

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

Summative Program Evaluation – June 2010

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Abstract

The University of Rhode Island Cooperative Extension (URI CE) Home*A*Syst and 4-H Programs, the URI Department of Fisheries, Animal and Veterinary Sciences and the URI Department of Communication Studies have developed and conducted a train-the-trainer education program for small acreage livestock owners. We have worked primarily with RI 4-H Program volunteers to train and educate the target audience on livestock pollution prevention topics and to encourage the adoption of best management practices (BMPs) that protect water resources and health.

An evaluation plan conducted throughout the Project indicates that Program resources and methods have been effective in increasing knowledge and encouraging the adoption of livestock BMPs among small acreage livestock owners in RI. Direct educational programs on this topic (workshops, clinics, presentations) and the Program fact sheet and self-assessment series have been the most effective in accomplishing these outcomes. Partnering agencies and organizations have also benefited by strengthening their programs through an increase in knowledge and connections and through the use and / or adaptation of Program resources.

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Project Methods

1) At the Project's inception, we developed a logic model to identify and develop Program objectives and outcomes as well as the Project methods and outputs to achieve these goals. An evaluation plan was developed to track Program objectives and outcomes, to monitor the effectiveness of Project methods and outputs, and to provide an overall assessment of Program impacts.

2) We conducted a needs assessment (completed 2007) with the RI 4-H Program by conducting three focus groups and a mail survey that went to 376 4-H households. The purpose of the needs assessment was to:

- Identify gaps in knowledge and existing barriers that limit or prevent the adoption of BMPs.
- Identify potential motivating factors and incentives to encourage adoption of BMPs.
- Develop effective outreach and educational tools and resources.
- Aid in developing the volunteer training program – methods and materials.

3) At the start of the Project we convened a steering committee consisting of an active public / private partnership representative of both the target audience and partnering agencies and organizations. The steering committee provided input and review of Project materials and methods.

4) Throughout the Project, we have conducted education and piloted materials and methods with first year URI Animal and Veterinary Science students (200 total) through classroom training. This included the use and refinement of an existing fact sheet and self-assessment series.

5) November 2008 – January 2009, we conducted a 4-H volunteer training program (9 adults and 6 teens) and administered program evaluations to track Project objectives and effectiveness of materials and methods. Outreach and education were conducted primarily with the RI 4-H program during 2008 to raise awareness of the Program and gather interested volunteers while developing the core training program, and educational and outreach tools and resources. The volunteer training workshop (one day program) consisted of a 2-hour slideshow and groundwater model demonstration, followed by an outdoor training session at URI Peckham Farm in which participants learned how to conduct a site assessment (identify pollution risks and BMPs) using the Program worksheets. Participants were then assigned an independent site assessment using the Program worksheets.

6) February 2009 – present (June 2010), Project staff and trained 4-H volunteers have conducted outreach and education activities through the RI 4-H Program and other livestock organizations such as the RI Sheep Cooperative, RI Raised Livestock Association and RI Conservation Districts. Program evaluations were administered by trained volunteers, where appropriate, to track Project objectives and effectiveness of materials and methods. Program resources are currently being refined and finalized.

Visit the Program website, www.uri.edu/ce/healthylandscapes for more information on the needs assessment, education and outreach tools, resources and methods.

Summative Program Evaluation

The majority of outreach and education with program participants was conducted fall 2007 through fall 2009. A summative program evaluation was developed and administered during spring 2010 to document and summarize Project outcomes. A total of three on-line surveys were developed and administered to the following participants through email and list serv announcements:

- Project steering committee – 10 individuals (5 responded)
- Trained 4-H volunteers – 9 adults and 6 teens (3 adults and 1 teen responded)
- Program Participants – members of the RI 4-H Program and RI Sheep Cooperative (24 adults and 1 teen responded)

Summary of Survey Results

Project steering committee: 10 individuals (5 responded)

Respondents have gained the following new knowledge:

- 100% gained new knowledge about livestock BMPs that reduce pollution risks.
- 60% gained new knowledge about pollution risks associated with livestock.
- 60% gained at least one new partnership or connection with another agency, organization or individual.

Respondents have taken the following actions:

- 100% shared Program information with other colleagues and professionals.
- 80% shared Program information with existing / potential livestock owners.
- 80% used one or more Program resources to enhance their activities or programs.
- 80% are developing or have developed a new program or event related to this topic.
- 60% linked their program websites to the URI Program website.
- 40% adapted one or more Program resources to enhance their activities or programs.

