



# Professional Development for Extension Professionals and Educators on Land Use and Management Practice to Enhance Water Quality

## PROJECT PARTNERS



## Background

Escherichia coli (E. coli) is the leading cause of impairment to surface water throughout the plains states. The primary source of this impairment is non-point source pollution from livestock grazing and livestock feeding and handling operations. Other common sources of impairment that have been linked to livestock production include fecal coliform, excess nutrients and eutrophication.




Best management practices for 1) nutrient and manure management and 2) land use practices within watersheds that enhance water quality are well documented. Extension professionals are well positioned to expand awareness and adoption of these practices by farmers, ranchers, and agricultural advisors.

## Goals

The overall goal of this project was to empower Extension and tribal college professionals and educators to conduct programs and course work on nutrient and manure management and land use within riparian ecosystems, increasing the awareness of producers and students in these topic areas.

## Specific goals included:




Increase Awareness, Knowledge and Technical Expertise in Extension and Tribal College Professionals and Technical Service Providers on:

-  1. Potential issues regarding riparian ecosystems.
-  2. Potential issues regarding nutrient and manure management.
-  3. Curriculum development for proper management of riparian ecosystems and responsible use of nutrients for crop production.

## Addressing the Challenge

The project team developed a riparian land use curriculum for the Northern Great Plains and held two in-service trainings – one in North Dakota and one in South Dakota. Each in-service brought together professionals throughout the region for 2 full days with half of the in-service allocated to each of the topic areas.

## Each in-service included:

-  Classroom component
-  Hands-on technical component
-  Wrap-up discussion

The technical training portion of the in-service was used to demonstrate assessment methods and sampling techniques and exhibit management practices.

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This hands-on training actively engaged participants and project partners resulting in co-learning and co-discovery of new knowledge. Program participants developed technical skills and knowledge, and enhanced their ability to develop innovative solutions for the management of livestock and the enhancement of water quality.

Upon completion of the in-service, participants were supplied with curriculum on the topics covered to use in their Extension programs and other educational outreach efforts. The in-service and curriculum has empowered Extension professionals, educators, and technical service providers to conduct programs and course work on nutrient and manure management and land use within riparian ecosystems, with the goal of increasing the awareness of producers and students on the topic in order to create long-term changes in land management and water quality.

## Program Outcomes and Impacts

Participants increased their knowledge in all topic areas that were covered by the project in-service trainings. Specifically, more than 40% of attendees increased their understanding of each of the manure and nutrient management topics “a large extent”.

Post-training surveys indicated that 89.2% of respondents developed new connections with land management experts and 41.2% of survey respondents reported consulting an expert they connected with at the training two months after the event.

In addition, survey respondents estimated reaching 1,200 clients with the knowledge they gained through the in-service in the two months following the trainings.

## RESOURCES

To access the below resources please visit:  
[www.northcentralwater.org/landuse](http://www.northcentralwater.org/landuse)

- Data Forms
- North Dakota Field Site
- Nutrient and Manure Management Handouts
- Riparian Ecosystem Handouts
- PowerPoint Presentations

## CONTACT

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## Participant Feedback

“Utilizing the knowledge and skills obtained at the land use/water quality training, I am able to provide landowners/producers with better technical and financial assistance through the implementation of best management practices.”

“[The knowledge I gained on] water quality & riparian [ecosystems] has been shared with over 400 elementary and 8th graders during Conservation Days.”

“I have added content to my college class relative to spreader calibration and regulations.”

The North Central Region Water Network comprises 12 Land-grant colleges and universities:

