2008 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. For example, healthy choices positively impacted a 10-year-old girl but also will save society in health-care costs in the future.The workshops to help retain the family farm assist individual families, but also will help ensure a viable rural economy by retaining our rural populations. With an office in each county, K-State Research and Extension has the ability to get research-based information into the hands of Kansans quickly and efficiently. Our programs impact society, improve the standard of living, and elevate the quality of life. We are providing Knowledge for Life.

Total Actual Amount of professional FTEs/SYs for this State

Year:2008	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	259.0	0.0	338.0	0.0
Actual	422.0	0.0	272.0	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 thorough review prior to their approval. The review process is 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 wide 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/CSREES. 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 the spring of 2008, Family and Consumer Sciences Extension agents engaged their PDCs in surveying local residents about the priority needs for extension programming related to Family and Consumer Sciences topics. The survey consisted of a list of topics that was developed by Specialists and Agents as potential areas of programming. Every academic discipline and our out-state research and extension centers also operate with an advisory group. Those advisory groups are recruited through defined criteria to see that a broad set of interests and backgrounds are represented. Typically, these 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

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 2,049 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
- Meeting with invited selected individuals from the general public

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 non-traditional 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 was considered

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

Brief Explanation

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, multi-state 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.

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. 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**
4913164	0	3541317	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	2992230	0	5061382	0
Actual Matching	12449864	0	33322176	0
Actual All Other	18451860	0	4975968	0
Total Actual Expended	33893954	0	43359526	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	900000	0	1395428	0

V. Planned Program Table of Content

Program #1

V(A). Planned Program (Summary)

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%		20%	
801	Individual and Family Resource Management	10%		10%	
802	Human Development and Family Well-Being	15%		15%	
803	Sociological and Technological Change Affecting Individuals, Families and Communities	15%		15%	
806	Youth Development	40%		40%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	24.6	0.0	2.3	0.0
Actual	160.0	0.0	20.0	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
1032960	0	372280	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
4303670	0	2450160	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
6136050	0	365880	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; and provide imaginative, motivational, and experiential learning experiences to help youth build competencies and master life skills.

2. Brief description of the target audience

The target audience includes 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 and Extension faculty and staff with responsibilities for healthy communities: youth, adults, and families.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	22000	55500	22000	60000
2008	20587	124105	21680	25

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	12	2	
2008	0	0	0

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
2008	500	1470

Output #2

Output Measure

- Number of program participants

Year	Target	Actual
2008	20000	42267

Output #3

Output Measure

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

Year	Target	Actual
2008	30	32

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Percentage of parents reporting improved parent/child and/or parent/parent communication
2	Percentage of participants who participate in regular physical activity
3	Percentage of participants intending to increase their physical activity
4	Number of substantial community projects that reflect shared participation in addressing community goals
5	Number of volunteer hours of community members engaged in community improvement programs
6	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.
7	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.
8	Increased number of participants who have established financial goals to guide financial decisions toward financial security
9	Number of households showing decreased outstanding consumer debt

Outcome #1

1. Outcome Measures

Percentage of parents reporting improved parent/child and/or parent/parent communication

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The way we communicate or the style we use to communicate is often learned from much earlier experiences in our lives when our language skills are newly formed. Anger management in adult-child relationships is critical to having an effective relationship.

What has been done

An extensive online personal study course has been created that has had worldwide impact: http://www.ksu.edu/wwparent/courses/fireworks/ .

Results

Since 2002, the course has experienced 23,500 visits. Evaluations results have revealed its life-changing impact. For example, in the words of one Australian father: My name is Sean and I live in Brisbane Australia. I have a few young children and up until I found your website was feeling very lost on how to handle my anger when dealing with them. I grew up with physical and mentally violent parents and as a result have very much obtained the ability of reacting rather than thinking. Everything so far has been spot on. I was especially moved with your comment that anger does not carry a physical obligation. I am a tradesman and Engineer and think of myself as a bit of an academic but this hit me right between the eyes. I look forward to working through the rest of the website. This is a great service you are providing.
For more personal impact descriptions, see A Comprehensive FireWorks Evaluation at the course homepage.

