

***Livestock on Small Acreages: Protecting Water Resources and Health***  
***A Train-the-trainer Extension Education Program***

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**Project Partners:** URI Cooperative Extension Home\*A\*Syst (Department of Natural Resources Science) and 4-H Programs, URI Dept. of Fisheries, Animal and Veterinary Science, and URI Dept. of Communications Studies.

**Project Summary**

The University of Rhode Island Cooperative Extension (URI CE) Home\*A\*Syst and 4-H Programs will create an education program for small acreage livestock owners and managers focusing on pollution prevention best management practices (BMPs). This target audience is often ineligible for traditional agricultural assistance programs and their behaviors and decisions are often shaped by issues and concerns that are significantly different from those of commercial farmers.

We propose to conduct a needs assessment of this target audience to identify gaps in knowledge and existing barriers that limit or prevent the adoption of BMPs to protect water resources. We will develop a train-the-trainer education program, primarily working with 4-H volunteers, that increases knowledge about livestock pollution risks, adapts and transfers agricultural BMPs at a scale that is appropriate, and ultimately, increases the adoption of BMPs that protect water resources.

An evaluation plan will be developed and administered throughout the program to ensure that specific objectives and desired outcomes are achieved. In addition to increasing target audience knowledge and adoption of BMPs, the education program will increase local and regional partnerships, provide educational resources and enhance training opportunities within the state 4-H Program.

**Project Objectives**

1. Identify barriers and benefits to adoption of livestock management practices for water quality protection.
2. Design an adoption-outreach Extension education program that minimizes the barriers and maximizes the benefits to adoption of BMPS for water quality protection.
3. Determine the effectiveness of the train-the-trainer model to influence behavior norms of livestock management practices among the target audience.
4. Recruit and train 20 volunteers by the end of year two.
5. 95% of trained volunteers and the target audience will indicate an increased awareness and knowledge of hydrology, the water cycle and the interaction between watersheds and aquifers by the end of year three.
6. 95% of trained volunteers and the target audience will indicate an increased awareness and knowledge of pollution and health risks associated with small acreage livestock activities by the end of year three.
7. 90% of trained volunteers and the target audience will be capable of identifying the most common pollution and health risks associated with livestock activities on their properties by the end of year three.
8. 90% of trained volunteers and the target audience will be capable of identifying appropriate BMPs to minimize pollution and health risks associated with small acreage livestock activities.



9. 90% of trained volunteers and the target audience will consider adopting at least one BMP for water resource protection by the end of year three.
10. 50% of trained volunteers and the target audience will adopt at least 1 BMP by the end of year 3.
11. 80% of trained volunteers (10 teams of 2 volunteers per team) will provide a minimum of 20 hours of direct educational programming to their club members, families and other affiliated organizations by the end of year three.
12. 75% of trained volunteers will indicate that they intend to provide at least 10 hours of education and outreach programming to their clubs and other affiliated organizations for an additional 2 years beyond the end of the project.
13. 90% of trained volunteers will increase their public presentation skills and express increased confidence in their abilities to teach in a small group environment by the end of year three.

## **Methods**

The following methods have been chosen to effectively transfer agricultural BMPs to the target audience and achieve adoption of BMPs.

### 1. Convene Project Steering Committee; Year 1.

The project steering committee will consist of an active public/private partnership representative of both the target audiences and the partnering agencies and organizations that are concerned about water resource protection, sustainable land use and environmental stewardship. The steering committee members will meet twice each year and communicate as needed via phone and email with project staff.

### 2. Conduct needs assessment of target audience; Year 1.

In year one of the project, we will conduct a needs assessment that will serve to identify the barriers and benefits to adoption of BMPs by our target audience, including the pool of interested 4-H volunteers. We will utilize focus groups and mail surveys as the two evaluation tools to conduct the needs assessment. We will conduct three targeted focus groups in the state with 8 – 12 target audience members in each group (held in Northern, Eastern, and Southern, RI). Focus group members will consist primarily of 4-H volunteers but may include target audience members from other affiliated organizations such as Future Farmers of America. The second phase of our needs assessment will be to conduct a mail survey of 4-H animal science club members (leaders, youth and their parents).

We will use the results of both the focus groups and the mail surveys in combination with the expert knowledge represented on the project steering committee to develop the final content of the adoption-outreach educational plan.

### 3. Pilot existing small acreage livestock fact sheet and self-assessment worksheet series with first year URI animal science students; Year 1.

