

Ord Public School third araders pose for a photo during a field trip to the Lower Loup NRD's Agagard Farm.

Educational Events Inspire Natural Resources Appreciation

Educating youth about natural resources is one of the tasks assigned to the Lower Loup NRD's Information and Education department (I&E). The I&E department and other LLNRD staff members worked with more than 2,500 K-12 students in 2023. That number has increased to more than 3,000 for 2024 (so far).

During a two-week span in late April and early May we gave 30 Arbor Day presentations – including nine in one day toward the eastern end of the District in Columbus. The I&E department staff planted trees with several schools, and each of the nearly 750 students who attended our presentations received a free tree seedling of their own.

In June, the LLNRD hosted Adventure Camp About the Environment (ACE Camp). This 4-day, 3-night youth summer camp teaches sixth and seventh graders about water, soil, forestry, wildlife, and more while taking part in fun outdoor activities. Even in Nebraska, there are children who have never hooked a bluegill, waded in a river, shot an arrow at a bullseye, or sat around a campfire with new friends under twinkling stars. ACE Camp provides those experiences while instilling in these youngsters an appreciation for the natural world. After fire devastated the Nebraska State 4-H Camp near

Halsey, ACE Camp moved to a new home – Kamp Kaleo near Burwell.

Other summer educational events included helping with the annual Conservation Day in Ord, presenting a Test Your Water Night event with Palmer High School FFA students. partnering with Central Community College on entomology camps and a nature photography summer camp, working with youth and families at the Nebraska State Fair and Husker Harvest Days, and much more.

The kids are back in school, but the LLNRD's educational efforts have not taken a recess. So far this fall LLNRD educators have led field trips, hosted the North Central Land Judging Contest in partnership with

NRCS and generous landowners near Albion, hosted our second annual MUDFEST event in Ord, and held an Envirothon Field Day to teach high school students about the Nebraska Envirothon competition while simultaneously conducting an educational workshop for their teachers. The LLNRD routinely assists neighboring NRDs with their educational events and the new Columbus Area Children's Museum features an LLNRD exhibit. These educational activities are fun for the students and enjoyable for LLNRD staff members, too. Most importantly these educational efforts leave students with an appreciation for our natural resources.



LLNRD Water Programs Specialist Jason Moudry leads a session during ACE Camp, a 4-day, 3-night summer camp that LLNRD hosts at Kamp Kaleo near Burwell.



Phone: 308-728-3221 Fax: 308-728-5669 E-mail: info@llnrd.org www.LLNRD.org

Nebraska's NRDs . . . **Protecting Lives, Protecting Property, Protecting the Future.**

IN THE LOUP is a publication of the Lower Loup Natural Resources District. It is published guarterly by the LLNRD and is distributed to the residents of the 16 counties that make up the District, IN THE LOUP is edited by Alan J. Bartels, Information & Education Coordinator.

A Message from the Manager



Nitrate contamination n Nebraska's water resources continues to increase in many areas, including within the Lower Loup NRD. This pollution comes

LLNRD General Manager Russell Callan from multiple

sources. However, nitrogen sources applied to farm fields that escape the root zone before crops can use it are a big concern in the District. This is a financial loss for producers, and a human health hazard when that lost nitrogen reaches the groundwater resources that supply our drinking water

Nitrate contamination in drinking water has been a health concern for decades. Ongoing medical research shows a connection between drinking water nitrate and increased lifetime cancer risk, particularly colorectal and pediatric cancers, thyroid disease, and adverse reproductive outcomes. Nebraska's rates of pediatric cancer are among the nation's highest.

Nitrogen is an essential nutrient for many crops, and it isn't going away. But producers can more efficiently apply nitrogen by using the University of Nebraska's 4Rs system: the Right rate, the Right source, the Right placement, and the Right timing.

Applying fall fertilizer is risky since that fertilizer is in the environment, subject to volatilization and leaching, for up to six months without any crops in the field to use it. Water resources are at less risk when fertilizer is applied when plants need it. There are practices, technologies, and policies/cost-share programs to make nitrogen management easier and more profitable:

- growing plants need it.
- season.