4. Associated Knowledge Areas

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

Outcome #2

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
2008	10	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

All people in Kansas should be regularly physically active to improve overall health and fitness and to prevent many adverse health outcomes. Benefits of regular physical activity include: increased energy; a more positive outlook on life; better management of hypertension, diabetes, and weight; preventing some cancers; and reduced stress.

What has been done

Walk Kansas is a team-based walking program. Co-workers, family members, friends, and neighbors form teams of six and track minutes of physical activity and food choices during the 8-week challenge.

Results

Three thousand, three hundred twenty-three teams (3,323) walked an average of 1,702 minutes per participant.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

Percentage of participants intending to increase their physical activity

Not reporting on this Outcome for this Annual Report

Outcome #4

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
2008	500	819

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In a time of shrinking rural populations, Kansas PRIDE recognizes that developing livable communities involves looking at several aspects of community life. The Kansas PRIDE Program is a citizen-based community development program that encourages and empowers local volunteers to improve the quality of life in their community. The program is a collaborative effort between K-State Research and Extension and the Kansas Department of Commerce. These two organizations work together to assist citizens in organization, planning, and project implementation for community improvement. The program also plays a key role in maintaining and evaluating the progress of community development and recognizing the success of positive community efforts.

What has been done

Enrolled communities are asked to examine the local social, economic, and physical environment by completing a Community Assessment Tool. Through this citizen-based community development program, local volunteers are encouraged and empowered to improve the quality of life in their communities. Beyond looking at WHAT the communities do for improvement, PRIDE also looks at HOW they approach their work. Research indicates that both are important to the sustainability of efforts, and the degree to which the communities develop community agency and resilience.

Results

Seventy communities participated in the Kansas PRIDE program in 2008. Community PRIDE groups completed 819 community improvement projects. This number often does not reflect the ongoing efforts such as community welcome programs, food pantries, or community services.

4. Associated Knowledge Areas

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

Outcome #5

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
2008	70000	75676

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

Public involvement in community improvement projects enhanced sustainability of social groups in communities, generated a sense of pride among citizens, and built the capacity of individuals and groups within the community to effectively address current and future community development issues.

Results

Kansas PRIDE communities invested approximately 75,676 hours of service to their communities in 2008. The total hours of citizen involvement at $19.51 per hour is valued at more than $1,484,000 of volunteer investment in Kansas communities

4. Associated Knowledge Areas

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

Outcome #6

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
2008	1000	3017

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Kansas 4-H Dog Care and Training program is planned and conducted by 17 adult and teen volunteers for the 3,017 youth members and their dedicated adult and teen project leaders. The program focuses on basic dog obedience training, showmanship skills, and agility obstacle courses and offers educational conferences, judge certification training, and competitive events.

What has been done

The Dog Show Judge's Certification training has graduated more than 170 individuals since its inception in 2002.

Each year, approximately 250 10-19 year old youths qualify for age appropriate Showmanship classes and skill-based Obedience and Abilities at the State 4-H Dog Show. This year, more than 50 blue and purple award winners signed up with the United Kennel Club (UKC) so that their performance could be used toward earning a UKC title.

Results

Dog program alumni are giving back to the program by becoming project leaders, trainers and judges. More than 20% of the Kansas Certified Judges are recent graduates of the program. In addition, four of the ten judge trainers are program graduates and 75% of the educational sessions at the State 4-H Dog Conference were taught by current members or graduates of the program.

The estimated 7,250 hours contributed by volunteers this year is the equivalent of a $120,640 donation to the program based on the value of Kansas volunteer time (Independent Sector, 2006).

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #7

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
2008	500	553

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The most successful ways to build competence, confidence, connection, character, caring, and contribution (6 C's) in our teens is to give teens the opportunity to: 1) Have sustained, positive interactions with adults; 2) Participate in structured activities that enable them to develop valued life skills; and 3) Become leaders of valued community activities.

Kansas Teen Leadership for Physically Active Lifestyles - embraces these same concepts to promote physical activity in entire communities through community campaigns, events, festivals, and promotional efforts coordinated by teen leaders with support of the local Change Teams (i.e., youth-adult partnerships comprised of representatives of local organizations, civic leaders).

