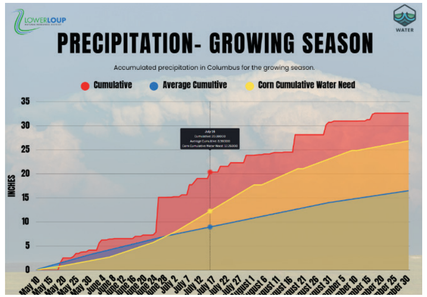
Crop ET and Precipitation Reports

Crop ET and regional precipitation reports have been expanded for the 2026 growing season at LLNRD.org. Crop ET reports are released every Wednesday during the growing season and consist of three infographics demonstrating the average daily water use over the past week for corn, soybeans, and potatoes. To cover the entire district, data from three weather stations in western (Merna), central (Ord), and eastern (Central City) areas are displayed. All data is collected from the University of Nebraska's Evapotranspiration Calculator. Growth stages for this season are determined on an April 21 through May 14 planting timeline.



Ag producers farming within the Lower Loup NRD can track corn cumulative water need with graphs like this located at LLNRD.org. The Crop ET and precipitation reports located at the website include other important information.

Precipitation reports are available for the Ord, Merna, Columbus, Albion, and Rockville areas. There are three different types of precipitation reports: a weekly report that displays the daily rain totals of the past 7 days; a monthly report that displays a hybrid graph that shows the daily rain totals for the past 30 days as well as the accumulated precipitation compared to the 30-year average; and a growing season report that displays the same data as the monthly report plus the water needed to produce a bushel of corn so that producers can determine how many inches of irrigation water will be needed throughout the season. The growing season precipitation for this season will be tracked from May 1 through October 1.

To view these reports go to LLNRD.org, then go to the Programs tab on the home page and select 'Crop ET and Precipitation', or follow the QR code included with this story.

Required Flow Meter Installation:
Completed in Areas 18 & 20, due in Area 19 by 2027

Flow meters have been installed on all high-capacity wells in designated Water Quantity Areas 18 and 20 and will soon be required in Area 19. These area-specific requirements were initialized after ongoing drought conditions and historically low spring static groundwater levels were observed by LLNRD personnel in 2024 and 2025. Area 18 includes northern Buffalo County, south of the South Loup River. Area 20 includes parts of southern Nance and Platte Counties below the Loup Power Canal.

Area 19, the last of the currently required areas to install flow meters on all high-capacity wells, is in portions of Howard, Merrick, and Nance Counties that are south of the Middle Loup and Loup Rivers. Meters will need to be installed prior to well operation in 2027 or Cease & Desist Orders will be issued. With this area complete, all wells will be metered along the entire southern boundary of the Lower Loup NRD to the Custer County line. However, should the drought continue, and in accordance with the LLNRD Drought Management Plan, more areas could eventually incur recommendations for required meter installation.

Additionally, flow meters are required on all new well permits, either supplemental or replacement, and on any variance or transfer in the Lower Loup NRD. Installation of the meter is required before well operation is allowed and must be verified by an LLNRD field technician. The LLNRD has 50% cost-share available Districtwide which can be applied toward the purchase of a flow meter, flow conditioner, straightening vanes, and check valve. All meters must be a propeller type meter, have an anti-reverse mechanism, and read in acre-inches. Find flow meter cost-share forms and the LLNRD's Approved Flow Meter List at LLNRD.org.

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Protecting Lives, Protecting
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IN THE LOUP is a publication of the Lower Loup Natural Resources District. It is published quarterly 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

LLNRD General Manager Russell Callan

There is a growing discussion across Nebraska and also within the Lower Loup Natural Resources District on the need to measure water use with water meters. Currently across the state of Nebraska, approximately 53% of all high-capacity wells (>50 GPM) are metered. Within the Lower Loup NRD there are approximately 10,800 total high-capacity wells, with only about 1,800 of those being measured with a water meter.

Discussion about water meters always seems to start up a debate. Perceived negatives that come up range from taxation and allocation to fees. What doesn't get talked about enough are the many positives: like better water application management that reduces excess pumping costs, conservation of our water resources, and reduced chances of over-application that allows nitrate leaching into our groundwater that affects water quality and threatens the health of people, livestock, and wildlife.

It seems to me that anymore we strive to understand and account for just about everything we do. We measure fuel consumption, how much fertilizer is applied, electrical use at our homes and businesses, and how many calories we consume on a daily basis. Heck, my watch even tells me how many steps I take every day.

We need to be measuring how much water we are pumping! And the truth is, you cannot manage what you don't measure.

Currently there are several cost-share programs available to well owners that will help offset the cost of installing a water meter. Please contact the LLNRD Headquarters office at (308) 728-3221 or go to our website, LLNRD.org, for information on flow meters and cost-share opportunities.

LOWERLOUP
NATURAL RESOURCES DISTRICT

VOLUME 18, ISSUE 2 SPRING 2026

IN THE LOUP

Drought Makes Proper Irrigation Scheduling Even More Important

Proper irrigation scheduling is even more important than usual during drought. Monitoring soil moisture is key.

Planting and other field work are ongoing as drought conditions of varying severity continue to be felt across the entire Lower Loup NRD.

In order to germinate and emerge, a corn seed needs to absorb 35% of its weight in moisture. This is a small amount of moisture considering that a kernel is generally 0.3 grams in weight, about half the weight of a paperclip. Even with lack of moisture from the non-growing season, most irrigated fields will still have adequate moisture to get this season's crop initiated. It is important for producers to probe down to seeding depth and check the soil for moisture.

Early season irrigation can be useful for residual pre-emergent herbicides that require around 0.75 inches of rainfall/irrigation for activation/incorporation, and also to prevent the risk of losing them to wind erosion. Other than those circumstances, early season irrigation has been shown to not benefit yield or prevent yield loss.

Corn has been shown to be very drought tolerant through the vegetative stages. Limited moisture will make the corn root down deeper which helps it not only become more efficient in holding water, but also increases its ability to hold on to nitrogen. During ongoing vadose zone research by the Lower Loup NRD, the observed root depths at the end of the growing season are a maximum of two feet, with the majority of roots occurring at 20 inches of depth or less. These findings further support limiting the use of early season irrigation.

The biggest concern with early irrigation is the risk of leaching nitrogen past the root zone before the corn is even in need of nitrogen.

Corn has only taken up 10% of the nitrogen it needs for the year at V6. Research completed at the University of Nebraska – Lincoln shows that for every inch of water lost to percolation, 10 pounds of nitrate is lost to leaching even in heavy soils. Sandy soil can allow as much as 30 pounds lost to leaching for every one inch of over irrigation. This lost nitrogen ends up polluting groundwater resources.

The most recent science shows that doing things the way they've always been done is not always the most efficient or fiscally responsible way to do them in terms of irrigation or capitalizing on residual nitrogen in the face of skyrocketing input prices. Using good soil moisture monitoring practices is the key.

Visit LLNRD.org to opt-in for SMS (text) alerts from Lower Loup NRD.

Conservation Practices to Combat Drought

Drought conditions are an ever-present threat in any agricultural process. Even with higher-than-average rainfall across the District last growing season, portions of Nebraska have been under varying levels of drought conditions for the past two years. According to the U.S. Drought Monitor, a dry winter this year has brought us to planting with our entire District in Moderate to Extreme drought conditions. Drought continues to be an issue, so now is the best time to begin implementing conservation practices to make agricultural operations drought resistant.

The best way to combat drought is to build resilient soil systems that readily receive and optimally hold onto water. Utilizing a no-till method of crop production is the best practice to improve the health of the soil profile. Tilling breaks up structure within soil and can create a seal at the soil surface, making watering events less effective and leading to increased runoff. According to a study done by the University of Nebraska, it took 3.75 inches of water applied over 90 minutes to create runoff conditions on a continuous no-till soil system. In the same study, runoff started on the plowed ground after only an inch was applied over 20 minutes.

