	Animal Management Systems	40%		35%	
311	Animal Diseases	0%		5%	
601	Economics of Agricultural Production and Farm Management	20%		10%	
606	International Trade and Development	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	2.2	0.0
Actual	105.0	0.0	175.0	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
1314435	0	2250005	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
5611095	0	21197996	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2353740	0	3051343	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Evaluate and develop technologies and production strategies that will enhance production efficiencies and industry profitability.

- Conduct research to improve productivity, reduce costs, reduce nutrient output on livestock waste, improve profitability, and increase production of safe, wholesome, and nutritious products.
- Increase producers understanding of their role in producing a wholesome, safe food product.
- Improve the yielding ability and quality of the agronomic crops uniquely adapted to Kansas and the Central Plains, through plant breeding and genetics.
- Develop integrated, sustainable cropping systems, which will enhance the intensity, diversity and profitability of crop production.
- Improve resource use efficiency (water, soil and inputs) within diverse and sustainable cropping systems.
- Enhance the development of the horticulture industry in Kansas.
- Manage afforestation and reforestation of Kansas to promote biodiversity, wildlife habitat and forest products.
- Assist producers in improving the economic efficiency of crop and livestock production enterprises and the marketing of products through research and educational programs.
- Contribute to the development of extensive and intensive animal production and management systems that are economically viable, ecologically sustainable, and compatible with safe and humane treatment of animals.
- Conduct applied research and educational programs, which will assist managers in assessing risk and developing risk management strategies for their farm, ranch, or agribusiness.
- Provide educational programs that assist farm managers in addressing key and emerging issues in the agricultural production sector.
- Develop decision support systems to meet the needs of large- and small-scale farmers and agribusinesses.
- Conduct applied research and educational programs, which will assist agribusiness managers, including producer-owned cooperatives, improve the profitability and sustainability of their businesses.
- Provide one-on-one financial, economic and farm business planning and management assistance through the Kansas Farm Management Association program.
- Provide tools and education for improved farm-level record keeping and analysis, including whole-farm and enterprise analysis and benchmarking.
- Develop tools and educational programs to assist producer groups in evaluating bio-fuel alternatives.
- Develop and disseminate economic-based information that will facilitate business development focused on value-added marketing and processing of agricultural products.
- Develop case studies on cooperatives and value-added ventures.

2. Brief description of the target audience

- Farm and ranch managers
- Agricultural producers and agribusinesses throughout the food industry supply chain
- Farm input suppliers, lenders, Extension educators, and policy makers

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	10000	0	1000	0
Actual	27900	0	1200	0

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

Year: 2009

Plan: 3

Actual: 2

Patents listed

Enhancement of Non-Endogenous siRNA Molecules Using Host-Delivered RNAi Strategy; Spray Application Equipment

3. Publications (Standard General Output Measure)**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
Plan	15	25	
Actual	15	25	40

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Number of individuals participating in programs

Year	Target	Actual
2009	10000	12000

Output #2**Output Measure**

- Number of new/improved varieties, inbreds, germplasm developed and released

Year	Target	Actual
2009	3	0

Output #3**Output Measure**

- Number of educational events (e.g., meetings, demonstrations, field days, press releases, and distributed publications) delivered

Year	Target	Actual
2009	650	1000

Output #4

Output Measure

- Number of producers engaged in one-on-one consultations through Kansas Farm Management Association or Farm Analyst programs

Year	Target	Actual
2009	3000	3087

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of livestock producers who demonstrate best management practices (BMPs) including genetic selection, reproduction, nutrition, health, animal care and well-being, livestock safety and quality, environmental management, and optimal marketing strategies
2	Number of Kansas farms and ranches increasing awareness of financial performance
3	Number of acres planted to KAES-developed materials or materials derived from KSU varieties, inbreds, or germplasm
4	Number of crop producers who adopted BMPs
5	Number of crop acres using soil testing as a basis for nutrient applications
6	Percent of producers demonstrating improvement of Kansas ground and surface water with respect to nutrient loads
7	Number of soil samples evaluated on Kansas crop acreage
8	Changes in average or typical observed cropping systems, rotations, and crops
9	Hours and activities reported annually by Master Gardener volunteers
10	Reduced number of planned pesticide applications by pecan producers

Outcome #1**1. Outcome Measures**

Number of livestock producers who demonstrate best management practices (BMPs) including genetic selection, reproduction, nutrition, health, animal care and well-being, livestock safety and quality, environmental management, and optimal marketing strategies

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	750	300

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Volatility is becoming the norm for livestock producers. Input costs and market prices continue to challenge producers' ingenuity and resourcefulness in order to maintain their business operations. Compared to historical prices, meat and milk prices appeared to be at reasonable levels throughout 2009; however, input costs appear to have established a new plateau with corn markets following oil prices instead of being driven by the demand as feed ingredient. Fortunately, productivity for all livestock industries continues to set new records and exceed previous benchmarks, which is a testament to the quality of producer remaining in our industries. These levels of productivity have become a necessity to lower cost of production as much as possible.