What has been done

The Kansas 4-H Youth Leadership Council provides teens these types of opportunities where they can build the 6 C's. The Council organizes and facilitates three main events each year: Citizenship in Action, Campference, and the Kansas Youth Leadership Forum. All of these learning experiences are organized so that 1) those attending strengthen their skills and knowledge; and 2) in the process of organizing their events, the Youth Council members learn about themselves, working with others, and strengthen their skills in planning educational events. Another program, Kansas Teen Leadership for Physically Active Lifestyles is coordinated by teen leaders with support of the local Change Teams (i.e., youth-adult partnerships comprised of representatives of local organizations, civic leaders). The impact community change work had on the youth themselves was assessed through quarterly focus groups conducted on-site. Youth leaders discussed: a) whether were they aware of their success in promoting health in their communities, b) whether they observed examples (indicators) of that success, c) how the program had changed the activity levels of their families and themselves, d) whether they believed their leadership was valued by community, and e) whether they had noticed changes in their own confidence, competence, and connection to their community.

Results

The 3rd Annual Campference with 75 participants, was an increase of 12 more participants than the previous year. The program featured the Health Rocks curriculum, which focused on strengthening healthy decision making skills regarding physical activity and healthy eating habits. Young people learning to focus on their health early will pay dividends in their health and health care costs in later life.

Extensive focus groups with the teens determined how (or if) they benefited from the leadership experience, and to determine the quality of their adult-youth partnerships. The study of Kansas Teen Leadership for Physically Active Lifestyles revealed that teen leaders were positively impacted by their leadership roles. The longer the youth sustained the role, the greater the link was to positive competencies, confidence, and connection. What was unexpected, were the adults associated with the youth-adult programs, who reported being positively impacted by the program the longer they were associated with the teens. They also reported more connection and competence as a result of working with youth. These results were obtained after content analysis of data collected from focus groups of youth and in-depth interviews with adults.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development
724	Healthy Lifestyle

Outcome #8

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
2008	0	107

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many believe that low- and moderate-income families cannot afford to save and build wealth. Yet research shows that there are 'savers' and 'spenders' in all income classes. The goal of the campaign is to convince all Americans that they can build wealth and to assist them to do just that.

What has been done

Kansas Saves is part of a nationwide campaign (America Saves) in which a broad coalition of nonprofit, corporate, and government groups helps individuals and families save and build wealth. Through information, advice, and encouragement Kansas Saves/America Saves assists those who wish to pay down debt, build an emergency fund, save for a home, save for an education, or save for retirement.

Results

Ninety-five Savers enrolled. In addition, 12 Extension agents reviewed or changed their financial goals. $1000 was counted/deposited at a Count Your Change event with a bank.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #9

1. Outcome Measures

Number of households showing decreased outstanding consumer debt

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Programming for families and youth is affected by competition for time and availability of supporting resources. Collaborations and partnerships with agencies interested in serving the same target audiences can expand resources and maximize our specializations.

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

1. Evaluation Studies Planned

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

Evaluation Results

KSRE is continuing to explore methods of evaluation that can effectively assess outcomes, especially in targeted areas. Use of the Logic Model framework as both a planning and evaluation tool has the potential to increase understanding and interest in building evaluation in during the planning process. Indicators are being developed that can be collected statewide for specific programs.

Key Items of Evaluation

Program #2

V(A). Planned Program (Summary)

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%		40%	
601	Economics of Agricultural Production and Farm Management	20%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	68.3	0.0	108.2	0.0
Actual	105.0	0.0	120.0	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
1337895	0	2232054	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
5560800	0	14700960	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2285520	0	2195280	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; and 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

The target audience includes farm and ranch managers, agricultural producers and agribusinesses throughout the food industry supply chain, and farm input suppliers, lenders, Extension educators, and policy makers.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	25000	1000	2000
2008	21050	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	3
2008 :	6

Patents listed

Everest Wheat; Triticum Mosaic Virus (filed jointly w/Univ. of Manitoba); Internal/Ingestible Electrocardiographic Sensor for Physiologic Data Monitoring; Pelleting feed as a strategy for reducing bird predation in confinement carrle feeding operations; A method for administration of monosaccharide-containing supplements to induce changes in fermentative capacity of the rumen ecosystem; Method to monitor livestock posture and activity to evaluate wellness and disease state

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	68	108	
2008	10	40	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of individuals participating in programs

Year	Target	Actual
2008	10000	16000

Output #2

Output Measure

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

Year	Target	Actual
2008	2	6

Output #3

Output Measure

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

Year	Target	Actual
2008	500	766

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
2008	3000	3104

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

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	680

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock producers continued to face historical highs in input costs for much of 2008. Coupled with low milk and market hog and beef prices, these costs made 2008 an economically challenging year for livestock producers. Questions from livestock producers on their future, how they can remain competitive and not lose their equity base dominated many discussions in 2008. While addressing their economic future, producers have become proactive in assuring customers that meat, milk, and eggs are produced according to humane and wholesome practices.

