

URNRD Soil Moisture Probe Program

Annual Report, March 2022

Water Sustainability Fund Application #5301



A \$123,840 grant was awarded to the Upper Republican NRD (URNRD) by the Natural Resources Commission and a contract was executed with the Department of Natural Resources in November 2020 to incentivize the use of soil moisture probes within the URNRD. This status report includes project inception, through March 30, 2022.

Project Progress

Demand for soil-moisture probes offered under the cost-share program was higher than the average for the 10 years we have offered similar programs, and on par with demand the two years prior, 2019 and 2020. Irrigators who commonly use probes report that using them commonly reduces the amount of water they would otherwise apply by approximately 1”-3” per acre. This level of savings is consistent with studies of improved irrigation scheduling by using soil moisture data.

Assuming actual, reduced water use was the midpoint of that range (1.5”) because of probes used in 2021 under the program, total water savings was approximately 22,800 acre inches, or 1,900 acre feet. That is equal to about 619 million gallons of water.

Shortly after entering into a contract with DNR in late 2020, the URNRD began publicizing the availability of cost share for soil moisture probes within Perkins, Chase and Dundy Counties, the three counties that comprise the URNRD. News stories about the program were published in newspapers within each of the three counties. Additionally, an explanation of the program was

provided on the URNRD website, and probe dealers were personally contacted. In all written descriptions of the program and cost-share application materials, the State of Nebraska's involvement via the Water Sustainability Fund grant was mentioned. We began accepting applications for participation in the program in early 2021.

We do not dictate what types of probes producers use under the program. We refer applicants who haven't used probes before to all known dealers of probes in the area. All of them are telemetry-equipped probes that relay data and irrigation recommendations electronically via cellular networks.

Applications were accepted until the beginning of the 2021 irrigation season. In total, we executed contracts with 45 landowners in our three counties and provided cost share for 117 probes installed on approximately 15,200 irrigated acres in the District that were used in 2021. Over the last 10 years, the average annual number of probes we have provided cost share for utilizing a variety of state and federal grant funds is 91. We provide cost share for only one probe per field.

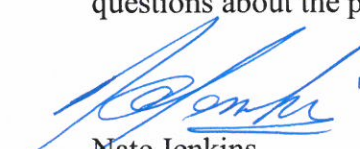
The program requires participating irrigators to pay for the probes they plan to have installed. After they have paid, they submit the probe invoices they received from probe vendors to the URNRD. The URNRD then reimburses participants for half of their qualifying costs. Subsequently, the URNRD submits requests to the Department of Natural Resources for the URNRD to be reimbursed for 60% of the amounts that the URNRD reimbursed participants. The net result on a \$1,600 probe, for example, ends with the participant paying \$800, the Water Sustainability Fund \$480 (60% of the remaining \$800), and the URNRD paying \$320 (40% of the remaining \$800).

Each participant can receive cost share for a maximum of three probes, and they have to be used within the URNRD. The probes typically relay moisture data for every 4" of soil depth up to approximately 4'. Software offered by most vendors compare actual moisture content to suggested moisture levels to provide recommendations on whether irrigation is needed.

The overriding goal of the project is to reduce water usage across the URNRD, which has experienced significant groundwater declines since the 1970's. Water-use regulations imposed by the URNRD on all irrigators have slowed the rate of decline compared to what was projected to occur without regulations and regulations have encouraged widespread, early adoption of irrigation technology such as soil-moisture probes.

Current and Upcoming Activities

In January 2022, we began accepting applications to provide probe cost share for the 2022 irrigation season. Demand for probes at this point appears similar to prior years. At the time of this writing, we have contracted to provide cost share for 45 probes that will be used this year. Over the next few months we will continue accepting applications under the program and entering into contracts with participating irrigators in the URNRD. Please feel free to contact us with any questions about the program.



Nate Jenkins
Assistant Manager