What has been done

Researchers at Kansas State University conducted numerous research trials to determine the optimal feeding level and duration of feeding of distillers' grain for swine, dairy, and beef cattle to maximize the economic benefit while minimizing the negative consequences. We also researched methods of handling distillers' grain to provide producers with options to increase their distillers' grain use. Extension specialists educated producers on the research results through field demonstrations, conferences, news releases, magazine articles, and trade publications. Extension specialists and local agents also helped producers learn how to adapt these research results to producer's individual operations through one-on-one consultation.

Results

In a partnership with Iowa State University, we made BRANDS, a beef ration formulation package, available to all extension agents in Kansas with a livestock interest. Trainings were conducted in person and via webinars to increase agent comfort level in using this tool to help beef producers lower their feed cost with prudent, effective supplementation programs and forage management systems. Agents in turn have worked one-on-one with local producers to use this program to lower feed cost. One agent related that BRANDS brought producers to her that had never used Extension before, greatly increasing our reach and impact.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

601 Economics of Agricultural Production and Farm Management

Outcome #2**1. Outcome Measures**

Number of Kansas farms and ranches increasing awareness of financial performance

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	3000	3161

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The state of the economy, along with volatile commodity and input prices, make business planning in agriculture increasingly difficult and raises the stakes of each decision a producer must make.

What has been done

There were 9,115 face-to-face contacts with 2,326 Kansas Farm Management Association (KFMA) members during on-farm visits or one-on-one meetings at the local extension office. Topics included improved record keeping and use of records, income planning and management, marketing decisions, equipment and other capital asset purchase/lease decisions, and transition/succession and estate planning. Whole-farm analyses (1,909) were completed for comparative analysis and improved decision making. The analysis reports include information on the current year, along with a trend analysis of the operation for the previous five years.

Results

Each of these KFMA members gained increased awareness of the financial performance of their farm operation and of Kansas agriculture. Out of the total analyses completed, 1,585 were used in completing the KFMA summary books and the information made available to the public through the KFMA website (www.agmanager.info/kfma) and through other avenues, making this information available to all individuals

4. Associated Knowledge Areas

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

Outcome #3**1. Outcome Measures**

Number of acres planted to KAES-developed materials or materials derived from KSU varieties, inbreds, or germplasm

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	7500000	7500000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Kansas Agricultural Experiment Station (KAES) develops new varieties and releases improved germplasm of wheat, soybeans, grain sorghum and canola. New varieties can benefit Kansas farmers directly and new germplasm gives other breeders, and ultimately farmers the advantage of KAES research.

What has been done

No new varieties were released in the past year, but new lines were increased to usable quantities in anticipation of release.

Results

KAES varieties and germplasm are used extensively by Kansas farmers either directly from a KAES developed variety or indirectly from enhanced germplasm in varieties or hybrids developed by other entities.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Number of crop producers who adopted BMPs

Not Reporting on this Outcome Measure

Outcome #5**1. Outcome Measures**

Number of crop acres using soil testing as a basis for nutrient applications

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	350000	4000000

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Phosphorus is a critical nutrient for crop production in Kansas state-wide. More than 50% of the 20 million crop acres in Kansas would be expected to respond to P fertilizers, but the remaining 50% would not. Soil testing can help allocate production resources to minimize production costs and minimize P runoff to surface waters.

What has been done

During the 2009 crop year a number of field experiments were conducted to evaluate N and P fertilizer products, specific additives designed to reduce nutrient loss or enhance nutrient availability, and methods of fertilizer application for corn, sorghum, soybeans and wheat.

The results from this applied research show some marked differences in the performance of products and application methods in different locations in Kansas.

Results

In general, products claiming to enhance the availability of soil or fertilizer phosphorus did not perform. The use of these products with wheat or corn across a range of soil conditions failed to increase P uptake or crop yield. With the cost of these products ranging from \$2 to \$5 per acre, knowledge of this lack of efficacy can save Kansas farmers substantial sums.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Percent of producers demonstrating improvement of Kansas ground and surface water with respect to nutrient loads

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	5	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Access to water for drinking, recreational and aquatic life habitat, and groundwater recharge as well as irrigation, livestock and industrial uses.

