

# Animal Health and Production

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

### 1. Name of the Planned Program

Animal Health and Production

## 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	15%		15%	
302	Nutrient Utilization in Animals	15%		15%	
303	Genetic Improvement of Animals	0%		10%	
305	Animal Physiological Processes	0%		15%	
307	Animal Management Systems	25%		10%	
311	Animal Diseases	20%		15%	
315	Animal Welfare/Well-Being and Protection	20%		15%	
806	Youth Development	5%		5%	
<b>Total</b>		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
<b>Plan</b>	14.0	0.0	18.0	0.0
<b>Actual</b>	11.8	0.0	24.3	0.0

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

Extension		Research	
Smith-Lever 3b & 3c 579946	1890 Extension	Hatch 1135554	Evans-Allen 0
1862 Matching 478700	1890 Matching 0	1862 Matching 1135554	1890 Matching 0
1862 All Other 4014461	1890 All Other 0	1862 All Other 13698107	1890 All Other 0

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

**1. Brief description of the Activity**

## Animal Health and Production

Activities under the sub goal "To develop management practices that enhance efficiency of production by food producing animals" included an experiment conducted to determine the effect of dietary energy content on internal [visceral] fat accumulation in non-lactating dairy cows [these data lead to a change of knowledge about the most appropriate way to feed dairy cows during the dry period]; several research projects conducted to evaluate the interactions of genetics and environment/nutrition on muscle development and adiposity [findings increased our knowledge of the interactions between the genetics of the animal and the management systems that we impart onto them]; and the development of financial and economic information evaluating year-around grazing systems [this system has been shown to decrease cost by over \$100 per cow compared to economic analysis of traditional systems].

Activities under the sub goal "To develop nutritional and management practices that optimize health of domestic animals" included improvement in pig health that was repeatedly found when feeding rice immediately after weaning [this has the potential to bring very important benefits in animal well-being and in the efficient use of the earth's resources in producing pork for the world's people]; as well as a study of the use of corn fibers to provide an economical and abundant source of dietary fiber which may also serve as a replacement for beet pulp in pet food diets.

Activities under the sub goal "To develop management practices that enhance animal well-being and minimize impact of animal production on the environment" included work that has established for the first time in the U.S. a detailed description of the conditions on a typical swine trailer during journeys from the farm to the packing plant; continued development of the elusieve process, a combination of sieving and elutriation [aspiration] to separate DDGS into enhanced and fibrous fractions [fractionating DDGS into fibrous and enhanced products using this process provides opportunities for differential uses and pricing of the products]; and a continuing study designed to provide researchers with a valuable and reliable tool to assess body temperature of pigs and potentially other physiological measures that can adequately assess animal well being.

Activities under the sub goal "To improve methods for diagnosis, prevention and treatment of infectious diseases in food animals" included a study designed to infer population structure and animal movement from genetic information to clarify the relative contribution of direct and environmental components of Chronic Wasting Disease; research using genomic sequencing and allied analyses to identify critical epitopes for an effective polyvalent PRRS vaccine; and the development of analytical procedures that can be offered as standard diagnostic tests for fumonisin toxicity.

Conferences and presentations by Investigators under this planned program in 2008 included the Joint Meeting of the American Dairy Science Association and the American Society of Animal Science, Colorado Dairy Nutrition Conference, Mid-South Ruminant Nutrition Conference, Animal Science and Reciprocal Meats Conference, American Society of Animal Scientists, American Simmental Association, International Society for Stem Cell Research, Australian Equine Science Symposium, International Animal Health and Nutrition Symposium, Mexican Association of Swine Veterinarians, Carolina Swine Nutrition Conference, and the Western Poultry Disease Conference.

The use of technology is a growing delivery system for Extension programs addressing animal production and health. [The Illinois Livestock Trail](#) website is the key source for a wealth of information related to livestock production. [MarketMaker](#), an interactive web-based multi-state market system developed by the University of Illinois that locates businesses and markets for agricultural products, has expanded geographically with over half the states in the nation considering a formal partnership in developing the network. The data currently encompasses 300,000 profiles of farmers and other food-related enterprises in Illinois, Iowa, Georgia, Mississippi, Nebraska, Kentucky, Michigan, Mississippi, Indiana, Ohio, and New York that can be mapped and queried by users. Illinois Horse Breeders Short Course, Illinois Dairy Days, and Pet Extravaganza are examples of programs delivered by Extension staff to audiences at campus and off-campus sites. In addition, 1,326 Illinois 4-H and FFA members completed the Quality Assurance and Ethics Certification training and quiz for 2008 for beef, dairy, goats, horses, sheep and swine. This year's annual report will focus on livestock grazing programs and programs targeted at swine producers and horse owners.

There are 2,900 swine operations in Illinois and ~600 commercial pork operations which list swine as a major source of business income. The production of these companies makes Illinois the 4th largest pork production state in the U.S. Specific Extension educational programming related to swine production included the two-day Illinois Pork Expo seminars that address management issues such as manure, disease, and animal welfare; the Northern Illinois Swine Reproduction Conference which includes translation for the Hispanic workforce of information on health, nutrition, and environment of the swine breeding herd; and the Pork Quality Assurance Plus training, which is required training in order to market pigs for human consumption. Web-based information and distance training is also available for producers who have free access to online courses focused on integrating new technologies into production systems and helping producers get through tough economic times. Web-based information and a calculator on feeding distillers dried grains with solubles also provide research-based information.

