

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

Reporting on this Program

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%		10%	
205	Plant Management Systems	28%		14%	
216	Integrated Pest Management Systems	5%		10%	
307	Animal Management Systems	36%		19%	
311	Animal Diseases	0%		24%	
501	New and Improved Food Processing Technologies	2%		2%	
502	New and Improved Food Products	0%		1%	
511	New and Improved Non-Food Products and Processes	2%		1%	
601	Economics of Agricultural Production and Farm Management	19%		14%	
603	Market Economics	1%		0%	
606	International Trade and Development	0%		5%	
703	Nutrition Education and Behavior	1%		0%	
704	Nutrition and Hunger in the Population	1%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	118.0	0.0	194.0	0.0
Actual Paid Professional	98.0	0.0	161.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1444395	0	2238290	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
5402181	0	19894239	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2483832	0	2959542	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Sustain Profitable Agricultural Production Systems--

- Develop animal and crop production systems that thrive in the variable conditions of the Great Plains.
- Develop horticulture, forestry, and alternative green enterprises that thrive in the variable conditions of the Great Plains.
- Advance new and improved systems of agricultural production to meet the need of producers and consumers.
- Enhance the value of agricultural products.

Ensure an Abundant Food Supply for All--

- Improve access to high quality foods, especially for consumers with limited resources.
- Increase food variety and value by developing new and enhanced food products.

2. Brief description of the target audience

Farm and ranch managers; agricultural producers and agribusinesses throughout the food industry supply chain with emphasis on producers who want to help themselves; people who influence producers and producer decisions, including educators (veterinarians, media, industry organizations, packers/purchasers); government agencies/ regulators; the lending industry; and policy makers.

3. How was eXtension used?

Our specialists helped create and review content for the eXtension.org website.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	28000	0	1250	0

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

Patent Applications Submitted

Year: 2012
 Actual: 7

Patents listed

Quantum Method for Trait Selection and Reverse Propagation of Extraordinary Sire Lines in Food Animal Production Systems; Method and Composition for Increasing the Proportion of Dietary Ingredients that are Resistant to Degradation by Ruminant Microorganisms; Canola Line - Griffin; Yogurt Spread; Chemotherapy for Cancer by Angiotensin II Type 2 Receptor Agonist; Vaccine Adjuvant; Neutrophils as Delivery Cells for Imaging and Therapy of Cancer and Infectious Disease

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	15	50	65

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of individuals participating in programs

Year	Actual
2012	18000

Output #2

Output Measure

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

Year	Actual
2012	1

Output #3

Output Measure

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

Year	Actual
2012	634

Output #4

Output Measure

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

Year	Actual
2012	3198

Output #5

Output Measure

- Number of presentations at national and international conferences

Year	Actual
2012	220

Output #6

Output Measure

- Number of research papers cited above a threshold (10)--indicative of high impact

Year	Actual
2012	300

Output #7

Output Measure

- Number of research grants received in excess of \$50,000.

Year	Actual
2012	28

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Livestock producers demonstrate best management practices (BMPs) in regard to management and production, including genetic selection, reproduction, nutrition, health, animal care and well-being, livestock safety and quality, environmental management, and optimal marketing strategies (Measured by number of producers adopting BMPs)
2	Kansas farmers and ranchers increase awareness of financial performance (based on number members reported by farm management association)
3	Kansas farmers experience higher yields, more stable yields and/or a higher value of their crop as a result of plant breeders development of new varieties or germplasm (Measured by number of acres planted to KAES-developed materials or materials derived from KSU varieties, inbreds, or germplasm)
4	Number of crop acres using soil testing as a basis for nutrient applications
5	Improvement of Kansas ground and surface water with respect to nutrient loads (Measured by percent of producers demonstrating improvement)
6	Number of soil samples evaluated on Kansas crop acreage
7	Hours and activities reported annually by Master Gardener volunteers
8	Cow/calf producers lower cow feed supplement costs through use of BRaNDS software to make informed, cost-effective purchase decisions (measured by number of participating producers)
9	Improved sustainability of Kansas farms and ranches through membership in the Kansas Farm Management Association program and through assistance received through the K-State Farm Analyst program (Measured by number of members and number receiving assistance through KFMA and Farm Analyst program)
10	Increase food variety and value by developing new and enhanced food products (measured by number of new products developed)
11	Improve access to high quality food, especially for consumers with limited resources (measured by improvement in food budgeting)

Outcome #1

1. Outcome Measures

Livestock producers demonstrate best management practices (BMPs) in regard to management and production, including genetic selection, reproduction, nutrition, health, animal care and well-being, livestock safety and quality, environmental management, and optimal marketing strategies (Measured by number of producers adopting BMPs)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	520

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock producers are adjusting to a new reality. Feed, fuel, and other input costs are establishing new benchmarks after breaking through previous historical highs. Unfortunately, a major drought compounded problems in 2012. Cow-calf producers faced hay and pasture shortages due to lack of crop growth. Supplementation and hay costs increased due to short supply. Feed yards faced increased cattle purchase cost due to short supplies and losses. In this sector grew because of elevated corn and other supplement costs. Much of the work done by our beef team focused on drought mitigation strategies for various participants in the beef sector. The shortage of grain and protein sources impacted the swine and dairy industries similarly. These challenges continue to lead to consolidation in the livestock sector. As livestock producers continue to become more specialized, they increasingly rely on experts for answers to their questions as their personal knowledge level increases.