What has been done

K-State Livestock Specialists continued to research new and innovative ways to help livestock producers alter their feeding practices to minimize the impact of high ingredient prices. In the beef industry, research focused on altered grazing practices, earlier weaning, stocker receiving management, use of alternative ingredients, and novel processing techniques for ingredients. We informed producers about low input storage methods for wet distillerÂ's grains through presentations and demonstration projects to take advantage of seasonal purchasing opportunities. Optimal market weight, use of alternative ingredients, and new technologies to help pigs utilize conventional and new ingredients were studied. K-State research on cow comfort has led to great strides in milk production in the dairy industry. The rapid decline in milk prices in late 2008 shifted the extension focus to help producers rapidly lower feed and other input costs. Results of these research thrusts were communicated to livestock producers through conferences, one-on-one consultation, phone calls, news releases, magazine articles, radio interviews, and trade publications.

In the area of quality assurance, K-State has been the leader for producer education in Kansas. For example, K-State has developed a system for delivering Beef Quality Assurance training modules, approved by the National CattlemenÂ's Beef Association, in English or Spanish, via the web, to beef production workers. A train-the-trainer model was used to train numerous people to help producers become certified in the PQA+ program that provides an auditable system for quality assurance and welfare standards for the swine industry.

Results

Changes made by beef producers included beginning to store wet distillers grains to reduce feed costs by strategically purchasing the product during seasonal lows and improved hay feeding management. Feedlot nutritionists learned how to value distiller grains relative to steam-flaked corn and dry-rolled corn. Swine producers reduced cost through increased use of alternative ingredients (e.g., DDGS, amino acids), reduced mortality by application of PCV2 vaccines, and lowered their market weights to compensate for the reduced market price and higher feed cost. Dairy producers lowered the cost of producing milk by improving forage quality, the use of byproduct feeds and improving cow comfort to increase milk production per cow. The whole area of optimizing feedstuff usage and feeding management is one important example where K-State Research and Extension helped limit the negative impact of the rise in feed ingredient costs and the downturn in markets for meat and milk on Kansas farms.

The impact of quality assurance programs is always hard to measure; however, a recent study revealed that information comprehension improved 30% after viewing the Beef Quality Assurance modules developed at K-State. The comprehension improvement was consistent across different worker nationalities, preferred language, job title, and education levels.

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
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3000	3200

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

Face-to-face contacts (8,997) with KFMA members during on-farm visits or one-on-one meetings at the County Extension office included meetings for improved record keeping and use of records; income planning and management; marketing decisions; equipment and other capital asset purchase/lease decisions; transition/succession and estate planning. Whole-farm analyses (1,919) were completed for KFMA members 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. Through the Farm Analyst program, succession transition planning conferences were held in three locations. Finpack financial analysis was done for more that 60 families.

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, 1,453 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 involved in agriculture. Several families used Finpack analysis to develop a business plan, thereby keeping them in business.

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 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7500000	6567000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

KAES develops varieties and germplasm lines that benefit the Kansas farmer either directly through new varieties or enhanced germplasm.

What has been done

KAES varieties and germplasm have been used by many crop breeders to develop new varieties for the producers in Kansas and other states.

Results

The majority of the wheat grown in Kansas is either KAES varieties or has used KAES varieties or germplasm in the development of new varieties. The sorghum breeders who develop sorghum hybrids for use in Kansas use KAES germplasm to enhance the pest resistance.

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 for this Annual Report

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30000	4900000

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. Phosphorus fertilizer prices have increased and become extremely volatile over the past three years. Soil testing can help allocate production resources to minimize production costs and minimize P runoff to surface waters.

