Sustainable Animal Production Systems

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Sustainable Animal Production 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
307	Animal Management Systems	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	1.6	0.0
Actual	0.6	0.0	0.5	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	20940	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	322161	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	65583	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This program is designed to look at sustainable production systems for sheep, beef and dairy, and poultry. Investigators in the sheep breeding program are examining genetic and management factors that influence embryonic and pre-natal loss of potential lambs in commercial ewes. The goal is to develop a reduced input sheep production system focused on spring pasture lambing with minimal labor requirements. Investigators are currently working to identify and evaluate ewe genotypes suitable for such a management system and to determine timing of lambing and other relevant parameters to make such a system feasible. Trial results have been disseminated through presentations at regional research meetings, local extension meetings, and annual meetings of the Oregon Sheepgrowers Association. Investigators in the beef and dairy subprogram are evaluating and developing efficient animal, manure and cropping systems for reduced nutrient flow, cycling, transformation and loss to the environment. Investigator is currently working to refine, evaluate and apply integrated quantitative models of dairy and beef farms, including organic livestock production, to predict profitability and nutrient losses to the environment. He is also working on water quality and on-farm energy development issues. Activities related to water quality include manure, pesticide control, nutrient outflow, sedimentation, and temperature degradation management. Investigator is working with local livestock producers to explore the feasibility of biogas production for on-farm electrical generation. He has developed a model budget and plans to install an anaerobic digester. Outputs include development of science-based tools, educational materials and websites, and presentations at national and regional meetings. Investigators in the poultry breeding subprogram have initiated a genetic selection study to determine the mode of transmission of genes responsible for embryonic mortality, hatchability and subsequent chick performance.

2. Brief description of the target audience

- scientific peers in the United States and World,
- Extension personnel and other educators
- nutritional consultants and ultimately
- dairy, livestock and poultry producers
- policy makers, regulators, politicians
- commodity groups

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	2350	4300	100	100
2007	485	935	40	118

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

Patent Applications Submitted

Year	Target
Plan:	0
2007:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	11	2	13

V(F). State Defined Outputs

Output Target
Output #1

Output Measure

DEVELOP IMPROVED ANIMAL AND PLANT PRODUCTION SYSTEMS - improved, surviving offspring and appropriate calving dates (cows – 40x4) - improved weaned weight (lamb - 6lb per ½ condition score) - reduced lambing production inputs (remove those of high mortality risk) - more economical and environmentally sustainable dairy and beef production systems that meet new environmental requirements - synchronizing forage and carcass data for calf and cow management

Year	Target	Actual
2007	0	9

Output #2

Output Measure

CARRY OUT STUDIES TO DECIPHER GENOMES, GENETICS AND MECHANISMS OF PLANTS AND ANIMAL - identify previously unknown gene (1/yr) – Savage To acquire a more thorough understanding of the genetic load that is present in economically significant populations of poultry based upon the identification of embryonic failures that are present in Coturnix quail.

Year	Target	Actual
2007	1	4

V(G). State Defined Outcomes

O No.	Outcome Name
1	Information regarding gentic influences - Poultry breeders gain information regarding genetic causes of early embryonic failures (Savage) - Producers are aware of sire genotype effects on embryonic loss and of management factors that influence loss of potential lambs in commercial ewes, such as body condition at lambing positively correlated with total weight of lamb weaned (Meyer)
2	Information regarding forage and nutrient management - Producers, NRCS, conservation districts and environmental agencies learn about whole farm nutrient management. (Gamroth) - Information will aid Extension Specialists in producing extension workshops and other forms of teaching or consulting with farmers on issues related to grazing, manure management, and cropping systems. - Beef industry will understand forage quality dynamics for dominant forage species in Oregon, how management practices can synchronize the relationship between forage nutrient supply and cow nutrient requirements, how pre-weaning and post-weaning calf management practices influence lifetime productivity of the calf and carcass quality and how feedstuffs can influence the health and physiological stress of the calf.
3	Improved genetic stocks: - Knowing genetic causes of early embryonic failures allows poultry breeders to remove deleterious genes from their breeding populations. (Savage) - Understanding ramifications of sire effects, in the short term producers are starting to pursue alternative terminal sires such as the Texel x Suffolk. A program is initiated to develop a composite sire breed as an alternative.
4	Better nutrition strategies applied - Producers will adopt critical post-mating nutrition through the time of embryonic attachment to the placenta, having learned that body condition at lambing is positively correlated with total weight of lamb weaned - Farmers will more strategically plan for crop production and manure management.
5	Increased productivity achieved: - Producers greatly improve their reproductive efficiency by removing bad genes thus increasing productivity and economics of the industry. Industry thus has mproved resource and economic sustainability through reduced costs and/or increased productivity. - Producers use critical post-mating nutrition to produce about 6 pounds of additional weaning weight per ½ condition score. Also, intense selection reduces needs for assistance in pasture lambing conditions. - Better understanding of the costs, benefits, and potential impact of legislation on the dairy industry, and thus more economically and environmentally sustainable systems for dairy and beef production.

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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

Economy
Public Policy changes
Government Regulations

Brief Explanation

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

1. Evaluation Studies Planned

Retrospective (post program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}