Water Quantity Management Area 19 **Public Meetings, Hearing Process**

Lower Loup Natural Resources District

N14 - W12

N14 - W13 WQMA 14

N13 - W12

LLNRD began developing a

Drought Management Plan in

N13 - W13

Water Quantity Management Areas

The Lower Loup NRD (LLNRD) Board of Directors, at its May 2024 meeting, voted to initiate the public hearing process to designate Drought Zone 19 as a Water Quantity Management Area (WQMA), as per Chapter 8 of the LLNRD Groundwater Management Area Rules and Regulations. Designation as a WQMA would mean that all irrigated agricultural fields in Drought Zone 19 not currently equipped with a flow meter would require flow meter installation within two years of a final vote.

Area 19 encompasses the portions of Howard, Merrick, and Nance counties that are south/southeast of the Middle Loup and Loup rivers.

Twenty Drought Zones have been mapped across the Lower Loup NRD based on the unique features of the diverse District. At any given time, zones could be in varying levels of declaration, allowing for nuanced and locally informed management actions, rather than a one-size-fitsall approach. To provide further management capabilities, LLNRD reserves the right to divide Drought Zones into sub-zones on an asneeded basis.



2020. Irrigators, ranchers, city administrators, hydropower industry was recommended and discuss representatives, LLNRD staff and directors, and other stakeholders joined for a series of meetings. Input These meetings were scheduled from this Drought Stakeholders Group was used to develop the LLNRD Drought Management Plan. This plan was developed to function as a guide to the LLNRD Board of Directors to enhance drought response. The plan was approved by the LLNRD Board in November 2022

The Lower Loup NRD scheduled public meetings to present information on why the designation any questions and concerns with the public hearing process. for November 19 in Palmer and December 3 in St. Paul.

WQMA 19

Section

Highway

-River

City

All other WQMAs

Township-Range

LLNRD Boundary

WQMA 9

WOMA 19

Continued information related to this designation and the associated hearing process will be distributed through area media, the Lower Loup NRD's social media channels, and at www.LLNRD.org.

Visit www.LLNRD.org for news, events, forms, applications, rules, newsletters, to opt-in for SMS alerts, and more from LLNRD.

 Chemigation. This practice allows producers to deliver fertilizer through an irrigation system exactly when

in Nebraska use satellite imagery to provide real-time nitrogen management recommendations to farmers throughout the growing • UNL Corn Nitrogen Calculator: This tool provides the optimum nitrogen rate recommendations for the most profitable corn production in Nebraska. It considers nitrogen credits from the soil, water, manure, and previous leguminous crops to save fertilizer cost and protect environmental quality. UNL's Corn Nitrogen Calculator is available at www.agritools.unl.edu/tools/nitrogen

 Nitrogen Reduction Incentive Act (NiRIA): The NiRIA was passed by the Nebraska Legislature in 2024 to pay producers to reduce their nitrogen fertilizer application quantity. The application period for this cost-share program is open now. Information and applications are available at our website, www.LLNRD.org.

Regulation and taxpayer funded cost-share programs can only go so far. Ultimately, improved water quality • Satellite imagery. Multiple companies begins with producers – the farmers in the field who apply fertilizer. There are two options: decide to do it how we've always done it and continue to harm our water quality, or embrace and incorporate the latest science and costshare programs while improving water quality and human health.



LOWER LOUP NATURAL RESOURCES DISTRICT **TREE ORDER FORM**

CONIFERS ORDER SPECIES BELOW IN LOTS OF 25 (LOTS OF 20 FOR THOSE MARKED "CONTAINER"	Bare root trees and shrubs
Austrian PineBlack Hills Spruce (6 cu. in. container)Black Hills Spruce (20 cu. in. container)	are \$1.20 per seedling plus sales tax. Order bare root
Colorado Blue Spruce (6 cu. in. container) Douglas Fir Eastern Red Cedar Jack Pine	trees/shrubs in lots of 25.
Limber Pine Norway Spruce Ponderosa Pine Ponderosa Pine (6 cu. in. container)	Order container trees in lots of 20.
Ponderosa Pine (20 cu. in. bare root) Rocky Mountain Juniper Southwestern White Pine	
BROADLEAFS	• 6 cu. in. @ \$1.20 each
American ElmAmerican SycamoreBlack CherryBlack WalnutCatalpa	• 20 cu in @ \$3 25 each
Cottonwood, HybridCottonwood, NativeCrabappleHackberryHoney Locust	20 eu. m. @ \$5.25 euen
Manchurian Apricot Oak, Bur Oak, Red Oak, Swamp White Silver Maple	
SHRUBS	*** Do not pay for
American PlumBuffaloberryCaraganaChokeberry, McKenzieChokecherry	your order until confirmed by your
Cotoneaster, Centennial Cotoneaster, Peking False Indigo Hazelnut	field office or until
Lilac, Common Lilac, Vilosa Sandcherry Serviceberry Sumac, Skunkbrush	an invoice is
Woods, Rose	received.

The Lower Loup NRD is offering coconut mats as a form of weed control. Each mat is \$1.80 and comes with three 6-inch sod staples. LLNRD will not install the mats. Indicate your desired quantity below.

Coconut mats

NSWCP Cost-share information: Trees and machine planting: \$2.11 per tree, trees hand planted: \$2.20 each, chemical weed control: \$0.07/linear foot, site prep mechanical or chemical, limited \$0.07/LF of row (either mechanical or chemical, one operation) and complex \$0.15/LF of row (chemical and mechanical, two operations). Scalping is not cost-shared under site prep, but is considered part of the machine planting cost-shared amount. Drip irrigation is \$0.40 per linear foot. Coconut mats will be cost shared at 50% or \$0.90 per mat and staples. These cost-share amounts represent not-to-exceed total average costs for NSWCP. Spray charge for Conservation Trees is \$3 per 100 feet of row and a \$50 site charge.

Name			
Address			
City, Zip			
Phone			
Email			
	Small quantities of oth tree/shrub species may available. Contact	ier y be	

Conservation Forester Aron Lewis for availability at (308) 728-3221

Send tree order form to your nearest field office location:

Albion NRCS 2581 NE Hwy 14, Albion, NE. 68620 Broken Bow NRCS 2519 Heritage Dr., Broken Bow, NE. 68822 Burwell NRCS 415 Grand Ave., Burwell, NE. 68823 Columbus NRCS 3276 53rd Ave., Columbus, NE 68601 Fullerton NRCS PO Box 398, Fullerton, NE 68638 Ord NRCS 1614 N 28th St., Ord, NE 68862 Spalding NRCS PO Box 247, Spalding, NE 68665 St. Paul NRCS 1318 2nd St., St. Paul, NE 68873

USDA is an equal opportunity provider, employer, and lender.

Coconut Mats for Conservation Tree Plantings

The Lower Loup NRD will now be offering coconut mats as a new form of weed control around trees. The mats are a 2-ft circular mat made from coconut husks. The mats are placed around the trees and anchored to the ground with three sod staples. The mats will reduce vegetation growth around trees, help to preserve soil moisture, and will biodegrade in 3 to 5 years.

The mats will be cost-shared through the Lower Loup NRD and will be available to pick up starting in Spring 2025. The Lower Loup NRD will not be installing the mats. Anyone who is interested in buying coconut mats or has questions should contact the Lower Loup NRD at (308) 728-3221.

Conservation Forester Aron Lewis and LLNRD Park/Shop Superintendent Phillip Hill install a coconut weed barrier mat at LLNRD headquarters in Ord.

Nitrogen Reduction Incentive Act Program

The Lower Loup NRD and the Nebraska Department of Natural Resources have partnered to offer a new cost-share program to reduce nitrogen fertilizer inputs. The Nitrogen Reduction Incentive Act (NiRIA) established a state funded program that provides incentive payments to producers for reducing the use of commercial fertilizers. The requirements of NiRIA are that producers verify a reduction in nitrogen fertilizer application rates to the lesser of 40 pounds per acre or 15% of their baseline application. The payment rate is \$15.00/acre, limited to 280 acres per application/field. Eligible fields include those which will be planted to corn or potatoes in 2025.

To apply, landowners must submit:

nitrogen reduction,

2) documentation of the last yearly nitrogen fertilizer applications and sources for the applied field, and

3) a soil test for the applied field. The application due date is January 15, 2025.

To receive payment, landowners must submit all documentation of nitrogen sources applied to the field, method used for the nitrogen reduction, reported yield, and documentation of advanced technology practices, if applicable, by January 15, 2026.

