

**SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM
WATERSHED PROJECT FINAL REPORT**

**NORTH DAKOTA STOCKMEN'S ASSOCIATION
ENVIRONMENTAL SERVICES PROGRAM PHASE VI**

BY

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December 31, 2022

This project was conducted in cooperation with the North Dakota Department of Environmental Quality and the United States Environmental Protection Agency, Region 8.

Grant # 00863320

EXECUTIVE SUMMARY

PROJECT TITLE – NORTH DAKOTA STOCKMEN’S ASSOCIATION
ENVIRONMENTAL SERVICES PROGRAM PHASE VI

PROJECT START DATE – November 1, 2020

PROJECT COMPLETION DATE – December 31, 2022

FUNDING:

FY20 SECTION 319 FUNDING - \$618,750

SPONSOR MATCH - \$106,247

PRODUCER MATCH - \$306,252

TOTAL NON-FEDERAL MATCH - \$412,500

TOTAL EXPENDITURES - \$1,031,250

SUMMARY ACCOMPLISHMENTS

The ND Stockmen's Association Environmental Services Program mission is to “Serve Stockmen – Enrich the Environment.” North Dakota cattle producers voluntarily participate in this confidential, obligation - free program. Through the work of the ND Stockmen’s Association Environmental Services Program 3,396 head of beef cattle are now being confined and fed in permitted facilities over the reporting period. These permitted feedlots have reduced annual concentrations of nutrient loading for nitrogen and phosphorus by 79% based on the ND Animal Feedlot Runoff Risk Index Worksheet (AFRRIW). Specifically, the nitrogen load was reduced by 35,929 lbs. and subsequently the phosphorus loading was reduced by 17,252 lbs.

The ND Stockmen's Association Environmental Services Program works with producers to create solutions for environmental concerns through management and structural improvements. While the solutions are designed to enrich the environment, the Environmental Services Program is conscientious that the beef operations be productive and profitable. The project benefits are two-fold, the beef producer, and the environment both win when a needed animal waste system is constructed and properly maintained. The program offered for the beef cattle industry in ND was well received by beef cattle producers and regulators.

1.0 INTRODUCTION

With 295 public lakes and over 56,000 miles of rivers and streams, the need for projects that protect and improve water quality is of great importance. The major goal of the ND Stockmen's Association (NDSA) Environmental Services Program (ESP) is to establish and maintain a statewide program that would reduce potential water and air quality impairments associated with livestock concentrated feeding areas. This is being accomplished by increasing producer's understanding of the state and federal rules and regulations and assisting them with the identification and implementation of cost-effective solutions that will improve manure management.

The NDSA has been a leader in promoting Best Management Practices (BMP's) while addressing air and water quality concerns on animal feeding operations (AFO's). Participating beef producers coordinate with ESP to voluntarily incorporate their best management practices, and techniques to improve their feeding facilities and better utilize manure. The primary goal of the ESP is to reduce the potential water quality impairments (nitrogen and phosphorus loadings) associated with concentrated animal feeding operations.

Most of the ESP's focus is on one-on-one producer contacts. The NDSA Board of Directors established a process to schedule the delivery of technical and financial assistance to beef producers. The evaluation criteria focus on those beef cattle operations that may be viewed as contributing to an environmental problem based on location and size up to 1,000 animals. The actual site is assessed by the environmental services director to make a preliminary evaluation of potential problems and compile solutions. Through our annual tours and exchange of information opportunities, rancher-to-rancher links were established to demonstrate that solutions are available, and an extreme effort was made to accomplish a practice in a least-cost fashion. Through this voluntary program, the NDSA offers a resource to cattlemen, providing site-specific advice on managing concentrated animal feeding areas.

For the project period in Phase VI the NDSA environmental services director has been invited to seventeen beef cattle operations across the state to assess individual AFO's and to see how those operations fit into the state and federal regulations. From those ranch assessments, four NDSA Stewardship Support Program contracts have been developed for cost - share assistance on installation of animal waste systems. Cost - share was for construction of BMP's or for engineering assistance.

2.0 PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

2.1 PLANNED AND ACTUAL MILESTONES, PRODUCT, AND COMPLETION DATES

Goal: Establish and maintain a statewide program that will reduce potential air and water quality impairments associated with livestock concentration areas, by increasing producer's understanding of the rules and regulations and assisting them with the

identification and implementation of cost-effective solutions that will improve manure management. Producers will voluntarily incorporate management practices and techniques, improve facilities, and increase utilization of manure as a valuable resource.

Objective 1: Increase producer awareness and understanding of rules and regulations addressing manure management, as well as potential solutions to air and water quality impacts associated with their livestock facilities.

Task 1. Employ an environmental services director to deliver the program and complete project tasks.

