

**V(A). Planned Program (Summary)**

**Program # 8**

**1. Name of the Planned Program**

MO-PORK: Increasing Pork Production in Missouri

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	30%			
302	Nutrient Utilization in Animals	40%			
303	Genetic Improvement of Animals	5%			
305	Animal Physiological Processes	2%			
306	Environmental Stress in Animals	3%			
307	Animal Management Systems	15%			
308	Improved Animal Products (Before Harvest)	3%			
315	Animal Welfare/Well-Being and Protection	2%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	0.0	0.0
Actual	5.0	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
175518	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
182335	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

The MO-Pork program will include the following activities: Promotion of efficient production and management practices (Pork Industry Handbook, MU guide sheets and Midwest Plan Service Handbooks); Use of Manual 144/202 "The Missouri System of Swine Production"; On-farm data collection used to evaluate production and economic endpoints; Focused Management Schools for MO-Pork participants, artificial insemination course, Back to the Basics: Farrowing School, Sow Manager's Conference, Pigs to Plate: Adventures in Meat Quality Seminar, Health Summit, finishing short course, nursery management course, ventilation short course; Delivery of Pork Quality Assurance Program for MO-Pork participants; Delivery of new technologies in the swine industry to MO-Pork participants; Computer models/PDA record keeping programs; World Pork Expo and other conferences; Education about niche production markets and specialization opportunities; Media coverage of the MO-Pork program; Farm visits; On-farm research trials; Workshops; Meetings; and Consultation.

### 2. Brief description of the target audience

The target audience will include people who own swine operations, work on swine farms, or provide technical support to people who own or work on swine farms (e.g., veterinarians, feed dealers). In addition, MO-Pork will target beginning Missouri pork producers, expanding Missouri pork producers, and industry personnel such as Missouri grain producers (interested in adding value to their crops).

## V(E). Planned Program (Outputs)

### 1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	750	750	400	0
<b>Actual</b>	353	586	438	0

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

#### Patent Applications Submitted

Year: 2010

Plan: 0

Actual: 0

#### Patents listed

### 3. Publications (Standard General Output Measure)

#### Number of Peer Reviewed Publications

2010	Extension	Research	Total
<b>Plan</b>	0	0	
<b>Actual</b>	0	0	0

## V(F). State Defined Outputs

### Output Target

#### Output #1

##### Output Measure

- Provide in-service training session(s) for regional Extension specialists on an annual basis.

Year	Target	Actual
2010	2	1

#### Output #2

##### Output Measure

- Develop or revise guide sheets on an annual basis for regional Extension specialists to use in producer meetings.

Year	Target	Actual
2010	1	2

#### Output #3

##### Output Measure

- Develop or revise manual(s) on an annual basis for regional Extension specialists to use in producer meetings.

Year	Target	Actual
2010	1	1

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Participants will maintain or increase pork production efficiencies, enhance marketing opportunities resulting in improved economic viability and profitability for their operation.
2	Participants will acquire knowledge and skills to aid in the successful adoption and implementation of existing management practices or emerging technology to improve pork production efficiency and productivity.

## **Outcome #1**

### **1. Outcome Measures**

Participants will maintain or increase pork production efficiencies, enhance marketing opportunities resulting in improved economic viability and profitability for their operation.

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	0	0

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Missouri swine industry has struggled economically like the rest of the country. That Missouri has not seen the same decline in swine farm numbers is due in part to leadership and guidance provided by the MO-PORK program. This program has helped maintain the economic drivers in the rural communities where swine farms operate. Local jobs have been maintained because swine farms have focused on efficiency by reducing inputs (feed, health products and equipment) or increasing outputs such as reproductive performance (number pigs weaned, and pigs per sow per year) and growth performance (market weight and lean gain per day).

#### **What has been done**

As part of the MO PORK program, efforts have focused on reducing inputs through efficient energy use, alternative feed ingredients, least-cost diet formulations, feed management, feed analysis, reproductive performance and Pork Quality Assurance Plus. More than 120 pork producers (representing more than 80% of the pork production in Missouri) and 26 individual farms were visited for specific troubleshooting and consultation. Four "train-the-trainer" sessions were offered for the PQA+ program to help assure Missouri producers of market access, and 64 PQA+ Advisors were certified. Presentations and demonstrations were made on at least 23 separate occasions to audiences from 12 to 76 people.

