

PROJECT OVERVIEW

Need

With 4,604 livestock projects enrolled in Utah 4-H and increased urban participation, the space between 4-H animal science projects and humans continues to decrease. In 2012, concentrated animal feeding operations (CAFO) containing livestock and poultry produced thirteen times more waste than the entire human population. As youth continue to engage in animal science projects, and Utah’s population continues to grow, the need for livestock waste management education will be critical to ensure waterways remain clean, and air free of pollution. To address this need Utah State University Extension targeted nine counties providing workshops that reached 316 people, with a mixed youth and adult audience. Workshops aim to educate youth and adults about impacts that animal science projects can have on water quality, and how to properly manage waste for those projects.



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MATERIALS & METHODS

Delivery

To increase participation, waste management workshops were incorporated into ongoing events such as nutritional clinics, state contests, showmanship workshops, etc. Workshops lasted for one and a half hours, and consisted of both a presentation portion and a hands-on activity.

Presentation

The presentation portion of workshops were delivered via PowerPoint when possible, and on poster when resources were unavailable. Topics included: Amount of waste produced by livestock, average housing proximity to humans, EPA regulations, Relationships between waste management & water quality, and the most common methods of waste contamination. After completion of the presentation, youth and adults were given a worksheet that contained 2-3 fictitious scenarios to work through.

Hands-on Activity

When time and space allowed watershed models from Envirosapes were used to visually teach youth and adults about animal waste management. The Enviroscape model is a plastic rendition of a sub-rural community with homes, a golf course, farmland, and ranches. Foodstuffs such as sprinkles, soy sauce, and food coloring were used to simulate fertilizer, oil, and animal waste. Youth volunteers were asked to be farmers, mechanics, or a youth raising livestock projects and given the contaminants to place on their parts of the model. A spray bottle filled with water was used to simulate a rainstorm. This activity showed youth how a pollutant in one area could enter a watershed and quickly spread to multiple water sources.

RESULTS

Livestock Waste Management and Water Quality Youth Education Evaluation Results			
Participants		Total Participants	
Youth (Age 8-18)	Adults (Age 19+)	316	
249	67		
Before today's workshop, my knowledge of livestock/horse waste management was.			
Very Poor	Poor	Fair	Good or Very Good
15%	25%	30%	29%
How effective has this workshop been to increase your knowledge about how to manage livestock waste for better water quality?			
Not Useful At All	Not Very Useful	Somewhat Useful	Very Useful
1%	6%	25%	68%
Would you agree that your views on water quality and waste management have changed because you attended this workshop?			
Strongly Disagree	Disagree	Agree	Strongly Agree
1%	3%	48%	48%
How likely are you to use one of the techniques presented today to prevent water pollution with your livestock/horse projects?			
Not Likely At All	Not Very Likely	Somewhat Likely	Very Likely
3%	2%	52%	43%

Results (Figure 1)

Post-Evaluation results for the Livestock Waste Management and Water Quality Youth Education workshops. There were 316 participants with 67 adults and 249 youth (ages 8-18).

CONCLUSION

The completion of the livestock waste management and water quality youth education program showed that both youth and adults were lacking in basic knowledge regarding waste management and water quality. Though a small number seemed unconcerned, a significant number of individuals showed that they gained more knowledge about waste management from these workshops. Many also showed that their views about waste management and water quality had changed due to this program. However, our evaluations also revealed that there is a large need for livestock waste management education needed throughout the State and across multiple agricultural audiences. Grant money for this program was provided through the Utah Division of Water Quality. After viewing the success of this program, the Utah Division of Water Quality invited Utah State University Extension to apply for a grant to create an education model for 4-H youth and small farm producers. The grant would provide funds to help educate smaller agriculture operations on water quality, as well as provide support funds for 4-H youth and producers to make needed facility changes to improve water quality.