Product: Environmental Services Director

COMPLETED: *The Environmental Services Director was hired in February 2002, and has been promoting the Environmental Services Program on a statewide basis, including the NDSA Stewardship Support Program and the USDA-NRCS Environmental Quality Incentive Program for addressing livestock waste and promoting air and water quality benefits.*

Task 2. Disseminate information on the compliance requirements and potential penalties associated with rules and regulations focusing on manure management in the state.

Product: Direct mailings, 25 contacts/year, 11 articles, 5 public presentations and 1 tour.

ON SCHEDULE: *The Environmental Services Director has been involved in numerous public presentations around the state. The director was also involved in developing the successful North Dakota Stockmen's Association Feedlot tour of permitted animal feeding operations in North Dakota. In addition, the director is the author of a monthly column for the Stockman magazine. Stockman magazine reaches over 3,100 cattle producers monthly.*

Task 3. Assist producers with evaluations and assessments of their facilities to identify potential water quality concerns and the type of BMP that could be implemented to improve their current feeding operations and downstream water quality.

Product: 25 one-on-one self-evaluations and assessments per year.

BEHIND SCHEDULE: *17 ranches have been assessed during the reporting period. Every assessment is complete with inventory, evaluation, and conservation recommendations. Of the ranches that have been assessed. Some are still working on construction; some are finding the necessary finances for construction, and some are already in compliance.*

Task 4. Promote the voluntary implementation of BMP designed to improve manure management within concentration livestock feeding areas.

Product: 50 contacts per year. Site-specific BMP recommendations based on the ranch assessments.

BEHIND SCHEDULE: *After completion of ranch assessments, recommendations are provided to producers if concerns are identified including recommendations on how each livestock operation fits in with state and federal livestock waste regulations. In addition, if the producer is interested in addressing the concerns, the environmental services director identifies necessary cost - share, finds engineering assistance and completes the necessary paperwork for the permitting process.*

Task 5. Provide cooperating producers with preliminary cost estimates for recommended BMP and potential sources for financial assistance.

Product: List of private/local/state/federal funding sources for manure management systems and 3 site-specific cost estimates per year.

ON SCHEDULE: *The Environmental Services Director has provided 6 site - specific cost estimates. Those operations that the director found in compliance were not provided with a cost-estimate. Unfortunately, some operations do not follow through with planned designs after cost estimates are completed for various reasons.*

Objective 2: Provide financial and technical assistance to support the voluntary installation of 12 manure management systems.

Task 6. Coordinate with the NDSA Board of Directors to establish a prioritization process for the delivery of financial and technical assistance for the installation of manure management systems. It will be consistent with the statewide prioritization process.

Product: Identify 4 priority AFO's per year.

BEHIND SCHEDULE: *There are currently 4 beef operations that have installed manure management systems. The NDSA Board of Directors or Executive Committee approves all contracts. The contracts are approved with the aid of an assessment prioritization worksheet. The board has also set a maximum dollar amount of \$210,000 for cost-share.*

Task 7. Provide technical assistance for the development of manure management plans for priority facilities and the acquisition of engineering assistance to complete construction designs. Potential sources for engineering assistance include NRCS, NPS BMP Team or private consultants.

Product: Five system designs per year.

BEHIND SCHEDULE: *To date, 3 systems are in the design phase for next year's construction season with the ND Stockmen's Association Stewardship Support Program. The current funding sources that are available are not at the level they used to be. Therefore, I am finding out that five system designs per year are unattainable.*

Task 8. Provide Section 319 financial assistance available through the NDSA project and/or assist the producer in applying for other state and federal funds to install the priority manure management systems.

Product: Three systems installed per year.

BEHIND SCHEDULE: *The NDSA Stewardship Support Program has installed 4 systems during the reporting period. Two systems were constructed in 2021 and two systems were constructed in 2022.*

Task 9. Complete annual project reports according to the Environmental Protection Agency and North Dakota Department of Environmental Quality requirements.

ON SCHEDULE: *Annual Project Reports have been completed according to the EPA and NDDEQ requirements.*

- Completed Annual Project Report on October 1, 2021

2.2 EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN

The goal of the NDSA ESP is to establish and maintain a statewide program that will reduce potential water quality impairments associated with livestock concentration areas by increasing producer understanding of the current rules and regulations and assisting them with the identification and implementation of cost-effective solutions that will improve manure management. Producers will voluntarily incorporate management techniques and improve facilities and increase utilization of manure as a valuable resource. These activities are assisting the state in addressing e coli bacteria concentrates in the states impaired waters.

3.0 BEST MANAGEMENT PRACTICES DEVELOPED AND/OR REVISED

Under this reporting period 3,396 head of beef cattle are now being confined and fed in permitted facilities over the reporting period, through the SSP.