What has been done

Drought mitigation steps taken by our beef group ranged from applied research on effectiveness of reduced application rates of anhydrous ammonia in the treatment of low quality forages to warnings about blue-green algae and nitrate toxicity to individual client consultations on drought plan development and implementation. Our teams diverse discipline expertise and experiences provided an exceptional resource base for citizens of Kansas as the work through the ongoing consequences of prolonged drought. We continued to conduct research with alternative feed ingredients for swine, dairy, and beef cattle. Results of these research and extension projects were distributed to producers through livestock magazines, popular press, meetings, you tube videos and through one-on-one consultation. Extension specialists and local agents also worked with producers to incorporate alternative ingredients and with ammoniation strategies.

Results

More than 1,500 producers attended more than 36 beef meetings held by K-State Research and Extension professionals to update beef producers on the latest information to help improve the profitability and sustainability of their operations. Producers indicated they learned timely management and production technique information from these meetings and from other newsletters (Beef Tips, Focus on Feedlots, News from ASI, and Veterinary Quarterly). More than 84% of producers surveyed indicated that they will likely make changes to their operation based on the information that they received at the meetings. When asked to estimate the economic impact of the information that they gained, 32% of the producers indicated that their bottom line would improve by between \$100 and \$1,000. Another 18% of producers indicated that their return would improve by \$1,000 to \$5,000 with 7% of producers in attendance indicating that they would increase profit by over \$5,000 due to implementing information gained at the meeting.

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

Kansas farmers and ranchers increase awareness of financial performance (based on number members reported by farm management association)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	3118

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. Having good information on which to base decisions is critical for producers to remain profitable and sustainable for the future. Education, training and assistance in keeping good records and in the appropriate methods to analyze and use those records will provide the needed knowledge to make informed decisions.

What has been done

The goal of the KFMA program is to provide each member with farm business and family financial information for improved farm business organization and decision making so that Kansas farms can minimize risk while they increase sustainability and profitability. Making the information available publicly can help to accomplish the same for many involved in agriculture in Kansas and around the country in addition to the KFMA membership. Activities in 2012 included: 7,950 face to face meetings with 3,118 producers; 54 presentations to 1,330 individuals; 2,435 farm business analyses; 3,580 individual crop and livestock enterprise analyses; 10 radio interviews; numerous newsletter and newspaper articles; presentation to over 250 students in classes at KSU; a large number of hits to the KFMA Newsletter on website; and more than 80 cash flow analyses with FinPack.

Results

Through one-on-one consultations 3,118 Kansas producers have increased awareness of their current financial position and their financial performance during the past year. Of these producers 2,435 are able to benchmark their performance against other farms in their region, farms of similar type, as well as the most economically profitable farms. This allows these producers to identify strengths and weakness in their operation and to take action to build on the strengths, and address the weaknesses, vastly increasing the operation's sustainability and profitability for the future. Through enterprise analysis these operations have also identified those enterprises that are the most profitable and they clearly understand their cost of production for each enterprise allowing them the opportunity to make informed marketing decisions when selling the products they have produced. Additionally, more than 80 producers in poor financial condition, or with family conflict, gained an improved understanding of how to address their situation in a sustainable manner.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Kansas farmers experience higher yields, more stable yields and/or a higher value of their crop as a result of plant breeders development of new varieties or germplasm (Measured by 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	Actual
2012	6500000

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

One new wheat variety was released in the past year called "1863." New lines were increased to usable quantities in anticipation of release. Lines are screened for resistance to current and potential abiotic and biotic factors.

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. A majority of the wheat acres in Kansas is planted with KAES varieties or varieties developed with KAES germplasm.

4. Associated Knowledge Areas

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

Outcome #4

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	Actual
2012	3300000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Fertilizer represents a significant portion of the input dollars spent by Kansas farmers. Too little applied, especially N, P and K, can reduce yields, while too much applied can lead to potential enrichment of surface and ground water with nutrients. Soil testing is a valuable tool for optimizing fertilizer applications.

What has been done

A number of field experiments were conducted to evaluate ways to enhance the response from N fertilizer applied to corn, sorghum and wheat. This included method and time of application and specific additives designed to reduce N loss.

