

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Nutrition of Grazing Livestock

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
121	Management of Range Resources	50%		50%	
302	Nutrient Utilization in Animals	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	0.0	0.0
Actual	7.0	0.0	2.0	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
224000	0	75400	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
336000	0	113000	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Develop presentation materials
- Develop resource material
- Provide presentations and workshops
- Translate scientific and technical materials into lay materials

- Identify emerging issues
- Evaluate effectiveness of activities

2. Brief description of the target audience

- Livestock producers
- 4-H youth
- Feed and pharmaceutical industry personnel
- Government agency personnel
- Veterinarians

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	425	1600	0	0
Actual	611	25350	123	411

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	1	0	
Actual	2	15	17

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals receiving training and education
2	Number of individuals demonstrating increase in subject knowledge and skills
3	Number of producers implementing recommended actions or practices
4	Number of producers participating in government cost-share programs for range conservation
5	Estimated cost of production for North Dakota cattle ranches
6	Number of ranches implementing range management practices
7	Number of ranchers, land managers, and educators who were trained on effective grazing systems in 2010.

Outcome #1

1. Outcome Measures

Number of individuals receiving training and education

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of individuals demonstrating increase in subject knowledge and skills

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of producers implementing recommended actions or practices

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number of producers participating in government cost-share programs for range conservation

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Estimated cost of production for North Dakota cattle ranches

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of ranches implementing range management practices

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Number of ranchers, land managers, and educators who were trained on effective grazing systems in 2010.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	215

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Private and public land managers and operators using grazing systems have the greatest potential to increase economic return from the same land base. Land costs have escalated to the point that young producers can no longer afford to buy new land and older generation producers are not willing to sell land. Thus, new money from an operation must come from within their current land holdings. By increasing the economic return from the same land, new money can be earned from the current land holdings, bring in new money to the local community. The potential impact in North Dakota alone is on 12 million acres of rangeland.

What has been done

One Extension Agent training session and three rancher workshops were conducted to create educational opportunities. These workshops led to the training of 34 livestock emphasis area county agents and 181 ranchers/land managers. On average, the ranchers/land managers operate 500 acres; creating an indirect impact on 90,500 acres. Two extension publications were developed, of which one was for youth and one peer-reviewed journal article published. Educational materials have been developed to educate on the land managers on grazing systems. Finally, the new Farm Bill should allow continuation of grazing systems to be funded

within the EQIP program of the USDA NRCS.

Results

We published scientific paper on grazing efficiency of grazing systems in Range Ecology and Management to address a popular paper published in 2008 that stated grazing systems "don't work". Grazing systems are the number one tool used by USDA Natural Resource Conservation Service (NRCS) and the Extension Service for promoting improved range management to enhance the ecosystem, improve livestock production and enhance the economic return from the ranching operation. The US government has funded roughly \$7 million through EQIP for grazing system development. By addressing the true application process of a grazing system, the NRCS can justify these dollars. The Extension Service can use the research data to help land managers better understand how and why grazing systems work. This paper can justify keeping grazing systems in the tool box for NRCS to use within the EQIP. A grazing system will enhance the carrying capacity by a minimum of 25% in North Dakota. Based on our latest surveys, 44% of ranchers use a grazing system for a potential impact on 5.1 million acres and direct economic impact by adding 159,000 cow/calf pairs to North Dakota. If the average return per acre rangeland is \$18/acre (NASS) and income is increased by 25% through improved grazing efficiency, North Dakota ranchers can add \$4.5/acre or \$22.9 million per year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
302	Nutrient Utilization in Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations

Brief Explanation

1) North Dakota has been in a wet cycle since 1993, creating conditions conducive to increased forage production in the state and region. This wet cycle creates complacency in the ranching industry and they are not as willing to improve rangeland management because the climate conditions creating a "false high return". As weather conditions return to normal (less precipitation), ranchers will be looking for techniques to enhance forage production to the wet cycle period. 2) Economic uncertainty has created less money available for government funding of range improvement practices. Without the government support, ranchers are required to pay more for range improvements and less likely to improve their ranching strategies. 3) The US Government is going through an influx of change, creating questions in future direction of the Farm Bill and government programs.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- Case Study

Evaluation Results

In a study comprised of seven research projects, grazing systems enhanced harvest efficiency by 16 to 42%. Changes to grazing management strategies enhanced the carrying capacity and nutrition quality of range and pastureland by 25-40%.

Key Items of Evaluation