Using input solicited via questionnaires from horse owners regarding instructional needs, seminars were offered in Extension offices in several locations. Topics for the Illinois Horse Management Seminars included health care, horse industry economic update, riding opportunities on federal lands, equine dentistry, saddle fitting techniques, equine research at the University, "Ask the Vet" Q&A, feed selection during shortages, "Hot Equine Topics" Q&A, pasture management, and manure

Animal Health and Production management. Lectures, question and answer sessions, and panel discussions were used as delivery methods.

## 2. Brief description of the target audience

Beef producers, animal scientists, livestock producers, custom manure haulers, regulatory agency representatives, livestock commodity group representatives, undergraduate students in Animal Sciences, veterinarians, animal science professionals, horse owners and breeders, dairy producers, the livestock feed industry, companion animal owners, community leaders, and youth.

## 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	61000	58500	28000	4600
2008	43772	31955	32287	0

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

#### Patent Applications Submitted

Year Target

Plan: 1

2008: 2

#### Patents listed

Two patents were submitted in 2008, numbers 61/042,505 and 61/127560.

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

#### Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	84	
2008	0	75	75

## V(F). State Defined Outputs

### Output Target

#### Output #1

#### Output Measure

Number of completed research projects.

Year	Target	Actual
2008	19	7

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

<b>O No.</b>	<b>Outcome Name</b>
1	Program participants will exhibit/report KASA changes.
2	Number demonstrating/reporting behavior changes including improved decision-making
3	Assisting Cattle Producers In Improving Production Efficiency While Also Minimizing Costs
4	Assisting Producers In Maximizing Profitability Of Feedlot Cattle
5	Utilization Of Waste Management Tools Such As The Illinois Manure Management Plan Workbook And Website
6	Knowledge Utilized To Ensure Meat Produced Is Safe For Consumption
7	Increased Knowledge Of Livestock Care And Management
8	Utilization Of Information On Livestock Grazing Management

**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

Natural Disasters (drought, weather extremes, etc.)

Appropriations changes

Public Policy changes

Government Regulations

Competing Public priorities

**Brief Explanation**

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

**1. Evaluation Studies Planned**

Retrospective (post program)

## Evaluation Results

For a number of years a team of Extension staff with expertise in crops systems, agricultural engineering, and animal systems have worked together to enhance grazing knowledge and practices of Illinois livestock producers via face-to-face and distance education. The team assisted by Extension's Director of Program Planning and Assessment designed an online evaluation to gather feedback on practices Extension users had implemented with respect to livestock grazing. The survey was opened in January of 2008 and promoted via media, commodity groups' communication outlets, and at Extension livestock programs.

Seventy individuals who have used information provided by Extension on livestock grazing visited the survey site with between 44 and 53 providing answers to various questions. Respondents were involved in a variety of livestock enterprises with slightly over half being beef cow-calf producers. Other respondents' enterprises included beef finishing, beef stockers, dairy heifers or cows, goats, sheep, horses, poultry, and swine. The enterprises were located in all three sections of the state—south, central, and north.

When asked to check livestock grazing management practices changed as a result of Extension programming or information provided by Extension, 47 responded. Results are as follows:

- 64% increased the number of pasture paddocks
- 57% increased the rate at which they rotated livestock based on forage height
- 47% now match livestock numbers to pasture carrying capacity
- 43% started using temporary electric fencing
- 40% increased stockpiling of forages
- 38% increased soil testing of pasture paddocks
- 36% enrolled in a government cost share program
- 34% installed or improved in-pasture watering systems
- 34% installed permanent, high tensile electric fencing
- 2% enrolled in a carbon offset program

When asked to indicate new or improved types of forages recommended by Extension, 37 of 51 [72%] of respondents to the question indicating that they had done so. Most frequently checked were legumes [25], brassicas [19], and cool season grasses [17]. In response to questions related to extending the grazing season, 43 of 53 [81%] respondents indicated that they had done so with approximately half indicating extension of an additional two months on average. Nearly 90% of the respondents [44 of 49] to the question related to reduction of hay or other supplemental feed required indicated they had been able to do so. Forty-four of 48 respondents [91%] also indicated that they have experienced an increase in economic return per acre with 16 of those selecting the response "most years" or "all years."

## Key Items of Evaluation

Although a larger response rate would have been preferred [perhaps through more aggressive promotion of participation such as announcements/computer availability at Extension programs], Illinois Extension livestock grazing educational areas of emphasis are being implemented by livestock producers to maximize pasture grazing productivity, specifically rotation based on forage height, animal carrying capacity, and soil testing of paddocks. Producers' addition of new or improved forage types is also notable. Finally, results would indicate that those practices have enhanced the length of the grazing season, and reduction of supplemental feed, thus supporting respondents' indication that they have experienced an increase in economic return per grazed acre.