

## Land Use of Riparian Ecosystems in the Northern Great Plains: Empowering our Educators

### The Situation

Escherichia coli, fecal coliforms, excess nutrients and eutrophication have been identified as the leading causes of impairment to surface water throughout the Great Plains Region. The leading source of this impairment has been identified as non-point source pollution from livestock grazing and livestock feeding and handling operations. Best management practices have been identified for 1) land use practices within riparian ecosystems and 2) nutrient and manure management that enhance water quality. However, Extension professionals and educators lack the knowledge, technical skills and curriculum to confidently provide programs in these areas.

### Extension Response

A program was developed providing technical in-service training and program curriculum on 1) land use of riparian ecosystems and 2) manure and nutrient management for Extension Personnel, educators and technical service providers within the Great Plains Region. The program team developed 12 presentations, a classroom activity, 5 field demonstrations and supplemental aids which were provided to the 48 training participants from 4 states. Two in-service trainings held in Sioux Falls, SD and Bismarck, ND, were organized providing technical in-service training and program curriculum. Results of the training were shared with 18 Extension Educators in the North Central Region during a webinar.

### Impacts

#### Riparian Management:

- Participants (34) increased their knowledge of riparian ecosystems, management and assessment by more than 45%.
- Participants (34) reported a 46% increase in confidence in communicating about riparian ecosystem and management.
- 61% of follow-up survey respondents (18) have incorporated the riparian ecosystems curriculum and technical skills into their outreach and programming efforts.

#### Nutrient Management:

- Participants (37) increased their knowledge of nutrient and manure management, marketing, regulations, composting, and application by more than 40%.
- Participants (37) reported a 48% increase in their confidence in communicating about nutrient and manure management.
- 63% of follow-up survey respondents (19) have incorporated nutrient and manure management curriculum and technical skills into their outreach and programming efforts.

Workshop follow-up survey respondents have estimated reaching an estimated 1,200 clients in the 2-month period since the trainings.

### 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.” - Environmental Program Manager, Red River Regional Council, NDSU Workshop*

- “Water quality & riparian has been shared with over 400 elementary and 8th graders during Conservation Days.” - Extension Educator, UNL, SDSU/UNL Workshop
- “I have added content to my college class relative to spreader calibration and regulations.” - Professor, UNL, SDSU/UNL Workshop

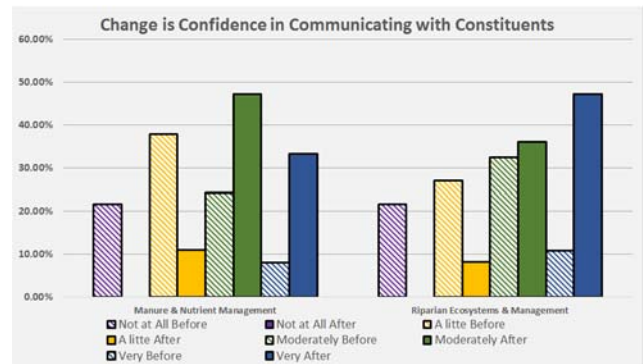
## Public Value Statement

Providing proper training to our Extension educators and professionals empowers them to offer programs and technical assistance to land managers in the short-term and may help lead to improvements in water quality in the future.

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## Non-Extension Collaborators

Bowman-Slope Soil Conservation District  
Burleigh County Soil Conservation District  
East Dakota Water Development District  
North Central Region Water Network  
North Dakota Game & Fish Department  
Nutrient Advisors  
USDA, Agriculture Research Service  
USDA, Natural Resource Conservation Service  
Wild Rice Soil Conservation District

## Resource Links

- <http://northcentralwater.org/professional-development-for-extension-professionals-and-educators-on-land-use-and-management-practice-to-enhance-water-quality-2/>
- <https://www.youtube.com/watch?v=67RqYt04CBw>