The minimum charge

for machine planting

of trees is \$250. Sales

machine planted trees

must be received by

Conservation tree

seedlings are not

April 1st.

guaranteed.

tax will apply to all

orders. Orders for



1) a completed Nitrogen Reduction Incentive Act program application with the method used to achieve

Additionally, LLNRD is offering cost-share through the Advanced Soil Sampling Program for bonus ranking where a producer would perform one advanced soil health test and one 3-foot-deep soil nitrate test per 40 acres (limit 8 sample sets per landowner).

Contact the Lower Loup NRD for more information on the Nitrogen **Reduction Incentive Act Program** or Advanced Soil Sampling Program. Applications are available at the Lower Loup NRD or at www.LLNRD.org.

Tracking The Aquifer: How Lower Loup NRD Monitors Water Levels

Staff from the Lower Loup Natural Resources District collect static water levels (SWL) on 448 irrigation and monitoring wells across the District. Irrigation wells and dedicated additional controls, if necessary, to monitoring wells are measured in the ensure an adequate supply of water spring before irrigation begins and then again in the fall after harvest as an indicator of the stress placed on the aguifer during the growing season. Some of the LLNRD sites have records dating back to spring 1975, not long after the formation of Natural Resources Districts in Nebraska.

Each year a SWL change map is prepared by LLNRD to show overall water level fluctuations over the years. To accurately depict aquifer changes, water level measurements are collected in the spring, allowing the aquifer to be analyzed without stress. There were 165 SWL locations well sites equipped with water level measured this past spring that have a recording equipment. Currently the historical record dating back to spring LLNRD and its partners have devices 1982, the baseline date for water level comparisons per the LLNRD Groundwater Management Plan. This transducers measure and record data is important in determining long- water level data on a continuous term trend analysis of the status of

the aguifer in the lower Loup Basin. Comparisons are also made on a 1-, 5-, 10-, and 25-year timescale. Water managers use this data to implement for the current demand on the aquifer.

Environmental impacts such as drought also play a huge role in how the aquifer recharges each year. As a proactive approach, the LLNRD Drought Plan was approved by the LLNRD Board of Directors in 2022. Drought conditions are monitored closely throughout the year. The drought plan has triggers included in the report to implement control measures if drought conditions are having a negative impact on the aquifer.

Among the 448 SWL sites are several deployed in 95 groundwater wells across the District. These water level information, annual SWL reports, and basis. The water level data is then



LLNRD Conservation Technician Jordyn Duffek takes a static water level well reading in Greeley County.

periodically downloaded, or in some cases, the data is directly transmitted real-time by telemetry equipment to online databases.

The continuous water level data collected with these devices provides valuable information.

Uses for the data include determining impact of irrigation, long-term groundwater monitoring, groundwater cone of depression, long-term drawdown impacts from nearby wells and real-time remote water level monitoring. Additional water level real-time data are available at www.LLNRD.org.

Lower Loup NRD Receives RCPP Grant for NRCS Programs

The Lower Loup NRD has been successful in getting a Regional Conservation Partnership Program (RCPP) project from the USDA's Natural Resources Conservation Service (NRCS). The project, titled "Irrigation and Nutrient Management in the Lower Loup River Basin", was awarded over \$18 million dollars for the 5-year grant to go towards implementing additional conservation practices across the Lower Loup NRD. The USDA has invested \$1.55 billion in 92 partnership projects across the country to advance conservation in agriculture.

The goal of this project is to provide additional incentive dollars to go towards NRCS Environmental Quality Incentives Program (EQIP) applications that would provide benefits to irrigation water management and potentially mitigate drought conditions. Water resources will be better managed through more efficient, effective irrigation, which results in water savings. A secondary objective is improvements to water quality and soil health through better nutrient management. The project will

include grid soil sampling on row-crop irrigation fields. increasing organics through implementing cover crop cost-share, developing better crop rotation patterns. improved tillage practices, and more effective fertilizer applications. Other practices covered under the program include efficiency upgrades to pumping plants for lower emissions and offsetting pivot costs when converting from gravity to pivot irrigation.

The RCPP relies on partnerships with NRCS to implement conservation practices to create solutions to natural resource challenges, specifically on agricultural land. The resources provided for the program provide funding that benefits both NRCS and conservation partners, in this case, the Lower Loup NRD.

More information on this program will be available soon at www.LLNRD.org and at all NRCS offices in the Distric