Results

The results from this applied research showed that how and when N fertilizers are applied was critical for good N performance when conditions conducive to loss were present. However, where these practices or products performed was influenced by soil, rainfall quantity and intensity, and cropping system. Publications are under development to help Kansas' farmers better understand where and when these conditions are likely to occur.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #5

1. Outcome Measures

Improvement of Kansas ground and surface water with respect to nutrient loads (Measured by percent of producers demonstrating improvement)

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of soil samples evaluated on Kansas crop acreage

Not Reporting on this Outcome Measure

Outcome #7

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	Actual
2012	94136

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 94,000 hours with a value over \$1.75 million in 2012. 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 2012. 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 #8

1. Outcome Measures

Cow/calf producers lower cow feed supplement costs through use of BRaNDS software to make informed, cost-effective purchase decisions (measured by number of participating producers)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	450

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Beef producers have been facing continually rising feed costs, an increasing number of byproducts, and access to more nutritional information about their ingredients. The drought during the past year increased the need for tools to lower feed cost and spread feed resources. The challenge is for producers to consolidate this information into decisions on how to use the feed ingredients and knowledge to implement practical feeding programs that they can use on their farms and ranches. Feed cost represents 50 to 80% of the cost of production for livestock producers. Thus, tools to lower feed cost while meeting nutritional requirements have been needed.

What has been done

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 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. Specialists and agents worked one-on-one with local producers to use this program to lower feed cost. Several veterinarians also adopted BRANDS as a tool in their clinics and provided services to beef producers to lower their feed costs.

Results

BRANDS has been used with beef producers to lower their feed costs and to examine alternative ingredients. BRANDS was used to demonstrate the value of ammoniation of forages to increase their feeding value. Several producers were able to incorporate ammoniated wheat straw or ammoniated corn stalks into their feeding program to save \$1,300 to 15,000 on feed costs. Other producers incorporated wet DDGS. Brands allowed some producers to determine that selling a portion of their cows was required to spread their home-raised forages through the winter feeding period due to the drought. Some producers learned that their mineral supplement needed to be altered to meet the requirements of their cows for increased reproductive performance. BRANDS has provided a tool for agents, specialists, and veterinarians to make a direct financial impact on the businesses of beef producers.

4. Associated Knowledge Areas

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

Outcome #9

1. Outcome Measures

Improved sustainability of Kansas farms and ranches through membership in the Kansas Farm Management Association program and through assistance received through the K-State Farm Analyst program (Measured by number of members and number receiving assistance through KFMA and Farm Analyst program)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	3198

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. Having good information on which to base decisions is critical for producers to remain profitable and sustainable for the future. Education, training and assistance in keeping good records and in the appropriate methods to analyze and use those records will provide the needed knowledge to make informed decisions.

What has been done

This improved sustainability was achieved through providing producers reliable and accurate information on which to base decisions, along with the necessary education, tools, training and assistance in keeping good records and the appropriate methods to analyze and use those records to acquire the needed knowledge to make the best decisions possible in each situation.

Results

Through one-on-one consultations 3,198 Kansas producers have improved sustainability for the future due to their involvement with the KFMA and Farm Analyst programs during the past year. Of these producers 2,435 are able to benchmark their performance against other farms in their region; farms of similar type; as well as, the most economically profitable farms. This allows these producers to identify strengths and weakness in their operation and to take action to build on the strengths, and address the weaknesses, vastly increasing the operation's sustainability and profitability for the future. Through enterprise analysis these operations have also identified those enterprises that are the most profitable and they clearly understand their cost of production for each enterprise allowing them the opportunity to make informed marketing decisions when selling the products they have produced. This greatly increases the sustainability of each of these operations. Additionally, more than 80 producers in poor financial condition, or with family conflict, gained an improved understanding of how to address their situation in a sustainable manner.

4. Associated Knowledge Areas

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

Outcome #10

1. Outcome Measures

Increase food variety and value by developing new and enhanced food products (measured by number of new products developed)

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
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2012

3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Celiac disease is a digestive disease triggered by eating gluten, which is found in wheat, barley and rye. Research at Kansas State University could give consumers with celiac disease more food product choices and expand the sorghum market for Kansas farmers. In the United States, Kansas is usually the largest producer of sorghum. In the U.S., sorghum was mostly used for feed, but with the growth in the gluten-free market and the availability of food sorghum, we have now started seeing a lot more sorghum used in these types of formulations.

What has been done

Researchers started from the bottom up by figuring out which of six varieties grown in Kansas would work the best in a tortilla. They studied the grain hardness, the amount of protein, carbohydrates and fiber, the quality of the dough it made, as well as how well the tortilla stretched and rolled and how good it tasted and looked. From that first piece of research, we realized there is a lot more to be done at the milling stage of this, because it turns out that the particle size during milling will affect the properties of the sorghum flour. They also took it one step further and evaluated the gluten-free products' glycemic index in comparison to other grains like wheat, corn, and rice. We discovered there possibly could be a specific particle size of sorghum flour that will have the best affect on the glycemic index; it could provide a lower glycemic index compared to other grains.