Soil moisture sensors help farmers to accurately determine when their fields need to be irrigated without fear of overwatering or leaching expensive inputs out of the crop root zone.
Photo credit John Krohn.

Leaving residue of a past crop in the field is another major tool in drought resilient systems. Allowing residue to cover the surface of fields reduces the impact energy of rain events, slows the velocity of any runoff generated, and reduces the amount of soil particles detached by flowing water in a field. Not only does residue help slow erosion, but it also reduces evaporation. In another University of Nebraska study, residue-covered plots had an estimated water savings of 2.5 to 5 inches compared to bare-soil plots. That conserved moisture sure comes in handy during drought conditions.

Finally, in irrigated systems, new technologies can let producers know exactly how their water is utilized. Using a combination of soil moisture sensors and flow meters, producers can know down to tenths of an inch how much water their crop is utilizing, how much capacity their soil has, and how much water they are applying to get the desired results.

Drought will always be an issue, but by building cropping systems that are resilient to erosion and that maximize water utilization, our agricultural producers can continue to produce healthy crops while conserving the precious natural resources that belong to all Nebraskans.

CHEMIGATION PERMIT RENEWAL DEADLINE IS JUNE 1

Farmers planning to use chemigation (fertigation) to apply fertilizer or other chemicals to crops have a deadline of June 1, 2026, for permit renewal from the Lower Loup Natural Resources District. Completed chemigation permit applications must be received by the Lower Loup NRD on or before that date.

The fee for chemigation permit renewal is $30 for each renewal application submitted. Applications received after June 1 will be treated as a new application.

New permit applications require a $100 fee and an inspection by an LLNRD technician. New and renewal permits expire the June after the year they were issued – chemigation permits issued in 2025 will expire on June 1, 2026.

Emergency permits are $500 and expire after 45 days.

Applications are available at the Lower Loup NRD Headquarters, 2620 Airport Drive, in Ord. They are also available at Natural Resources Conservation Service offices and can be downloaded at LLNRD.org.

Contact the Lower Loup NRD at (308) 728-3221 for more information.

Lower Loup NRD Water Resources Technician Harold Benton inspects a check valve on a chemigation system in Valley County. Chemigation permit renewals in the LLNRD are due by June 1, 2026.

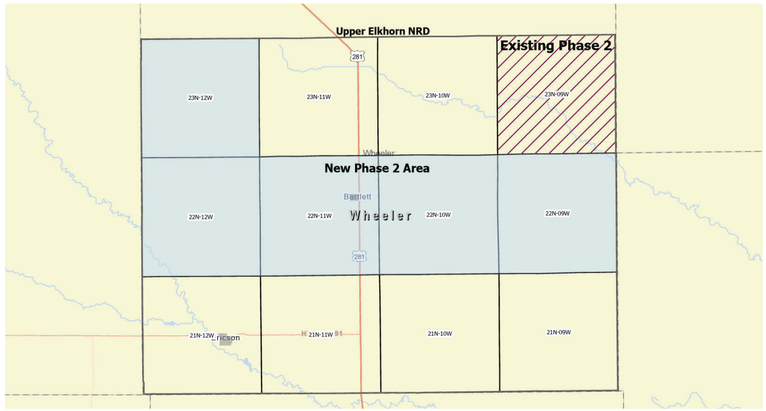
LLNRD Board Triggers a new Phase 2 Water Quality Management Area in Wheeler County

Following a public hearing held on February 17, 2026 at the Wheeler County Fairgrounds in Bartlett, the Lower Loup Natural Resources District Board of Directors has issued a new order of designation (No. 2026-01) to trigger 5 new townships in Wheeler County into a Phase 2 - Groundwater Quality Management Area (GWQMA) starting November 1, 2026. This order was designated by a vote of 15 yes, 1 abstain, and 3 absent at the regularly scheduled Board of Directors Meeting on February 26, 2026. According to LLNRD District Rules and Regulations, in order to trigger a GWQMA, the sampled nitrate median must be above the 6.5 parts per million (ppm) threshold for 4 consecutive years.

