V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Agricultural 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
101	Appraisal of Soil Resources			10%	
121	Management of Range Resources			10%	
403	Waste Disposal, Recycling, and Reuse			35%	
608	Community Resource Planning and Development			45%	
	Total			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	0.0	0.0	1.4	0.0
Actual	0.0	0.0	0.4	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	70427	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	31969	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

Organic dairy producers across New England were recently polled about their most expensive operational inputs, and overwhelmingly responded that these were organically-certified feed and utilities costs. Both these areas are currently being addressed through NHAES research, with the latter topic within this program area. This work is strongly leveraged by a USDA-SARE funded project, and provides information on the energy budget of the NHAES Burley-Demeritt farm agroecosystem including the production of biomass for use as bedding and in a compost-to-energy system. The research overall is intended to reduce on-farm energy demands by using available plant biomass resources. The facility provides a research and outreach model for the small-scale, diversified farms characteristic of New Hampshire and New England. This year's results related primarily to grazing grass productivity and how to measure that production and grazing intensity accurately. Providing reliable and inexpensive methods for measuring these two flows is important to pasture management, which is re-emerging as an important part of the agricultural economy in the northeast. Four methods were evaluated for measuring standing biomass of pasture herbage, with clipping as the standard against which the other three were compared. The plate method was determined to provide the best combination of rapid sampling and repeatability to provide the best pasture biomass estimates, and is inexpensive and time-efficient for use by producers. The Burley-Demeritt farm is part of our active outreach program, and visitors were regularly exposed to the processes and results of this study. It was used for school groups and by extension for educational programs.

Additional work in this program area focused on food sufficiency and farm sustainability in New England. This research is nearing conclusion, with priority increasingly focused on disseminating the results so that it will be widely available. Numerous local and regional presentations were made to public library and community meetings, garden clubs, church groups, farm and agricultural organizations, environmental conservation and natural resources organizations, Cooperative Extension, master gardeners, and Colby and Sterling Colleges. One popular press book was published and is being widely disseminated around the region.

2. Brief description of the target audience

The target audiences for work conducted in this area include northeastern farmers and farm managers, dairy industry workers and companies, town governments, town, state and national agricultural commissions and agencies, food producers and processors, citizens and consumers, researchers working in related areas, students, and others generally interested in sustainable agricultural practices.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	1000	2000	50	100
Actual	450	700	40	60

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	0	2	
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of participants in the project (not including audience counts)

Year	Target	Actual
2010	8	8

Output #2

Output Measure

- Number of undergraduate students directly involved in the projects

Year	Target	Actual
2010	3	4

Output #3

Output Measure

- Number of graduate student directly involved in the projects

Year	Target	Actual
2010	2	1

Output #4

Output Measure

- Number of university courses in which project results have been incorporated

Year	Target	Actual
2010	3	4

Output #5

Output Measure

- Number of presentation at regional, national, or international scientific meetings

Year	Target	Actual
2010	4	1

Output #6

Output Measure

- Number of reviewed publications including theses, abstracts, etc

Year	Target	Actual
2010	3	1

Output #7

Output Measure

- Number of peer-reviewed publications

Year	Target	Actual
2010	1	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of graduate students involved and trained
2	Increased knowledge through publications and other measures
3	Number of undergraduate students involved and trained
4	Increased knowledge about agricultural systems in support of management efforts

Outcome #1

1. **Outcome Measures**

   Number of graduate students involved and trained

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Increased knowledge through publications and other measures

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   Number of undergraduate students involved and trained

   Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

   Increased knowledge about agricultural systems in support of management efforts

2. **Associated Institution Types**

   - 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Measurement of available forage resources accurately and efficiently is important to pasture-based dairy management, which is re-emerging as an important part of the agricultural economy in the northeast.

What has been done
Field investigations were completed to evaluate producer-accessible methods to measure pasture grass production, productivity and grazing intensity. Four methods were evaluated for measuring standing biomass of pasture herbage, with clipping as the standard against which the other three were compared. The plate method was determined to provide the best combination of rapid sampling and repeatability to provide the best pasture biomass estimates, and is inexpensive and time-efficient for use by producers.

Results
This result will improve producer abilities to effectively manage their pastures while saving labor and operations dollars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (none for this program area.)

Brief Explanation

None for this program area.

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

1. Evaluation Studies Planned

- During (during program)

Evaluation Results

Evaluation of results based on discussions with peers and stakeholders is strong for this planned program area.

Key Items of Evaluation