Respondents have used or adapted the following Program resources:

- 100% have used the fact sheet series.
- 80% have used the Program Website.
- 60% have adapted the fact sheet series.
- 40% have used the post cards.
- 40% have used the needs assessment.

Additional benefits that resulted from participation as a Project steering committee member:

“I am able to maximize the time I spend with my clients because rather than walking them through every step I can provide them with the resources and allow them to take ownership over their learning and implementation.”

“Our staff has received training that has benefited them out in the field in working with the farmers on manure assessments.”

“Become more aware of, and have implemented a number of the BMPs developed/advocated by the program on my own farm and continue to share these experiences w/ others and thru my programs.”

“Potential new partnerships”

Additional comments about this Program:

“I hope to partner w/ this group in the future to take the results of this work to the "next step.””

It has been a great asset to us and to the farming community. It fills a niche.

I'm so glad you folks did this! It is informing me as a livestock owner and definitely enriching my work with livestock owners . . . particularly my beginning livestock producers.

Trained 4-H program volunteers: 9 adults and 6 teens (3 adults and 1 teen responded)

Livestock ownership:

- 100% of respondents have livestock at home.

100% of respondents have gained the following new knowledge:

- The common pollution risks associated with livestock.
- How to identify common pollution risks on their property or another property (should they exist).
- How to identify practices that can reduce or minimize pollution risks associated with livestock.

100% of respondents have taken the following actions:

- Viewed the program website.
 - Shared Program information with other existing / potential animal owners.
 - Read at least one of the Program fact sheets.
 - Used the Program worksheet to assess / plan for manure storage.
 - Identified at least one new practice they would like to adopt.
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- 75% of respondents used the Program worksheet to assess / plan for livestock yard management.
 - 75% of respondents adopted at least one new practice.
 - 50% of respondents shared Program information with other animal professionals.

The following practices have been adopted by respondents:

- 75% installed a compost system.
- 50% had well water tested.
- 50% renovated an existing pasture.
- 25% lined a manure pile with a tarp or plastic liner.
- 25% installed fencing to improve rotation of animals through a livestock yard and / or pasture.
- 25% improved off-farm manure recycling – located people and places to take manure.

The main reason(s) for adopting a practice(s):

- 75% Improve / maintain property appearance.
- 50% Protect animal health and well-being.
- 50% Protect other surrounding water resources (pond, stream, coastal water, groundwater, etc.)

If considering the adoption of at least one new practice, what ONE factor is most limiting:

- 100% Cost.

Volunteer experience:

- 100% of respondents volunteered time on educational and outreach activities for this Program.

Regarding the volunteer training program and associated volunteer activities, 100% of respondents strongly agreed or agreed that:

- They felt comfortable with their level of knowledge on the subject matter.
 - The subject matter is important and relevant for livestock and horse owners.
 - The subject matter is interesting to them.
 - They felt comfortable with their ability to conduct education and outreach activities.
 - The training workshop and Program staff support were adequate.
 - The Program materials and tools available were adequate.
 - The methods and format for accessing materials and interacting with Program staff were easy and appropriate.
 - They simply lacked the time to volunteer with this Program (while interested in the Program, they were unable to devote as many hours as intended).
 - Training volunteers is an effective way to conduct education and outreach on this topic.
- 75% of respondents would be interested in conducting education and outreach on this topic in the future.

Additional benefits that resulted from participation as a trained volunteer:

- 50% indicated an improvement in public presentation skills.
- 50% gained at least one new partnership or connection with an agency, organization or individual (other than Program staff).
- 25% indicated an improvement in organizational skills.
- 25% participated in at least one other new program, event or course related to this topic.

Additional comments about this program:

“Wonderful program, wonderful program staff!”

Program Participants: Members of the RI 4-H Program and RI Sheep Cooperative: (24 adults and 1 teen responded)

Respondents learned about the Program through the following ways:

- 40% through RI 4-H Program Event (meeting, workshop, clinic, etc.)
- 36% through RI 4-H Program Mailing or Email (list serv announcements, etc.).
- 12% through Livestock Organization Newsletter.
- 12% through Livestock Organization Event.
- 12% through other public events (local fairs, etc.)
- 4% through Program Website
- 4% through word of mouth

Livestock ownership:

- 88% of respondents have livestock at home.
- 8% of respondents keep animals at another property.
- 8% of respondents do not have livestock at this time.

