NEBRASKA WATER SUSTAINABILITY FUND
2025 ANNUAL REPORT
WSF APPLICATION NO. 10014
LOWER PLATTE NORTH NRD

Developing a Truly Sustainable Solution to Nitrate Contamination in the Drinking Water Supply throughout Lower Platte North NRD

Description of the Project / Annual Report 2025

The Water Sustainability Fund (WSF) grant for the Lower Platte North NRD (LPNNRD) was approved in December 2022 for $388,500 with grant funding of $233,100 as a cost share program along with a hydrogeologic assessment. LPNNRD has a range of management and education requirements for the nitrate phase area. Even with these requirements nitrate contamination continues to increase, threatening the drinking water supplies for both rural and urban residents. The solutions to these problems are input intensive and provide very little economic gain for producers. Without cost share opportunities to offset the cost of the best management practices nitrates in the groundwater will continue to increase. LPNNRD rules and regulations do not allow for the kinds of restrictions regulating fertilizer application and irrigation until a Phase IV area is declared, 50% of wells +15ppm. By this time the level of nitrates in the groundwater will be high enough to constitute an emergency. Decreasing the nitrates in the groundwater supply before they reach this level is a far less expensive option than continuing the current path which will require heavy handed restrictions and the development of treatment facilities to ensure a safe drinking water supply. Treating the root cause of the issue before it becomes an emergency lead to true sustainability of the water resource.

The hydrogeologic assessment will define the bedrock layer, which is the bottom layer of the model grid placed into MODFLOW. The top five layers are derived from AEM (completed in 2021), the sixth layer is derived from the hydrogeologic assessment. The hydrogeologic assessment will also aid the contractor in 'filling gaps' in the AEM flights.

The best management practices that will be offered are Iron Chlorosis – for the purpose of neutralizing the PH so crop rotations can be utilized, Cover Crops – to help in the uptake of residual nitrogen, Fertigation – to allow for split applications of nitrogen, Variable Rate Nitrogen – to allow for nitrogen application on right part of the field when the crop needs it, Gravity to Pivot/SDI conversion – over irrigation can contribute to nitrate leaching, Grid Soil Sampling – to assist in variable rate nitrogen management, Soil Moisture Sensors – to determine when irrigation is needed, and Water Flow Meters – manage the amount of water being pumped.

PROJECT PROGRESS APRIL 2024 TO MARCH 2025:

Cost-share practices continued with public meetings and letter reminders to all the producers in the area. The NRCS has assisted in collecting cost share applications along with signing up producers through their programs. At the present time the NRD has received 200 flow meter cost share applications and had 9 gravity to SDI/pivot conversions. One of the applications was determined to be ineligible by NRCS review. The other applications were not approved because of NRCS funding

issues. Applications have been received for cover crops, soil moisture sensors and iron chlorosis but only 1 cover crop application was approved this year. The NRD did approve 4 applications for chemigation and 2 applications for soil moisture sensors.

At the present time, producers have completed the following:

- Installation of more than 150 flow meters.
- 3 gravity to pivot conversions.
- 2 gravity to SDI systems.
- Cost share on 238 acres of cover crops
    - 1 approved application in 2025
- Utilization of an Iron Chlorosis product on 135 acres
- 4 sites for Chemigation Equipment
- Installation of soil moisture sensors on 2 fields
    - Applications for 4 fields in 2025

Staff have continued to increase education in schools, the community and the local health department. Staff conducted a door-to-door water sampling program for all citizens not receiving water from a community system. This included dual language door hangers to increase awareness.

The completed hydrogeological assessment maps have been useful in public meetings showing the aquifer vulnerability, confined – unconfined aquifers, saturated sands, transmissivity, and development risks. This information allows more accurate information for the Lower Platte Basin modeling effort.

ANTICIPATED ACTIVITIES FROM NOW UNTIL NEXT ANNUAL REPORT DUE APRIL 1, 2026:

The LPNNRD will limit applications for cost share items to flow meters with no more irrigation conversion practices accepted this upcoming year. LPNNRD will increase public outreach to local events and direct mailing of pertinent information. NRD staff will be working with UNL on field days on in-season nitrogen management and the utilization of cover crops.

LIKELIHOOD THAT BENEFITS PROJECTED IN APPLICATION 10014 WILL BE REALIZED:

Some of the best management cost share practices depended on federal funding and with applications not being approved a re-evaluation of these practices will need to be completed. Even with funding concerns the project is on target for achieving the benefits to the LPNNRD as described in the application. If best management practices can be finalized the grant could be completed by the end of 2025.