Program in Animal Science

Program in Animal Science

V(A). Planned Program (Summary)

1. Name of the Planned Program

Program in Animal Science

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation			4%	
301	Reproductive Performance of Animals			28%	
302	Nutrient Utilization in Animals			14%	
303	Genetic Improvement of Animals			5%	
304	Animal Genome			11%	
305	Animal Physiological Processes			11%	
307	Animal Management Systems			6%	
308	Improved Animal Products (Before Harvest)			12%	
311	Animal Diseases			3%	
701	Nutrient Composition of Food			3%	
722	Zoonotic Diseases and Parasites Affecting Humans			3%	
	Total			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	0.0	0.0	15.6	0.0
Actual	0.0	0.0	21.5	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
0	0	368253	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	932614	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	524530	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

We shall: (1) evaluate nutritional, physiological and genetic mechanisms for differences in the use of dietary energy for growth, lactation and animal maintenance, (2) evaluate sources of feedstuffs and methods of processing for enhanced rumen function and productivity in animals, (3) search for candidate genes and DNA markers for improved quality and yield of meat in beef cattle, (4) Search for candidate genes and DNA markers for enhanced reproduction and nutrient utilization in dairy and beef cattle, (5) develop new approaches and investigate the molecular and biological regulation of germ and somatic cells in mammalian spermatogenesis, (6) define the underlying mechanisms responsible for the hormonal regulation of somatic tissue growth and development in rainbow trout and other species. (7) Develop mathematical models to better understand and evaluate factors related to metabolism in the lactating dairy cow, (8) develop a vaccine for the sterilization of either male or female cattle, (9) obtain gaseous and particulate emissions data from cattle feedlots and provide credible scientific information for making air quality policy decisions, and (10) determine the basic molecular mechanisms regulating skeletal muscle growth and differentiation.

2. Brief description of the target audience

In general, the target audience for the program includes consumers of food products produced by the livestock industry. However, the pathway of information from our research program includes commercial and seed stock producers in the dairy, beef, swine and sheep industries. It also includes companies that produce feeds, pharmaceuticals, and consulting to these industries.

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	2300	4500	1200	2200
2008	2300	4500	0	0

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

Patent Applications Submitted

Year	Target
Plan:	1
2008:	1

Patents listed

Compositions and methods of wastewater treatment. 2008 Jul. Patent 60/949,479. Zhang T., K. Bowers, J. Harrison, S. Chen.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	30	
2008	0	35	35

V(F). State Defined Outputs

Output Target
Output #1

Output Measure

Peer reviewed journal articles

Year	Target	Actual
2008	25	34

Output #2

Output Measure

Graduate Students supported by Agricultural Research Center and other grant funds

Year	Target	Actual
2008	31	11

V(G). State Defined Outcomes

O No.	Outcome Name
1	Construct a whole genome association map of nuclear encoded mitochondrial genes for traits in beef cattle
2	Develop mitigation strategies to reduce the impact of animal CAFOs on air and water quality
3	Determine some keys to obesity with research conducted in fat cells
4	Enhanced agricultural sustainability through pollution mitigation strategies
5	Define mineral requirements in dairy cows to reduce mineral excretion
6	Data for CAFOs on air and water quality will be made available to allow policy decisions
7	Sulfur hexachloride tracer technologies developed for measuring methane production by free ranging livestock
8	Better understanding of of the percent of Wagyu genetics required in breed crosses of composite breeds to produce quality beef for domestic and world consumption
9	Identification of factors regulating male fertility and sire potential in cattle and swine
10	Enhance agricultural stability through increases in reproductive efficiency in cattle and swine
11	Techniques developed to accelerate the production of genetically modified animals for value-added products and biotechnology
12	Develop a whole genome association map of genes defining fertility and longevity in dairy cows
13	Enhanced understanding of nutrient utilization and mechanisms of nutrient use by animals.
14	Enhanced food quality, food safety, consumer acceptance of foods from animal sources and issues of animal and human health.
15	Identification of strategies to decrease the environmental footprint from livestock systems.
16	Enhanced reproductive efficiency of livestock.
17	Enhanced understanding of mechanisms associated with growth and differentiation of muscle cells and adipocytes.

Program in Animal Science
Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

Year	Quantitative Target	Actual

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

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

Brief Explanation

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

1. Evaluation Studies Planned

During (during program)
Other (See below)

Evaluation Results

In October 2008, the Department of Animal Sciences completed a comprehensive external review led by CSREES with the goal to help identify strengths and weaknesses within the department and implement a plan to advance the department's research accomplishments and productivity. The 5 member review team, chaired by Dr. Muquarrab Qureshi, National Program Leader - Animal Genetics, USDA reviewed documents submitted by the department and visited on site for 5 days reviewing academic, research and extension programs. The department plans to use the outcomes and recommendations from the review in its strategic planning and in program and resource prioritization and will revisit the report recommendations at yearly intervals. The review report has also been provided to college and university administrators. Identified weaknesses include the limited grant support in the Program and a relatively small graduate program relative to the number of research faculty.

Key Items of Evaluation