

Nebraska NRCS Topic Paper

SUBJECT: Conservation Practice Standard (CPS) 449, Irrigation Water Management (IWM)
June 2020

BACKGROUND:

- Current CPS 449 speaks to three methods authorized to conduct irrigation scheduling:
 1. *evapotranspiration (ET) of the crop*
 2. *on-site soil moisture monitoring, and*
 3. *scientific plant monitoring*
- National CPS 449 is being revised to incorporate remote telemetry data systems with cloud-based irrigation scheduling capabilities as an additional authorized scheduling method.
- Two new National EQIP scenarios were approved and are ready for use:
 1. **Consultant Based IWM No Equipment** (computer modeling with no field equipment installed)
 2. **Consultant Based IWM Equipment Installed** (equipment used for soil moisture or plant monitoring)

DISCUSSION:

- NRCS National Irrigation Guide identifies soil moisture monitoring as the “primary” scheduling tool.
- Nebraska NRCS has consistently focused on soil moisture monitoring for IWM programs.
- Under EQIP, NRCS matches a producer with a *third-party vendor* to facilitate learning of irrigation scheduling concepts with the goal being continued application beyond NRCS financial assistance.
- Industry is continuously developing and improving irrigation scheduling tools with a recent emphasis on utilization of computer algorithms (modeling) to forecast irrigation requirements.
 - **Impetus** = scalability... lower costs to cover larger number of acres.
 - **Advantage** = whole field concept vice data from a single point(s) in the field.
 - **Disadvantage** = making irrigation decisions based on estimates, simulations, and forecasting not actual soil water content (estimate vs. in-field data).
- NRCS provides financial assistance for structural conversion projects such as converting gravity irrigation to pivot or gravity to sub-surface drip irrigation; three years of IWM practice is required.
- In Nebraska, a majority of IWM program participation is due to this coupling of IWM with structural conversion projects when compared to stand-alone IWM applications.
- Opportunity exists to increase stand-alone IWM program participation by adding an additional tool to the EQIP “toolbox”.

RECOMMENDATION:

- Nebraska NRCS maintain focus on direct soil moisture monitoring, yet open EQIP program to computer modeling methods by adding one new scenario to those currently offered:
 1. **Consultant Based IWM No Equipment**
...added, to allow computer modeling methods
 2. **IWM, Advanced Technique**
...currently offered, requires soil moisture monitoring
 3. **IWM, Advanced Technique Incorporating Precision Irrigation**
...currently offered, requires soil moisture monitoring and a method of precision irrigation
- Allow computer modeling methods in stand-alone IWM contracts to encourage participation and expand program reach.
- Continue to focus on direct soil moisture monitoring for IWM practice when coupled with structural conversion projects.