It should be noted that some respondents' exposure to the Program was limited to a livestock organization newsletter article, informational mailing, or other public event where detailed information about the subject matter was not presented. 40% of respondents indicated that one of the ways they learned about the Program was through a RI 4-H Program event (meeting, workshop, clinic, etc.) in which education on the subject matter was conducted. The survey summary will contain results for both the overall response, as well as those respondents who attended a RI 4-H Program event. This will be done for comparison purposes where appropriate.

Overall, respondents gained the following new knowledge:

- 68% on the common pollution risks associated with livestock.
- 36% on how to identify common pollution risks on their or another property (should they exist).
- 64% on how to identify practices that can reduce or minimize pollution risks associated with livestock.

The respondents who attended a RI 4-H Program event (40%) gained the following new knowledge:

- 89% on the common pollution risks associated with livestock.
- 56% on how to identify common pollution risks on their or another property (should they exist).
- 78% on how to identify practices that can reduce or minimize pollution risks associated with livestock.

This comparison shows a correlation with direct educational program events on this topic and an increase in gaining new knowledge.

Overall, respondents took the following actions:

- 70% read at least one of the Program fact sheets.
- 35% identified at least one new practice they would like to adopt.
- 30% viewed the Program website.
- 30% shared Program information with other existing / potential animal owners.
- 13% adopted at least one new practice.

The respondents who attended a RI 4-H Program event (40%) took the following actions:

78% read at least one of the Program fact sheets.

56% identified at least one new practice they would like to adopt.

22% viewed the Program website.

33% shared Program information with other existing / potential animal owners.

22% adopted at least one new practice.

This comparison shows a correlation with direct educational program events on this topic and an increase in the identification and adoption of new practices.

There is also a correlation with respondents who have read at least one of the Program fact sheets and the gaining of new knowledge. Overall, 70% of respondents read at least one of the Program fact sheets.

The respondents who read at least one of the Program fact sheets (70%) gained the following new knowledge:

- 87% gained knowledge on the common pollution risks associated with livestock.

- 88% gained knowledge on how to identify common pollution risks on their or another property (should they exist).

- 64% gained knowledge on how to identify practices that can reduce or minimize pollution risks associated with livestock.

Another comparison shows that 100% of the respondents who adopted a new practice also read at least one of the Program fact sheets.

An evaluation of the fact sheet series was conducted with trained 4-H volunteers in 2009 and a summary of that evaluation is provided in the conclusion.

A summary of program evaluations that were conducted immediately following the volunteer training program and other educational workshops on this topic is also provided in the conclusion.

Overall, the following practices have been adopted by respondents:

- 29% moved a manure pile to a safer location.

- 29% installed fencing to improve rotation of animals through a livestock yard and / or pasture.

- 17% installed a compost system.

- 17% had well water tested.

Other installed practices (4%-8%) include:

- Covered a manure pile with tarp or plastic liner.

- Lined a manure pile with tarp or plastic liner.

- Installed a manure storage structure (concrete floor, wooden or concrete walls, roof or secure covering).

- Installed fencing to improve buffer between animals and a water resource.

- Renovated an existing pasture.

- Installed roof runoff control.

- Installed surface runoff control (berms, water diversions, etc.).

- Improved on-farm manure recycling – soil testing, manure testing, etc.

- Improved off-farm manure recycling – located people and places to take manure.

The main reason(s) for adopting a practice(s):

- 57% Protect animal health and well-being.
- 52% Improve / maintain property appearance.
- 48% Be a good neighbor.

If considering the adoption of at least one new practice, what ONE factor is most limiting:

- 32% Cost.
- 18% Labor needed.
- 14% Time needed.

Additional comments about this Program:

“I think this is a good resource for any youth/adult with animals or planning to get animals.”

Conclusion

Project Steering Committee

The survey results indicate several positive outcomes with regards to connections that have been made and strengthening of partner programs through new knowledge gained and through the use and sharing of Program resources. Overall, project steering committee members responded that this Program has helped to fill a gap and provide valuable resources and training now and into the future.

Trained 4-H Program Volunteers

The survey results indicate several positive outcomes with regards to gaining new knowledge, identification and adoption of new practices (100% of respondents have livestock at home), as well as, effectiveness of the Program training methods and resources. The biggest challenge faced with this Program and group of volunteers was limited time to devote to volunteer education and outreach around this topic and for this Program. This includes participating in program evaluations. However; trained volunteers still indicated a strong interest in the topic and Program, agreed that the training workshop, methods and resources were adequate, and 75% of respondents indicated an interest in continuing with volunteer education and outreach on this topic in the future.