What has been done

Regular electronic updates every two to three weeks to County Agents, CCA's, Crop Consultants, and Industry Agronomists have been used to keep soil testing on peoples minds. Radio tapes with KSU Radio Service. TV tapes for K-State Ag Today news service. News releases aimed at the weekly farm press. Educational programs at county winter schools, field days and industry training programs have also been used.

Results

Recent soil test summaries from both KSU and commercial testing labs indicate that the majority of the fields tested have P soil tests in a responsive range, indicating that most growers using soil testing as a nutrient management tool are following KSU traditional Nutrient Sufficiency or similar fertilizer recommendations. Approximately 30% of the samples have built soil test levels above the critical level, through regular additions of fertilizer or animal waste. Regular application of additional P to replace that removed would be appropriate. However, approximately 17% of the samples have ST-P levels above 50 ppm, levels where additional P would not be recommended. This is an opportunity for new educational programming to make farmers more aware of this valuable resource available on their farms, allowing them to reduce fertilizer costs on those acres.

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	0

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, manure management.

Results

Animal feed operations that implemented BMPs to reduce pollution potential: 29 feeding facilities; 6673 animal units. Potential Load Reduction: N, 177 tons; P 100 tons.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #7

1. Outcome Measures

Number of soil samples evaluated on Kansas crop acreage

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10000	13063

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Fertilizer costs have increased dramatically over the past two years. Soil testing is an excellent tool to help utilize fertilizers most efficiently and contain production costs.

What has been done

Regular electronic updates every two to three weeks to Extension Agents, CCAs, Crop Consultants, and Industry Agronomists have been used to keep soil testing on peopleÂ's minds; Radio tapes with KSU Radio Service; TV tapes for K-State Ag Today news service. News releases aimed at the weekly farm press. Educational programs at county winter schools, field days and industry training programs have also been used. 13,063 samples were run by the K-State Soil Testing Lab during 2008 and an estimated 70,000 were run by the four primary commercial labs working in Kansas.

Results

The numbers of samples submitted to the KSU Soil testing lab for P, K, and pH analysis and to commercial labs working in Kansas has continued to increase. Opportunities still exist for continued adoption of this important management tool, particularly increased use of soil testing for nitrate nitrogen. These programs will continue in 2009, with more focus on regional issues such as potassium fertilization in SE Kansas and low pH in SC Kansas.

4. Associated Knowledge Areas

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

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Disease and insect pressure problems are associated with continuous wheat practices, as well as, planting depth and seedling emergence problems. Disease and weed control are also associated with row crop production. Conventional tillage often leaves soil exposed to wind and/or water erosion. More complex rotations and additional crops are usually a key component for success of conservation or no-till systems. Increased input costs have also increased interest in systems that decrease fuel and fertilizer costs and focus on fertilizer placement.

What has been done

There has been increased use of continuous wheat in the traditional wheat-fallow and wheat-row crop-fallow area of western Kansas and increased no-till continuous wheat in central Kansas. These issues are addressed at meetings, field days, and crop tours. On-farm demonstrations and applied field research have been conducted. Producers, Extension agents, and crop advisors/consultants were educated about conserving soil and water and reducing input costs via reduced tillage and crop rotations. This year emphasized the need to plant no-till continuous wheat for no more than two years due to the effects of disease and stand establishment.

Results

Farmers are selecting resistant wheat varieties, making adjustments in fertilizer applications, and monitoring planting depth and speed. In row crop, farmers increased adoption of conservation tillage practices (including no-till) across the state reduces erosion and produces yields comparable to conventional tillage.

4. Associated Knowledge Areas

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

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	68000	85000

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 our 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 80,000 hours with a value of more than $1.4 million in 2008. 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 80 hours of volunteer time during 2008. 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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

People and agriculture in Kansas are impacted by weather extremes (i.e., drought, floods, freezes, tornadoes). Increasing land values, energy prices, and fertilizer prices have increased cost of production. High fertilizer prices are encouraging more efficient use and attention to environmental impact. Changing policies and regulations impact decision-making, especially when there are competing outcomes/ priorities.

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

One example: Members of the Kansas Graziers Association were surveyed to determine to what degree low stress animal handling techniques have been implemented in their operations. Forty percent have attended additional low stress animal handling workshops or seminars since low stress animal handling was taught at the 2007 Winter Grazing Conference; 15% have discussed low stress handling techniques with others; 16% have used low stress handling techniques when rotating animals between pastures; and 22% have used low stress handling techniques when working, loading or unloading livestock.