#### **Results**

Producers have increased piglet survival, gained a more thorough understanding of the use and limitations of medicines, refined use of feed ingredients, and captured a greater proportion of the value of manure nutrients for crops. Specifically, Missouri pork producers have been able to reevaluate and reformulate their swine diets using the National Swine Nutrition Guide formulator, which resulted in a savings ranging from \$5 to \$45 per ton depending on previous diets and changes that were incorporated. The feed savings generated in this way averaged \$7.50 per pig marketed. Without a doubt, these feed savings definitely allowed Missouri pork producers to stay

in business and ultimately make a profit when breakeven prices were rising. The economic impact, for Missouri, is a saving of more than \$36 million in feed for pork producers.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
315	Animal Welfare/Well-Being and Protection

#### Outcome #2

##### 1. Outcome Measures

Participants will acquire knowledge and skills to aid in the successful adoption and implementation of existing management practices or emerging technology to improve pork production efficiency and productivity.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	0	0

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The main issues are the ability of Missouri pork producers to have freedom to farm as well as maintain a competitive infrastructure. Missouri's number one industry is agriculture, and it is important that pork production be one of the drivers of economic development in Missouri. The swine industry has been very dynamic and competitive through the beginning of this century. It is an industry that has embraced change and been willing to accommodate to consumer demand when purchasing pork products. Missouri has long had a diverse swine industry that varies in size and type as well as environmental conditions to suit both indoor and outdoor production systems.

### **What has been done**

Workshops, seminars, Web pages, printed materials and short courses include the National Swine Nutrition Guide, Pork Quality Assurance Plus, Growth and Quality Barrow Classic, Pork Profit Seminars, and Swine Institute. Farm visits have been used, especially on-farm demonstrations and research efforts. Countless telephone and e-mail consultations have been part of this effort. In addition, the technical information on the Missouri Swine Resource Guide and By-Product Feed Price Report located on the Web at [www.agebb.missouri.edu/swine](http://www.agebb.missouri.edu/swine) is a very useful resource.

### **Results**

Providing technological advantages through educational materials, development of the National Swine Nutrition Guide least-cost diet formulator, and updating the swine feeding programs for producers have resulted in a huge economic advantage for Missouri pork producers.

Computerizing feeding programs has enabled swine producers to personally adapt diets as well as be knowledgeable about feed efficiency and performance values. The better use of synthetic amino acids and minimizing commodity grain in formulations have reduced feed costs and improved feed efficiency by 30 to 40 percent, resulting in an economic impact for Missouri of almost \$36 million dollars.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
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## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

The price of feed ingredients has continued to rise and become more volatile, increasing the importance of refined use strategies. Continued economic losses have pressed producers to remain vigilant about increasing efficiency by any means, including those from genetics and management decisions. Packers have continued to feel pressure from outside forces to provide quantitative documentation and assurance of animal well-being at source farms. This pressure has led packers to continue to demand PQA+

certification not only from farm owners, but also from workers in the barns (employees), and an increasing number of packers are requiring farm assessments by an outside source.

## **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)
- Case Study
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

### **Evaluation Results**

In general, swine programming makes use of before-and-after evaluations, follow-up visits and comparison between producers adopting technology at various levels. An economic measurement used is the actual cost of ingredients. These feed costs are then calculated into feed efficiency to determine ultimate impact on a pork producer's operation as feed efficiency may vary by operation due to management, housing, herd health and genetics. Therefore, one producer may be able to obtain the cheapest feed but have poor feeder management, resulting in excessive feed wastage and a bottom line that does not reduce total feed costs. Feed cost represents 60 to 70 percent of the total cost of pork production. Thus any feed management practice that improves growth performance and feed efficiency enhances the bottom line for pork producers' profit margins besides finding the cheapest commodity grains or ingredients. Other pork production issues of importance to producers are ensuring quality food product; product safety from terrorism; prevention of disease outbreaks; antibiotic feeding concentrations; neighborhood acceptance of operations in their backyard; health of employees, owners, pigs and the public; labor shortages; and lack of skilled labor. Therefore, producers need to be continually educated and challenged to adopt new technologies. Otherwise, they may opt to leave the pork production industry because of the increasing costs of environmental regulations, governmental regulations affecting how animals are to be raised, limited market access and smaller profit margins.

### **Key Items of Evaluation**