With regards to gaining new knowledge, and identifying and adopting new practices at home, the volunteer training program resulted in very positive outcomes. 100% of respondents gained new knowledge and identified at least one new practice that they wished to adopt, and 75% of respondents did adopt at least one new practice. Cost was identified as the one factor that is most limiting in adopting a new practice.

Program Participants: Members of the RI 4-H Program and RI Sheep Cooperative

Education and outreach was conducted, primarily, with RI 4-H Program members as well as other livestock organizations such as the RI Sheep Cooperative, the RI Raised Livestock Association, and the Santana Center (an equine education and outreach organization). Activities may have included direct education on this topic through focused workshops and clinics, or may have been limited to newsletter

articles, direct mailings, attending local fairs and events with the public education display, etc. The summative evaluation was conducted with RI 4-H Program and RI Sheep Cooperative members through email and list serv announcements. There is a mix of respondents that received various levels of education and outreach over the past two years.

With regards to gaining new knowledge, two factors yielded the highest results which include: 1) respondent attended a direct educational program event on this topic and 2) respondent read at least one of the Program fact sheets.

The respondents who attended a RI 4-H Program event (40%) gained the following new knowledge:

- 89% on the common pollution risks associated with livestock.
- 56% on how to identify common pollution risks on their or another property (should they exist).
- 78% on how to identify practices that can reduce or minimize pollution risks associated with livestock.

The respondents who read at least one of the Program fact sheets (70%) gained the following new knowledge:

- 87% gained knowledge on the common pollution risks associated with livestock.
- 88% gained knowledge on how to identify common pollution risks on their or another property (should they exist).
- 64% gained knowledge on how to identify practices that can reduce or minimize pollution risks associated with livestock.

A similar comparison shows an increase in various actions, including identifying and adopting new practices at home, among respondents who attended a direct educational program event on this topic.

The respondents who attended a RI 4-H Program event (40%) took the following actions:

- 78% read at least one of the Program fact sheets.
- 56% identified at least one new practice they would like to adopt.
- 22% viewed the Program website.
- 33% shared Program information with other existing / potential animal owners.
- 22% adopted at least one new practice.

Another comparison shows that 100% of the respondents who adopted a new practice also read at least one of the Program fact sheets.

Cost was identified as the biggest limiting factor in adopting a new practice.

The following is a summary of program evaluations administered to trained 4-H volunteers and other program participants who attended an educational workshop on this topic (fall 2008 – spring 2009). The program evaluations were administered immediately following the workshops.

Program Evaluation Summary – educational workshops conducted fall 2008 – spring 2009

- 87% of trained volunteers (100% adults) gained knowledge about hydrology, the water cycle, and the interaction between watersheds and aquifers.
- 100% of trained volunteers and 89% of program participants (100% adults) gained knowledge about pollution & health risks associated with livestock.

- 93% of trained volunteers (100% adults) and 89% of program participants (100% adults) are capable of identifying pollution & health risks on their property.
- 93% of trained volunteers (100% adults) and 89% of program participants (100% adults) are capable of identifying BMPs to reduce pollution & health risks.
- 100% of trained volunteers and program participants are considering the adoption of at least one BMP to reduce pollution & health risks.

The following is a summary of an evaluation that was conducted with trained 4-H volunteers on the Program fact sheet series. 67% of trained volunteers completed an independent site assessment and evaluation using the Program fact sheet and worksheet series during 2009.

Fact Sheet and Self-Assessment Series Evaluation Summary – Key Points

Of the adult trained 4-H program volunteers (67%) that completed an independent site assessment and evaluation, 100% agree that:

- The series is easy to read, understand and complete.
- The series is effective in identifying some pollution risks associated with livestock and horses, in general, and on their farms.
- The series provides appropriate solutions (BMPs) for small acreage livestock owners, in general, and for their farms.
- They would recommend the series to other livestock and horse owners in Rhode Island.
- Livestock and horse owners in Rhode Island would adopt best management practices if they were aware of and used the series.

In conclusion, Program resources and methods have been effective in increasing knowledge and encouraging the adoption of livestock BMPs among small acreage livestock owners in RI. Direct educational programs on this topic and the Program fact sheet series have been the most effective in accomplishing these outcomes. Partnering agencies and organizations have also benefited by strengthening their programs through an increase in knowledge and connections and through the use and / or adaptation of Program resources.