Key Items of Evaluation

Program #3

V(A). Planned Program (Summary)

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%		30%	
121	Management of Range Resources	15%		15%	
141	Air Resource Protection and Management	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	16.0	0.0	12.0	0.0
Actual	30.0	0.0	46.0	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
283170	0	856244	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1176630	0	5635368	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1565010	0	841524	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; and 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; and 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

The target audience includes agricultural producers, youths, policymakers/regulators, and crop and livestock consultants.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	5000	25000	1000	2000
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	{No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	16	12	
2008	{No Data Entered}	{No Data Entered}	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational programs delivered

Year	Target	Actual
2008	20	0

Output #2

Output Measure

- Number participating in educational programs

Year	Target	Actual
2008	400	0

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

Outcome #1

1. Outcome Measures

Number of producers adopting BMPs that protect environmental quality

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	85

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Little Arkansas River watershed provides drinking water to 205 public water suppliers, recreational and aquatic life habitat, and ground water well recharge as well as irrigation, livestock and industrial uses. This 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). There are documented water quality problems in the watershed.

What has been done

$55,354 in incentive monies were committed to 85 participating farmers who committed to implementing BMPs for atrazine herbicide. Six smaller watersheds within the Little Arkansas River were targeted for rapid implementation of BMPs for atrazine herbicide. Training was conducted for farmers, pesticide dealers, and crop consultants.

Results

A total of 14,991 acres of grain sorghum and corn had atrazine BMPs implemented. This equated to 53% of the grain sorghum acres and 46% of the corn acres planted in the six targeted watersheds. Implementation of atrazine BMPs resulted in 20% less atrazine being applied in the targeted watersheds. Actual water quality monitoring of treated and untreated watershed found 65% lower atrazine concentrations in streams in targeted watersheds in which BMPs had been implemented.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of acres utilizing wastewater applications for crop production

Not reporting on this Outcome for this Annual Report

Outcome #3

1. Outcome Measures

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

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Public Policy changes
- Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

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%	
511	New and Improved Non-Food Products and Processes	40%		40%	
603	Market Economics	20%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	6.6	0.0	25.1	0.0
Actual	13.0	0.0	67.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
114645	0	1247138	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
477106	0	8208036	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
380920	0	1225698	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; and emphasize conversion of cellulosic materials to ethanol.

2. Brief description of the target audience

The target audience includes a growing industry based on bioprocessing and bioconversion, including the existing ethanol and biofuels industry; international grain processors. Industrialproducts manufacturers: adhesives, composites, bio-based chemicals,solvents and lubricants; and entrepreneurs and investors seeking to enter this industry.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	33	165	110	330
2008	200	0	50	0

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

Patent Applications Submitted

Year	Target
Plan:	4
2008 :	1

Patents listed

Triticum Mosaic Virus

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	7	25	
2008	0	12	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of presentations at national and international conferences

Year	Target	Actual
2008	22	14

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Renewable agricultural resources have cellulose and hemicellulose components that can be enzymatically digested to hexoses and pentoses. Fermentation of these sugars using specific microorganisms can result in value-added bioproducts, including ethanol, organic acids and nutrition enhanced animal feed material.

What has been done

Biomass resources, such as wheat straw and soybean hull, was pretreated using 2% acid hydrolysis followed by enzymatic digestion using cellulase system to release sugars. Glucose and pentose sugars were used as substrate in the fermentation process using yeast and engineered Zymomonas cultures. Ethanol yield and productivity has been quantified. Similar experiments using orange and banana peel as bioconversion substrates were performed for ethanol production. The paper mill industry generates considerable quantity of sludge material that is landfilled. Paper mill sludge consists of about 18% cellulosic fibers, which can be used as bioconversion substrate to produce value-added products. In this industry-sponsored project, paper mill pulp and sludge were hydrolyzed using specialized enzyme systems to a glucose stream. Using lactobacillus and Rhizopus cultures, lactic acid fermentation from glucose was performed. Further studies using improved enzymes and fed-batch fermentation experiments are ongoing.

