

# URNRD Soil Moisture Probe Program

**Annual Report, March 2021**

*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 24, 2021.

## **Project Progress**

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.

The public-relations effort began in January 2021; shortly thereafter, we began accepting applications from landowners for moisture probe cost share. To date, we have received applications from 27 landowners to receive cost share for 69 probes. This represents a little more than half of the roughly 130 probes we anticipate being able to cost-share in 2021 should we use half of the available grant funds, as planned, for probes purchased this year. The remaining half will be used for probes in 2022. Our experience with previous cost-share programs for moisture probes indicates that most applications will be received through the spring, so we expect to

provide cost share for roughly 130 probes in 2021. If there aren't that many applications, additional funds will be available for the 2022 program.

Since the intent of the program is to encourage the use of as many probes as possible with available grant funds, applications are approved on a first-come, first-serve basis. When approximately half of all grant funds are applied for this year, we will cease accepting applications.

## **Program Implementation and Goals**

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, they have to be used within the URNRD, and only one probe per field is cost-shared. We do not dictate what probes participants purchase. However, almost all the probes we have cost shared under previous programs include telemetry to relay soil-moisture data that is accessible by computer, smart phones, or tablets. They 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. Irrigators who follow the recommendations commonly report that doing so reduces their water applications by approximately 1"-3" per acre. These reports align with studies that have shown use of soil-moisture sensors improves irrigation scheduling.

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. Assuming that probe use reduces water applications by approximately 2" per acre, the 69 probes we have agreed to cost-share so far this year that will be installed on approximately 9,000 acres will reduce water usage in 2021 by a total of approximately 18,000 acre inches, or about 490 million gallons.

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.

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