

Rattlesnake CIG-NRCS Checklist to Save Irrigation Water July 2023

Irrigation System Testing

*Apply the same depth Everywhere in the field *

2021 About ½ of 35 pivots tested had low pressure problems (not enough at End Tower in high places of field)
2022 Tested 6 more. 4 had low pressure

Ground Proofing of ET data, irrigation scheduling, etc.

Soil Moisture Bi Weekly Field Checks were conducted from June through September along with Meter readings and pressure checks. Most fields were plenty moist in front of irrigating pivot on the “dry” side of sprinkler pattern, less so in 2022 but still many were able to be kept quite moist.

Checklist to Achieve similar Yields with less irrigation Higher Water Duty IWM Toolbox

- 1) Apply water evenly. Maintain End Tower psi 5 more than regulator setting. Monitor with Ag Sense, FieldNet, Field Wise. Look at the seasonal graph PSI vs. Angle 0-360. Upsize end boom orifices
- 2) Compare flow rate and psi with Sprinkler Package Design. Don't assume regulators perform as New.
- 3) 650-800 gpm is plenty of water. Re-orifice package, Adjust impellers, speed up pump engine-modify generator pulley as needed to get 480 Volts.
- 4) Soak it In where it is Placed. Improve Infiltration at soil surface. Increase Wetted Footprint (Contrast Overhead impacts 80 ft. wetted diameter vs. Bubblers 3 ft. WD. Use moving plates, Space drops closer together. Cover crops, green manure crops, dammer diking. Minimize big droplets-impact implosion at soil surface. Outrigger booms at towers and end boom. Don't go below 10 psi regulators. Use truss rod hose clips to widen pattern footprint.
- 5) Rainfall- Make better use. Measure rain at field. Use tipping Rain gauge Telemetry
- 6) What to Do About Rainfall if in middle of irrigation when it Rains.
Re-Establish Moisture Lag of 2-4 day irrigation cycle with increasing pies/depths
- 7) Slow pivot down to 0.8-1.0” irrigations unless significant runoff or very sandy soils. This reduces Service Factor- loss of E on ET per irrigation.
- 8) Consider 3-4 day irrigation frequency unless real sandy then 2-2.5 days
- 9) Use the same Stop/Start position near pivot road for more disciplined IWM
- 10) Install item #11 on Start side of pivot, the driest place before starting a new irrigation. Install in lower water holding capacity soil type
- 11) Use Soil Moisture or Plant Based sensors with Telemetry to “close the loop”
- 12) Use a Checkbook Budget spreadsheet like KanSched, Autonomous Pivot.
- 13) Use Aerial Imagery to monitor for crop development and sprinkler patterns, soil challenges, fertility issues, Runoff, Too much Rain....etc

Use as full a Tool Box as possible.

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