Results

2 to 3% ethanol concentrations were attained while using biomass resources and fruit wastes in about 72 hours of fermentation. Lactic acid yield of 0.9 g/g glucose was obtained from paper pulp and 0.75 g/g glucose from paper sludge. The final concentration of lactic acid in the fermentation broth varied from 2 to 3% based on the initial substrate used. As cellulosic resource conversion advance, these technologies will become more important for production of both biofuels and bio-based chemicals from these substrates.

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 for this Annual Report

Outcome #3

1. Outcome Measures

Number of new bio-based businesses created.

Not reporting on this Outcome for this Annual Report

Outcome #4

1. **Outcome Measures**

Percent growth in existing value-added business entities.

Not reporting on this Outcome for this Annual Report

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)
   - Comparisons between program participants (individuals,group,organizations) and non-participants
   - Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
   - Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Key Items of Evaluation

Program #5

V(A). Planned Program (Summary)

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%		30%	
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%	
724	Healthy Lifestyle	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	7.4	0.0	19.7	0.0
Actual	114.0	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
223560	0	353666	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
931658	0	2327652	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
8084360	0	347586	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; and 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

The target audience includes 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

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	500	5000	500	2000
2008	22371	32949	63665	65898

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	7	20	
2008	0	0	0

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
2008	100	1468

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
2008	5000	86036

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 making healthier food choices
3	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
4	Number of participants passing food service employees food handler certification
5	Decreased incidence of food borne illness associated with unsafe food handling practice *Will not be measured in the near future
6	Decreased risk factors for chronic disease
7	Number of individuals and families who have adopted best management practices for food handling and agricultural biosecurity
8	Number of participants passing food service manager/supervisor food handler certification

Outcome #1

1. Outcome Measures

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

Not reporting on this Outcome for this Annual Report

Outcome #2

1. Outcome Measures

Number of participants making healthier food choices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12000	2263

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

More than 300,000 individuals in Kansas live in poverty. They are at increased risk for hunger, poor nutrition, obesity, and a host of chronic diseases.

What has been done

The Kansas Family Nutrition Program offers nutrition and food safety education in approximately 80 Kansas counties. The program serves individuals and families who are eligible to receive food assistance. Through a wide variety of methods and messages, more than 180,000 contacts were made this past year.

Results

Anywhere from 40% to 70% of participants intended to make healthier food choices, but we did not report actual behavior change.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #3

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12000	2326

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 people in Kansas.

What has been done

The Kansas Family Nutrition Program offers nutrition and food safety education in approximately 80 Kansas counties. The program serves individuals and families who are eligible to receive food assistance. Through a wide variety of methods and messages, more than 180,000 contacts were made this past year.

Results

Outcome data were reported, with 70% to 79% of participants intending to make a positive change in food handling practices.

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 participants passing food service employees food handler certification

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	425

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

More than 30 Employee level ServSafe classes were offered in 22 counties. The employee level class does not involve certification or passing a test.

Results

Four hundred twenty-five (425) students learned about food safety during more than 70 contact hours of Employee level ServSafe classes.

4. Associated Knowledge Areas

KA Code	Knowledge Area

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

Outcome #5

1. **Outcome Measures**

Decreased incidence of food borne illness associated with unsafe food handling practice *Will not be measured in the near future

Not reporting on this Outcome for this Annual Report

Outcome #6

1. **Outcome Measures**

Decreased risk factors for chronic disease

Not reporting on this Outcome for this Annual Report

Outcome #7

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 for this Annual Report

Outcome #8

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
2008	200	387

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

The 2008 KSRE ServSafe Food Safety program in cooperation with the Kansas Restaurant and Hospitality Association (KRHA) coordinated and conducted more than 20 ServSafe Manager Certification classes reaching more than 450 students statewide. In 2008, more than 71 foodservice operations were involved in ServSafe classes taught by extension professionals. Two of the 20 classes were provided in Spanish in an effort to reach out to the Spanish speaking employees who continue to increase in the foodservice industry.

Results

We had an 86% passing rate, providing approximately 387 ServSafe certified foodservice managers/supervisors in the state. Twenty-five extension professionals received training and technical help to establish or maintain professional ServSafe certification and/or licensing to be qualified to teach the ServSafe Certification Course. The estimated economic value of the foodservice educational programs is $5,325,000 (71 x $75,000).

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

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
- Other (see below)

Evaluation Results

Key Items of Evaluation