V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Global Food Security and Hunger: Dairy

☑ 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
301	Reproductive Performance of Animals	20%		30%	
302	Nutrient Utilization in Animals	15%		30%	
305	Animal Physiological Processes	15%		0%	
307	Animal Management Systems	20%		20%	
308	Improved Animal Products (Before Harvest)	15%		20%	
311	Animal Diseases	15%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	2.1	0.0	2.0	0.0
Actual Paid	2.9	0.0	2.0	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**
107404	0	50170	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
107404	0	50170	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
78584	0	825757	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

1. Dairy Management

Dairy is the number one agricultural commodity in the state of Idaho Achieving optimal production efficiency and profitability are goals for all Idaho dairy producers New management techniques are available for improving reproductive performance, nutritional management, heifer management, milk quality, and cow comfort Extension faculty conduct field demonstration trials for a variety of management techniques Successful trial results can be used to encourage adoption of management techniques which ultimately increase production efficiency and profitability.

2. Dairy Workforce Development

University of Idaho Dairy Extension provides educational opportunities for current and future Idaho dairy employees Educational programs are offered in English and Spanish to provide the greatest opportunity for participants to acquire the knowledge and skills necessary to be a productive, reliable member of the dairy workforce. Topics covered include milking, milk quality and food safety, artificial insemination, raising healthy calves, mixing feed, hoof trimming, and identifying sick cows and calves. Ultimately, the integration of an educated workforce with optimal production practices, and adoption of new technology, will likely help determine the growth, sustainability and profitability of the Idaho dairy industry in the future.

2. Brief description of the target audience

The target audiences most likely to participate in and benefit from dairy extension programs are: dairy producers, dairy workers, and allied industry.These audiences will participate by serving on planning committees, attending workshops/schools, meeting one-on-one with topic team members, reading extension publications, and participating in on-farm projects.

Approximately 90% of the dairy labor force is Hispanic. The dairy extension team has developed numerous educational schools for training dairy workers (in Spanish and English). Additional schools will be developed as needs dictate and resources allow. Further, in association with the International Rescue Committee and other resettlement agencies, University of Idaho Dairy Extension has developed English language milking schools for refugees (from Burma, Somalia, Eritrea, Uzbekistan, Nepal, Iraq, Afghanistan, Togo, and Bhutan) resettled in Idaho. Additional English language schools will be developed for refugees in the next two to five years.

3. How was eXtension used?

Dairy team members contributed to DAIRYeXTNET

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4884	60300	770	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	3	10	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Winter Dairy Forums.

Year	Actual
2014	1

Output #2

Output Measure

- Milker schools.

Year	Actual
2014	4

Output #3

Output Measure

- Calf Schools.

Year	Actual
2014	2

Output #4

Output Measure

- Artificial Insemination Schools.

Year	Actual
2014	2

Output #5

Output Measure

- Feeder Schools.

Year	Actual
2014	1

Output #6

Output Measure

- Popular Press articles.

Year	Actual
2014	5

Output #7

Output Measure

- Abstracts and Proceedings.

Year	Actual
2014	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Dairy Producers and workers will increase knowledge by attending dairy schools and dairy forums. I: Number attending schools and forums.
2	O: Dairy workers will increase knowledge and understanding of dairy management practices. I: Percent knowledge change by attendees (as evaluated with pre/post testing).
3	O: Sound dairy management practices will be adopted by dairy operations as a result of attending the management schools. I: Percent of participants with intent to adopt recommended dairy management practices (as evaluated with pre/post testing).
4	O: Dairy workers will use proper techniques taught in dairy education programs (e.g., AI techniques, feeding adjustments, milking techniques). I: Percent of participants demonstrating mastery (assessed at dairy education programs).
5	Dairy producers will be better equipped to determine heat detection accuracy, as measured by plasma progesterone concentration, of artificial technicians using once-daily tail chalk or tail paint application and reading in nulliparous dairy heifers.

Outcome #1

1. Outcome Measures

O: Dairy Producers and workers will increase knowledge by attending dairy schools and dairy forums. I: Number attending schools and forums.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	191

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Training of dairy workers has been identified as a very important issue for the Idaho dairy industry. Milkers need training on how to perform proper milking routines and understand about milking procedures and why it is important. Dairy workers need to increase they knowledge of animal welfare and care to avoid mistreating cows.

What has been done
UI Extension faculty members held animal care workshops, milker certification workshops, and AI schools in Spanish and English. The Extension Team created and distributed animal care signs at meetings and through farm visits.

Results
All participants (100%) attending the Spanish and English language AI Schools successfully performed semen handling and passed the AI gun through the cervix of a cow. A significant increase in knowledge among participants in milker schools and animal care workshops, as determined by a pre/post test.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
307	Animal Management Systems

308	Improved Animal Products (Before Harvest)
311	Animal Diseases

Outcome #2

1. **Outcome Measures**

O: Dairy workers will increase knowledge and understanding of dairy management practices. I: Percent knowledge change by attendees (as evaluated with pre/post testing).

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

O: Sound dairy management practices will be adopted by dairy operations as a result of attending the management schools. I: Percent of participants with intent to adopt recommended dairy management practices (as evaluated with pre/post testing).

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

O: Dairy workers will use proper techniques taught in dairy education programs (e.g., AI techniques, feeding adjustments, milking techniques). I: Percent of participants demonstrating mastery (assessed at dairy education programs).

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Dairy producers will be better equipped to determine heat detection accuracy, as measured by plasma progesterone concentration, of artificial technicians using once-daily tail chalk or tail paint application and reading in nulliparous dairy heifers.

2. **Associated Institution Types**

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As diary producers manage larger herds, labor efficient management strategies such as once-daily heat detection (via daily tail chalk or tail paint application and "reading", i.e., identification of roughened hair on the tailhead or lost chalk or paint) and artificial insemination (AI) are more common. Dairy heifer fertility varies widely and heat detection accuracy in heifers has not been the focus of reproductive research in the past 25 years.

What has been done
Blood samples from dairy heifers (n=676) were collected, assayed for progesterone concentration, and heat detection accuracy of AI technicians (n=2) was determined. Preliminary data, presented graphically and without statistical analysis, has been shared with cooperating diary producers, artificial insemination technicians, and veterinarians.

Results
Informing the target audience (producers, AI technicians and veterinarians) of these findings have changed the knowledge base and behavior and ultimately has increased reproductive and economic efficiencies for the diary heifer-raising experience.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)

Brief Explanation

water shortages are influencing management decisions on Idaho dairies

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Effect of on-farm training on the welfare and health of dairy cows, specifically on locomotion and body condition scores: Lameness is one the leading welfare concerns in the dairy industry. Twelve dairy farms in Idaho and Colorado were contacted by University

of Idaho and Colorado State University extension personnel to participate in this pilot project. All lactating cows were observed for locomotion score and Body Condition Score by an experienced observer, during both the initial and the follow-up visit. Half of the dairies received an on-farm training that covered various topics of Animal Welfare. All dairies completed a survey both at the beginning and end of the study. Data are currently being summarized to determine whether there was an effect of the on-farm training on locomotion and body condition scores of dairy cows.

Key Items of Evaluation