What has been done

Best Management Practices incorporated: Grass buffers, berms, adjusted animal numbers and sizes, abandoned pens, relocated pens, resized pens, cleaned and reshaped pens, sediment basins, lagoons, waste storage structures, and manure management.

Results

Animal feed operations that implemented Best Management Practices (BMPs) to reduce pollution potential: 111 producers; 23,103 animal units.

Crop plans: 14,991 acres on 90 farms

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #7

1. Outcome Measures

Number of soil samples evaluated on Kansas crop acreage

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Changes in average or typical observed cropping systems, rotations, and crops

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Hours and activities reported annually by Master Gardener volunteers

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	75000	85491

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Extension Master Gardeners are a vital part of K-State Research and Extension. Donating time in return for horticultural training, Extension Master Gardeners help extension agents meet the need for horticultural information in their communities. The Master Gardener program is designed to provide trained volunteers to help meet that need at minimal cost.

What has been done

The means of providing this information is diverse including horticultural 'hotlines,' demonstration gardens, working garden shows, public presentations, and providing tours. Extension Master Gardeners require continual education in best management practices, conservation of natural resources, waste management, integrated pest management, and identification and selection of proper plant materials for healthy people, plants, and the environment.

Results

Extension Master Gardeners donated more than 85,000 hours with a value of more than \$1.5 million in 2009. Though most Kansas EMG groups only require 40 hours of volunteer time the year of training and less for every year thereafter, our EMGs averaged more than 74 hours of volunteer time during 2009. This level of enthusiasm and commitment not only impacts our volunteer projects but often results in our EMGs influencing family, friends, and neighbors to use proven horticultural practices. Homeowners sometimes over-fertilize and often misdiagnose problems in their landscape and garden resulting in overuse of unneeded or ineffective products. By providing timely, accurate information, our Master Gardeners influence our clientele to use less and more effective inputs resulting in better results and a savings of time and money. Using less fertilizers and pesticides also helps protect the environment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #10

1. Outcome Measures

Reduced number of planned pesticide applications by pecan producers

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pecan producers in Kansas, Missouri, and surrounding states look to the Pecan Experiment Field to provide research-based answers to production questions. The applied pecan research program at K-State is focused on developing production systems for both native pecan groves and orchards of improved cultivars.

What has been done

To ensure profitability of new orchards, landowners seek research-based information on cultivar selection, tree culture, and pest management. Extension bulletins and fact sheets are developed to answer common questions asked by landowners starting new pecan orchards. New research-based information is delivered to growers during field days and through newsletters. Native pecan producers are encouraged to regenerate their groves by planting new pecan orchards in open area within and adjacent to existing native groves.

Results

Armed w/area-wide data obtained from pecan weevil traps, many producers cancelled pesticide applications, thus zero applications.

Success Story: "Over 12 years ago, two young men (ages 20 and 17) came to me with questions about improving their father's native pecan grove. I set up a time to visit their farm and to advise them on the steps I would take to increase nut production on their farm. We spent half a day walking the groves, stopping to talk about individual trees or my philosophy for native grove management. As the afternoon turned into early evening I was invited into their home for the evening meal. It was only then I discovered that I had been welcomed into a Mennonite home.

The Mennonite community has a general distrust for the secular world, especially college-educated professor types. But somehow I was invited into their world (must have been the beard and overalls). Over the years, I returned to their farm to check the progress being made in the native pecan grove. They had taken every suggestion I had made and were beginning to see their nut crops increase. Soon, I was answering questions about pest management and buying harvest equipment. I also attended their weddings and held their newborn children. As their young families grew, so grew their commitment to the pecan industry. They now manage over 300 acres of native pecans. Building trust through strong personal relationships is important for reaching the

Mennonite community. I regularly receive letters or phone calls for Mennonite families across the country with questions on nut trees or growing trees in general. I am now part of their social network and someone they can trust."

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

We are choosing the option to skip this section. We've recently contracted with the Office of Educational Innovation and Evaluation to work with our Program Focus Teams and strengthen our evaluation skills.

Key Items of Evaluation

Note: A flat logic model does not convey the continuous feedback loop and the recycling that occurs from issue identification through research outputs/outcomes back into extension education on to change in condition and restarting issue identification.