4.0 MONITORING RESULTS

The BMP's, such as clean water diversion, containment basin and nutrient management plans, were utilized to accomplish a load reduction of many critical nutrients. These reductions were accomplished through the NDSA Stewardship Support Program and USDA Environmental Quality Incentive Program contracts. These permitted feedlots constructed in Phase VI have reduced annual concentrations of nutrient loading for nitrogen and phosphorus by 79% based on the ND Animal Feedlot Runoff Risk Index Worksheet (AFRRIW). Specifically, the nitrogen load was reduced by 35,929 lbs. and subsequently the phosphorus loading was reduced by 17,252 lbs.

5.0 COORDINATION EFFORTS

5.1 COORDINATION FROM OTHER STATE AGENCIES

The NDSA ESP has developed a professional working relationship with many state agencies including the ND Department of Environmental Quality – who administers the 319 funding program, ND Department of Agriculture – who is charged at creating a healthy livestock industry, ND Water Commission – who provides funds for engineering to aid in the developing of animal waste systems, ND State University – who provides the expertise on beef cattle issues, ND Extension Service – who provides the expertise on research and education on beef cattle and the ND Soil Conservation Districts – who provide local technical and financial support to beef cattle producers.

5.2 OTHER STATE ENVIRONMENTAL PROGRAM COORDINATION

The NDSA ESP has been a cooperator with the ND Department of Agriculture Livestock Pollution Prevention Program, BMP engineering team and active 319 watershed projects. The NDSA interacts with these groups in developing a more environmentally friendly beef cattle industry in ND. These groups help in designing and constructing animal feeding operations.

5.3 FEDERAL COORDINATION

The NDSA ESP has developed a professional working relationship with federal agencies including the US Department of Agriculture Natural Resources Conservation Service, through the Environmental Quality Incentive Program.

5.4 USDA PROGRAMS

The NDSA ESP provides technical support for planning and installation of animal waste systems fully funded through EQIP. Technical support includes completing assessments and explaining the EQIP cost share program to potential contract holders in addition to following up with a contract holder during and after the project is completed.

5.5 ACCOMPLISHMENTS OF AGENCY COORDINATION MEETINGS

The NDSA Environmental Services Director worked closely with the NDSU Extension Livestock Environmental Management Advisory Committee. The NDSA Environmental Services Director was appointed to this advisory committee to give direction and coordinate efforts.

This committee is made up of the following organizations: ND Grazing Lands Coalition, ND Soybean Council, Natural Resources Conservation Services, ND Department of Environmental Quality, ND Soil Conservation Districts, ND Stockmen's Association, ND Agricultural Department, ND Pork Producers, ND Lamb and Wool Producers, NDSU Extension Service, Dickinson Research Extension Center, Carrington Research Extension Center.

This committee meets annually to 1) provide overall program direction to the NDSU Extension Livestock Waste program, 2) identify additional research needs in this area, and 3) provide a conduit for effective communications and coordination among livestock groups and agencies working with livestock waste management. In addition, the ND Stockmen's Association is a valued partner on the ND non-point source task force and NRCS state technical committee.

5.6 RESOURCE/COORDINATION FROM FEDERAL LAND MANAGEMENT AGENCIES

Not applicable.

5.7 OTHER SOURCES OF FUNDS

Another important aspect and success of the ESP is the ability to locate outside money. The NDSA was successful in getting the 2021 ND Legislature to allocate \$50,000 per biennium to help support project staff on behalf of the North Dakota beef cattle producer. Additionally, \$50,000 were secured from the ND State Water Commission Trust funds to be used to provide engineering assistance for the biennium.

6.0 SUMMMARY OF PUBLIC PARTICIPATION

The NDSA ESP is a statewide program targeting beef producers needing assistance in planning and developing manure management systems. Because of this direct public participation has not been a key factor in the delivery of the NDSA ESP. Instead, through the animal waste systems installed, the public is the primary benefactor of the environmental improvements.

7.0 ASPECTS OF THE PROJECT THAT DID NOT WORK WELL

The only aspect of the ESP that was tough to achieve was the collection of actual data to verify the great work we accomplished. Location, climatic conditions, resource limitations and many other factors generally make it difficult to collect the actual water quality data needed to show the benefits of a completed manure management system. As a result, the NDSA ESP has had to utilize AFRIW, a modeling program on each project as the best alternative for estimating the expected benefits of the systems on the surrounding environment. Actual water quality data would have been better to show the real benefits of the producers' effort per system.

8.0 FUTURE ACTIVITY RECOMMENDATIONS

The NDSA ESP will continue with Phase VII. Phase VII will continue to address air and water quality concerns on animal feeding operations. In addition, the cattle feeding industry in North Dakota is on the verge of significant growth and the need for the NDSA ESP to continue is vital to help those interested beef producers comply with state and federal animal feeding regulations.