This will be the second area in Wheeler County that is designated as a Phase 2 GWQMA. Area 29, in northeastern Wheeler County and adjacent to the LLNRD boundary with Upper Elkhorn NRD, was triggered after a public hearing in 2019 due to rising nitrate levels. LLNRD had been observing nitrate levels of over 20 ppm in that area. The Environmental Protection Agency's maximum contaminant level for nitrates in drinking water is 10 ppm.

Wheeler County is primarily composed of sandier soils, which are more prone to nitrate leaching, and most of the county has a relatively shallow depth to groundwater. These factors, combined with large amounts of irrigated acres with a corn-on-corn, or corn/soybean rotation creates a situation where nitrates can continually increase within the soil profile while moving beyond the root zone and toward groundwater resources if nutrients are not properly credited or carefully applied. The addition of applied manure at or above agronomic rates adds even more nitrates to the system.

With this new GWQMA designation, producers and operators who farm row-crops on irrigated ground will be required to install a flow meter on all irrigation sources, collect annual composite soil samples for nitrates at a depth of 36" and representing an area of no greater than 40 acres, collect annual water and manure samples for nitrates, and submit an annual report to the NRD that has the previous crop year yield, pre and post nitrate application, total water applied, and any manure credited by February 1 of each year. Online reporting is available, LLNRD staff members can assist with this process. More information and the current LLNRD Rules and Regulations are available at LLNRD.org.



Following a Public Hearing in Bartlett on Feb. 17, 2026, and in response to rising groundwater nitrogen levels, the Lower Loup NRD Board of Directors has implemented a Phase 2 designation for a portion of Wheeler County. Phase 2 designation means that water samples taken by the Lower Loup NRD showed median nitrate-nitrogen levels of greater than 6.5 parts per million (ppm) for 4 years in a row. To monitor/continue work on water quantity and quality is a priority of the LLNRD Board of Directors.

The Lower Loup NRD is in the process of updating rules and regulations pertaining to LLNRD recreation areas. Some rules/regulations apply only to specific recreation areas or Habitat Management Areas. Davis Creek Reservoir is pictured.

Lower Loup NRD Creates Habitat Management Area in Wheeler County

The Purposes and Authorities of Nebraska's Natural Resources Districts include the development and management of fish and wildlife habitat, and also park and recreational facilities. The Lower Loup NRD (LLNRD) achieves both of those objectives with the creation of a new Habitat Management Area (HMA) in Wheeler County.

The property in southern Wheeler County is situated in the Clear Creek drainage. It is less than two stream miles north of Pibel Lake Recreation Area – formerly a Nebraska Game and Parks Commission State Recreation Area – which became property of the LLNRD in 2012.

A settling basin installed where Clear Creek fills Pibel Lake is one of the many improvements that the LLNRD has made to Pibel Lake Recreation Area over the last 14 years. That basin slows the streamflow so suspended solids, sediment, and pollutants are removed from the stream. As a result, turbidity is lessened in the lake, and water quality is improved.

Acquisition of the new 80-acre property upstream of Pibel Lake will allow LLNRD to implement further protections to the watershed while also improving wildlife habitat and expanding recreation opportunities for the public.

The prospect of opening a new recreational property prompted LLNRD General Manager Russell Callan to initiate a review of the LLNRD's recreation area rules and regulations. That review by members of LLNRD staff and management resulted in several proposed minor changes. By law, changes to official NRD rules and regulations can only occur following a public hearing. After considering staff recommendations and public testimony, the LLNRD Board of Directors may or may not take action on the proposed rule changes.

That hearing will take place May 28, 2026, at 5:10 p.m. at LLNRD Headquarters, 2620 Airport Drive, in Ord. For more information or to review the current rules and proposed changes, visit LLNRD.org.

The new Habitat Management Area is not yet open for public access. Area media will be notified when that date is known. Visit LLNRD.org for the latest information.