While the steering committee is being convened and the needs assessment process is being initiated, the existing small acreage livestock fact sheet and self-assessment worksheet series entitled *Livestock on Small Acreages: Protecting Water Resources and Health* will be assigned to approximately 40 first year students majoring in Animal Science as part of their coursework. This will provide project staff with an initial indication of the fact sheet and self-assessment series' effectiveness and ease in readability and use. Demonstration sites will include the existing URI CE Healthy Landscapes Program small acreage livestock site in North Kingstown, the URI Peckham Farm, and other sites that will be identified by the steering committee.



4. Develop, refine, and deliver a pilot training program for 4-H volunteers and other affiliated organizations; End of Year 1 – Year 3.

Based on the results of the needs assessment and pilot use of the existing fact sheet and self-assessment series, we will develop an adoption-outreach Extension education program. The volunteer training program will consist of 2 phases. The first phase will focus on training and educating 4-H volunteer teams about the issues, how to use the fact sheet and self-assessment series to identify pollution and health risks, and choose appropriate BMPs that address the risks. Each volunteer team will deliver two workshop presentations, which may either be an indoor presentation or an outdoor session held at a small acreage livestock property by the end of year two. During phase 2, we will assess the effectiveness of our phase 1 training program and initial education and outreach delivery, and revise educational materials, delivery format, and provide additional volunteer team training as needed. 4-H volunteer teams will commit to a minimum of three additional educational activities that may include an indoor presentation, an outdoor site visit, staffing a display at an event, or other educational activity that serves the target audience, totaling a minimum of 20 hours each by the end of year three. In addition to indoor and outdoor workshops conducted during the phase 1 and phase 2 training programs, educational and outreach materials will be distributed through a number of events and channels.

5. Use on-going evaluation plan and steering committee meetings to refine and enhance program; Year 1 – Year 3.

6. Finalize materials and educational resources; Year 3.

Final and intermediate versions of all materials will be housed on the URI Healthy Landscapes webpage, [www.uri.edu/ce/healthylandscapes](http://www.uri.edu/ce/healthylandscapes). There will be a direct link to the small acreage livestock website from the URI Home\*A\*Syst website, [www.uri.edu/ce/wq](http://www.uri.edu/ce/wq). Links to this website and materials will be added to the URI 4-H website, the Regional and National Water Quality Programs websites, and other appropriate stakeholder websites.

7. Dissemination of results and materials to stakeholders and partners and via the Extension network; Year 1 – Year 3.

Training modules, fact sheets and self-assessment worksheets, video and other appropriate materials will be made available for publishing through the Extension system and other local channels.

In year 3 of the project, we will complete a 30-minute project educational video, which will be shown on cable Cox Educational Television Channel 15. The University of Rhode Island owns six hours per week of programming on the Cox Educational Channel; video will be shown 32 times in various time slots for one year.

## **Expected Results**

### **Project Outputs:**

- 1) Evaluation tools: needs assessment surveys, program evaluation surveys, interview questionnaires
- 2) Volunteer Training Module – Phase 1 & 2
- 3) Project website and posting to Extension system within a water quality Community of Practice once that Community of Practice is developed.
- 4) Adoption-outreach support materials including:
  - Display



- Outreach brochure
  - Fact sheets and self-assessment worksheets
- 5) Development, facilitation, and enhancement of the number of volunteer activities including:
    - Training sessions
    - Speaking events
    - Staffed displays at events and fairs
    - Media outreach opportunities
  - 6) Thirty minute project video

### **Project Outcomes:**

#### Short-term Outcomes:

- 1) Target audience will gain increased awareness and knowledge of water quality risks associated with small acreage livestock activities.
- 2) Project Steering Committee (partners) and target audience will become aware of the tools and resources that exist to identify pollution and health risks to water quality associated with livestock activities.
- 3) Trained volunteers will gain increased knowledge and skills in the topic area and public speaking and leadership.

#### Mid-term Outcomes:

- 1) Using self-assessment tools, audience will be able to identify pollution and health risks to water resources associated with livestock activities on their properties.
- 2) Target audience will consider water quality impacts when making livestock management decisions.
- 3) Target audience will consider adopting at least 1 BMP to reduce pollution and health risks to water resources associated with small acreage livestock activities.
- 4) At least 20 volunteers are trained and equipped to deliver education and outreach about proper livestock management on small acreages for water quality protection.

#### Long-term Outcomes:

- 1) Target audience will adopt BMPs to address identified pollution and health risks to water resources associated with livestock activities on their properties.
- 2) Increased local and regional partnerships.
- 3) Increased protection of community water resources on an individual level.
- 4) Strengthen the Sustainable Landscapes and Agricultural Focus Areas within the New England Region Water Quality Program through enhancing the coordination and development of adoption-outreach program and evaluation tools in the topic.

