



United States Department of Agriculture

Natural Resources Conservation Service

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Ms. Summer Daugherty  
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RE: USDA-NRCS Irrigation enhancements for Eel River Groundwater Basin

Summer,

As requested in previous correspondence, this office has compiled water saving enhancement projects that the United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) has assisted groundwater irrigators with in the Eel River Groundwater Basin through the Environmental Quality Incentives Program (EQIP). EQIP is a conservation incentives program that assists eligible farmers and ranchers with technical and financial assistance. This information has been compiled for the period of the last ten years, from 2011 through current year 2021.

Over the ten-year period USDA-NRCS has assisted 25 irrigators in the groundwater basin on irrigation enhancement projects on 40 distinct farms. These farms are distinct from an irrigation standpoint in that they all have irrigation infrastructure in place that is not shared or connected with another farm. Projects selected for assistance in the EQIP program are ranked on irrigation water savings calculated by an NRCS conservationist. Projects with the most water savings are selected for funding. Existing irrigation systems are often aged hand move sprinkler systems that are inefficient in use as well as labor intensive. These systems are difficult to manage to get the timing and amount of water needed to the field to meet the crop water demand. It is important to note, that it is NRCS policy to not assist producers who wish to irrigate land that is currently not irrigated.

USDA-NRCS has assisted in installing 22 irrigation pipeline systems. Irrigation pipelines in the basin are critical infrastructure that convey's irrigation water from the well to the fields so water can be applied at the correct time and amount. Pipelines are sized based on crop demand for precise water application and match the well pump output with the sprinkler system. Often NRCS funded pipelines are replacements for leaking existing pipelines which can have significant water savings, or they are supporting a complete irrigation system that collectively has a large irrigation water savings.

There have been 30 sprinkler systems implemented in the basin with USDA-NRCS support. Sprinkler system upgrades significantly reduce the amount of water applied and increases the ability for the irrigator to apply precise water applications based on crop need. In the basin three different sprinkler systems have been used successfully. Hard hose traveling irrigation guns have been used for over ten years, initially to apply dairy manure to fields. These guns with the correct nozzle are efficient at applying water over large areas very quickly. Wheel line sprinklers have become adopted by irrigators in the last five years. These systems also can be moved fast but will place water more precisely than existing irrigation systems, and have a significant water savings, especially when used on windy days. Finally, the most efficient systems installed in the last three years are center pivot irrigation systems. These systems will provide the most flexibility in speed and application rate.

The third piece in an efficient irrigation system is the well pump itself. The pump not only can lead to great water savings as part of a system but can also address excessive energy use of aged inefficient pumps. Most pumps installed using the EQIP program have also had flow meters installed at the well head to track and record water use. 16 well pump upgrades have been completed in the last ten years.

Management of a new system is critical. All irrigation systems installed with the EQIP program require extensive follow up between the participant and the NRCS conservationist to ensure the system is operating properly, and the system is delivering water to the crop at the correct amount at the correct time. Frequent use of moisture sensors and other data gathering tools are used to inform participants and the NRCS conservationist that the system is operating as designed.

If you have additional questions or comments on the work that NRCS has done in the Eel River Groundwater basin to address irrigation water enhancements, please reach out directly.

Sincerely,

Jonathan Shultz  
District Conservationist  
USDA-NRCS Eureka, CA

c.c.: Jack Rice