V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Sustainable Energy: Land and Livestock

☑ 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
102	Soil, Plant, Water, Nutrient Relationships	10%		5%	
111	Conservation and Efficient Use of Water	5%		10%	
121	Management of Range Resources	10%		0%	
122	Management and Control of Forest and Range Fires	5%		5%	
133	Pollution Prevention and Mitigation	0%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		5%	
205	Plant Management Systems	10%		0%	
213	Weeds Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	5%		5%	
301	Reproductive Performance of Animals	5%		15%	
302	Nutrient Utilization in Animals	10%		15%	
305	Animal Physiological Processes	5%		5%	
306	Environmental Stress in Animals	5%		0%	
307	Animal Management Systems	10%		0%	
308	Improved Animal Products (Before Harvest)	5%		10%	
405	Drainage and Irrigation Systems and Facilities	0%		5%	
605	Natural Resource and Environmental Economics	5%		5%	
901	Program and Project Design, and Statistics	0%		5%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Extension	Research

Year: 2012	1862	1890	1862	1890
Plan	9.0	0.0	4.0	0.0
Actual Paid Professional	13.3	0.0	5.4	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**
528913	0	265821	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
528913	0	265821	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
461601	0	2408461	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Planned activities include beef schools, forage schools, range-in-school, grazing academy, BQA workshops, weed workshops, monitoring workshops, demonstration/applied research trials, Extension publications, popular press articles, tours, field days, faculty training sessions, web sites, CD-ROM based learning modules, office visits, and farm/ranch visits. The focus of these efforts will depend on stakeholder input, questions, and needs. When appropriate, information generated by the team will be presented in scientific journals and at professional meetings.

Alfalfa and Annual Forage Production and Harvesting planned activities include:

- Alfalfa variety trials
- Annual forage variety trials
- Irrigation management trials and demonstrations
- Idaho Hay and Forage Conference
- Local forage and pasture schools and workshops
- Documenting quality of forages from different production environments
- Investigation and reporting of suitability of alternative forage species and their utilization in livestock production systems to extend the grazing season.
- Popular press and journal articles
- Forages website
- Extension publications

Efficient Production Management and Marketing of Livestock planned activities include:

- Beef Quality Assurance workshops
- Vaccine storage and handing studies and reports

- Intermountain Rangeland Livestock Symposium
- Lost Rivers Grazing Academy
- Local Winter Beef Schools
- Alternative forage production trials to extend the grazing season
- Pasture management workshops
- Baseline survey of beef cattle producers on grazing and feeding practices
- Popular press and journal articles
- Beef website
- Extension publications

Rangeland Resource Management and Utilization planned activities include:

- Intermountain Rangeland Livestock Symposium
- Collaboration with the University of Idaho Rangeland Center
- Wolf-cattle interaction research and workshops
- Regional fire cycle/cheatgrass workshop,
- Collaboration with the Idaho Rangeland Resource Commissions public perception surveys
- Development of a public policy curriculum
- Local rangeland demonstrations, workshops and tours
- Popular press and journal articles
- Range-In-Service
- Extension Publications

2. Brief description of the target audience

The target audience most likely to participate in and benefit from these programs are:

- land owners, range livestock producers, local government and resource management agency personnel.
- Livestock and forage producers are likely to be positively impacted by new and improved production practices that will improve their profitability and ecological sustainability.
- Alfalfa and grass seed producers are likely to be positively impacted as many improved practices may involve the planting of new varieties with high productivity and pest resistance.
- Supplies of a variety of production input are likely to be positively impacted since improved practices may include the use of new materials, machinery or other production inputs.
- Small acreage land owners will have a greater understanding of the biology of their land and livestock resources, and will be less likely to be impacted by weed invasion or be taken advantage of by unscrupulous input suppliers.
- Beef cattle producers

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10603	113709	1927	125300

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

Patent Applications Submitted

Year: 2012

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	5	24	29

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Producer schools. (number of schools: multiple sessions of instruction on multiple subjects)

Year	Actual
2012	11

Output #2

Output Measure

- Workshops (including BQA).

Year	Actual
2012	68

Output #3

Output Measure

- Demonstrations and applied research projects.

Year	Actual
2012	27

Output #4

Output Measure

- Popular press articles.

Year	Actual
2012	59

Output #5

Output Measure

- Newsletters; number of issues.

Year	Actual
2012	46

Output #6

Output Measure

- Field days

Year	Actual
2012	12

Output #7

Output Measure

- Presentations at producer meetings

Year	Actual
2012	113

Output #8

Output Measure

- Budgets developed to improve clientele decision making

Year	Actual
2012	12

Output #9

Output Measure

- Curricula developed

Year	Actual
2012	5

Output #10

Output Measure

- Survey conducted

Year	Actual
2012	4

Output #11

Output Measure

- Tours conducted

Year	Actual
2012	17

Output #12

Output Measure

- Websites developed or significantly modified

Year	Actual
2012	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Learners will adopt new, accepted, or recommended production practices. I: Number of participants indicating in post-program surveys that they have or intend to adopt recommended practices.
2	O: Learners aquire knowledge and understanding of new, approved, or recommended practices. I: Number of participants citing change in knowledge on evaluation instruments(pre- post-test results) [number of evaluations administered and examined.
3	O: Learners are aware of new, accepted, or recommended production practices and emerging technologies and issues (BQA, NAIS, etc.) I: Number of participants at educational events.
4	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
5	Enhancing Milk Fat with Monounsaturated and Polyunsaturated Fatty Acids for Improved Nutritional and Market Value