Results

With help from the grain and science industry department at K-State, as well as a U.S. Department of Agriculture laboratory in Manhattan, the researchers have developed several products, including tortillas, breads, Belgian waffles and waffle cones. This research benefits Kansas farmers by providing more use of their sorghum and also helps gluten-free consumers. We have developed three basic ones based on sorghum and one flavored version of each: Bread loaf, cinnamon/orange bread loaf; Dinner rolls, honey/sunflower seed dinner rolls; soft pretzels, mustard flavored soft pretzels. We also helped some businesses improve their gluten-free products but they had done the development part.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
603	Market Economics

Outcome #11

1. Outcome Measures

Improve access to high quality food, especially for consumers with limited resources (measured by improvement in food budgeting)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	88

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Since 2008, difficult economic conditions have pushed increasing numbers of Kansas families into the ranks of the food insecure. Family budgets have been squeezed by high unemployment rates and loss of earning power, and many families have been forced to turn to government and private assistance programs for the first time in their lives. Kansas rates of hunger and food insecurity during 2008 and 2009 were the highest levels recorded since data collection began. By one estimate, economic costs related to hunger and food insecurity in Kansas exceeded \$1.6 billion in 2010. Food insecurity is about more than just access to enough food ? it is also about the quality of the diets of food-insecure families.

What has been done

More than just the knowledge of what foods comprise a healthful diet, through EFNEP and FNP, participants learn how to manage their food budget, safely prepare and store foods, and fix a variety of healthy meals and snacks for themselves and their families.

Results

EFNEP participants completing the multi-lesson series improved nutrition, food behavior and food safety practices. As a result of participation in EFNEP:

*71% used food labels more often to make food choices

*88% showed improvement in one or more food resource management (i.e., planning meals, comparing prices, using a grocery list)

*91% showed improvement in one or more nutrition practices (i.e., makes healthy food choices, prepares foods without adding salt, reads nutrition labels or has children eat breakfast)

? 50% increased their physical activity through participation in EFNEP

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population

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

The 2011-2012 program year was marked by expanding drought conditions throughout Kansas. The ongoing drought caused significant disruption across the beef value chain through increased production costs. Cow-calf producers faced hay and pasture shortages due to lack of crop growth. Supplementation and hay costs increased due to short supplies. Feed yards faced increased cattle purchase costs due to short supplies and losses in this sector grew because of elevated corn and other supplement costs. Much of the work done by the livestock production (beef) team focused on drought mitigation strategies for various participants in the beef sector. These efforts ranged from applied research on effectiveness of reduced application rates of anhydrous ammonia in the treatment of low quality forages to warnings about blue-green algae and nitrate toxicity to individual client consultations on drought plan development and implementation. Our teams diverse discipline expertise and experiences provided an exceptional resource base for citizens of Kansas as the work through the ongoing consequences of prolonged drought.

These same issues affect crop producers leaving them wondering whether to plant seed into parched soil, hoping the rain will come, and whether it's cost effective to control weeds, given a sparse crop.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

EVALUATION 1 MANAGING SOIL NUTRIENTS AND FERTILITY

Please rate your reaction in this session. Your honest responses are valued. Your responses will be used to assist the instructor(s) to make improvements in the design of this course.

1. My awareness of soil fertility and nutrient management for yield optimization in Kansas

Before Participation

Low=1.....2.....3.....4.....5=High

Now, After Participation

Low=1.....2.....3.....4.....5=High

2. My understanding of soil fertility.

Before Participation

Low=1.....2.....3.....4.....5=High

Now, After Participation

Low=1.....2.....3.....4.....5=High

3. My knowledge of nutrient recommendations and soil testing.

Before Participation

Low=1.....2.....3.....4.....5=High

Now, After Participation

Low=1.....2.....3.....4.....5=High

4. My awareness of data supporting nutrient recommendations.

Before Participation

Low=1.....2.....3.....4.....5=High

Now, After Participation

Low=1.....2.....3.....4.....5=High

5. My skill level of soil test interpretations.

Before Participation

Low=1.....2.....3.....4.....5=High

Now, After Participation

Low=1.....2.....3.....4.....5=High

5. My skill level of soil test interpretations.

Before Participation

Low=1.....2.....3.....4.....5=High

Now, After Participation

Low=1.....2.....3.....4.....5=High

Key Items of Evaluation

We used pre-planned surveys that were developed in conjunction with the Office of Educational Innovation and Evaluation. The surveys were given at the end of each educational program to determine the knowledge gained by the participants. We also used case study approach to report results from individual producers