

# URNRD Soil Moisture Probe Program

## Annual Report, March 2024

*Water Sustainability Fund Application #5301*



A \$123,840 Water Sustainability Fund 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 to reduce crop-irrigation water use. This status report includes project inception, through March 30, 2024.

### **Project Progress**

Demand for soil-moisture probes offered under the cost-share program was 25% higher in 2023 than 2022 and slightly higher than demand in 2021, the first year cost shared was offered under the existing WSF grant.

The URNRD began accepting applications for cost share in January 2023 and received applications to fund 125 probes and related equipment, subscription and installation fees. All were accepted in the program and used during the 2023 irrigation season, which began in early summer. The probes were installed on 125 irrigated fields comprising a total of approximately 16,250 acres in Perkins, Chase and Dundy Counties. Fifty-four landowners and/or growers received cost share for installed probes.

Administration of the program was the same as previous years: Each landowner was limited to cost share for up to three probes, one probe per field, and reimbursement from the URNRD equaled half the cost of the probes (including installation and subscription fees). The total amount of reimbursements issued by the URNRD in 2023 and early 2024 for probes used in 2023 was \$73,559.74 and the URNRD was reimbursed \$44,135.84 from the WSF.

The program doesn't dictate what types of probes participants use under the program. However, all participants have chosen telemetry-equipped probes that relay data and irrigation recommendations electronically via cellular networks. 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.

Irrigators who commonly use probes report that using them 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 the 1"-3" range of expected reductions in water usage due to probe use, or 1.5" per acre, total reduced water usage in 2023 caused by probes incentivized by the program was approximately 24,375 acre inches (1.5" x 16,250 acres), or 2,031 acre feet. That is equal to about 662 million gallons of water. Assuming a household uses about one-half acre foot annually, the amount of reduced water usage is roughly equal to the amount of water 4,000 households would use in a year.

### **Current and Upcoming Activities**

In January 2024, The URNRD began accepting applications to provide probe cost share for the 2024 irrigation season. The balance of the WSF grant is approximately \$12,100. Assuming an average price of \$1,500 per probe and applying the same cost-share rate and reimbursement rates, that amount will fund approximately 25 probes in 2024, or about one-quarter the number of probes normally cost-shared in a year. The grant will be closed out in coming months as the remaining funds are obligated and a full report on the program since its inception will be provided. Please feel free to contact us with any questions about the program.

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