Outcome #1

1. Outcome Measures

O: Learners will adopt new, accepted, or recommended production practices. I: Number of participants indicating in post-program surveys that they have or intend to adopt recommended practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	130

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Vaccine Handling and storage research is a large component of Beef Quality Assurance. Ranchers need to be aware of how they are managing their vaccines. Making sure vaccines are remaing viable and are stored at the reccomended temperature range is imperative in properly administering vaccines and reducing the spread of dieases in cattle herds and other livestock herds.

What has been done
Vaccine handling and storage research was done throught out Idaho involving ranchers and retailers that handle vaccines. The results of this research has been presented at beef producer schools around the state with the goal to change the way producers store and manage vaccines and other medicines.

Results
In 2012 a follow up survey was sent to producers to determine if they had changed any techniques and acquired more knowledge in handling vaccine. Results show that the producers are adjusting their refridgerator temperatures, using thermometers to monitor their fridges, and keeping their vaccines stored in a cooler at the chute side.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

121	Management of Range Resources
122	Management and Control of Forest and Range Fires
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

O: Learners aquire knowledge and understanding of new, approved, or recommended practices. I: Number of participants citing change in knowledge on evaluation instruments(pre- post-test results) [number of evaluations administered and examined.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	1031

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Previous Beef Quality Audits identified many quality challenges in the beef industry. A major industry goal was to educate beef producers to select management practices that increase value and quality of beef.

What has been done
In response, University of Idaho Extension submitted a proposal to IBC to fund the Idaho Beef Summit (Summit) to offer end-product quality programming to Idaho beef producers. The Summit

was held January 5-7, 2012 in Twin Falls. The Summit featured speakers, tours, and workshops on topics ranging from improving carcass traits, meat science 101 for ranchers, retail and foodservice tips, beef quality assurance, cull cow marketing, and much more.

Results
In a post survey, 98% of respondents stated they would consider end-product quality when making management decisions on the ranch and 97% of respondents have a good understanding of what improves carcass quality in beef cattle after attending the Summit. 93% of respondents said they learned something new at the Summit, 94% of respondents said they would return to a future session of the Summit, and 98% said they would recommend the Summit to fellow beef producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
121	Management of Range Resources
122	Management and Control of Forest and Range Fires
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

O: Learners are aware of new, accepted, or recommended production practices and emerging technologies and issues (BQA, NAIS, etc.) I: Number of participants at educational events.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	2644

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The beef industry is changing every day. Beef producers are faced with a variety of issues that directly and indirectly impact the productivity and profitability of their operations. Consumers of beef products demand a safe, wholesome, quality product. Beef producers need the knowledge and tools to produce safe, high quality beef.

What has been done
The Beef Quality Assurance program was delivered in multiple locations across the state, for producers and employees to learn about steps they can take to have the highest quality beef possible.

Results
Of those producers who attended BQA workshops in 1012, approximately 179 demonstrated sufficient knowledge and awareness of best practices to become BQA certified.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
121	Management of Range Resources
122	Management and Control of Forest and Range Fires
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
605	Natural Resource and Environmental Economics

Outcome #4

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #5

1. Outcome Measures

Enhancing Milk Fat with Monounsaturated and Polyunsaturated Fatty Acids for Improved Nutritional and Market Value

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Currently, the Federal Drug Administration (FDA) restricts feeding camelina meal to lactating cows based on glucosinolates present in the meal and potential transfer of their metabolites, isothiocyanates and/or nitriles, into milk.

What has been done
Studies were conducted to determine the effects of feeding camelina meal to Holstein cows on milk production, composition, content of glucosinolates and metabolites as well as thyroid hormone concentrations of serum.

Results
Camelina meal supported milk production similar to canola meal without transfer of glucosinolates or their metabolites into milk as confirmed by a lack of effect on thyroid hormones and chemical analysis. Camelina meal also enhanced the unsaturated portion of the milk fatty acid profile which could potentially offer a healthier alternative for consumers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
305	Animal Physiological Processes

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (none of great impact)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

A post-program evaluation was conducted following the 2012 Winter Feeding Strategies workshops that were held in four locations in the state of Idaho. In program evaluations, approximately 65-70% of respondents indicated they learned a new technique that could be implemented on their operation to improve their operation's winter feeding situation.

Approximately one-hundred, sixty five individuals participated in the 2012 Winter feeding strategies workshops that were held in four locations in Idaho. As noted previously, attendees found the workshops to be valuable and indicated some of the information and technologies presented could be incorporated into their operations. Some of the comments from attendees following the workshops included: "Great information. Will make a difference in my operation." and "Seems like I am doing a few things right, but still have a ways to go. This will help me fine tune the winter feeding of my cows." Additionally, approximately 20% of the workshop attendees requested copies of various software programs (demonstrated during the workshops) to help them balance beef cow rations and analyze the cost of feedstuffs.

Key Items of Evaluation