

Putting Irrigation Theory into Practice

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Background

- Run the MIL program since 2009
- Completed 350 evaluations
- 34 Flood
- Moved 1,000's of sprinkler pipes!

Irrigation Goals

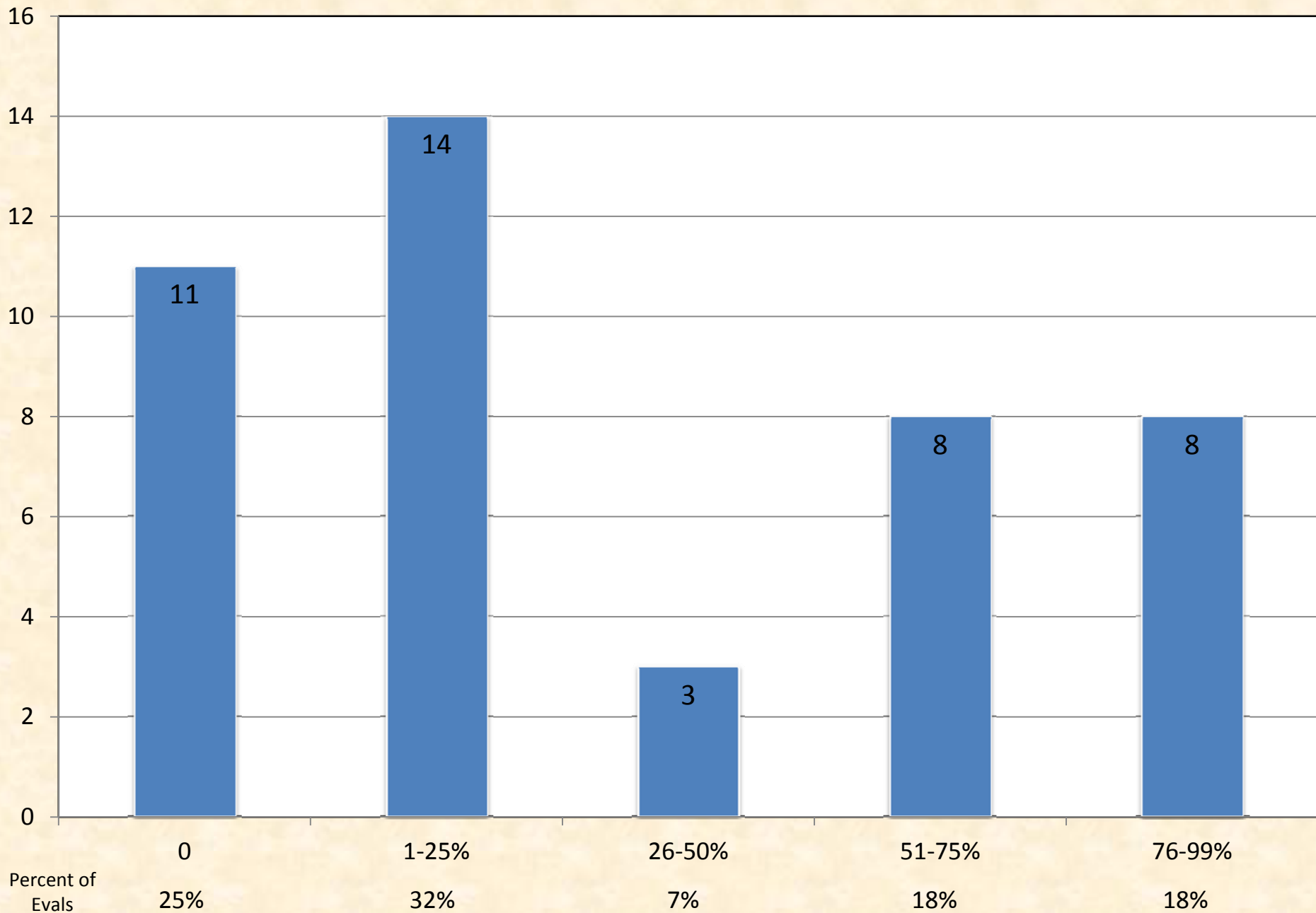
- Efficient application of water across the field
- Distribution Uniformity (DU)
 - The uniformity measurement of water application over an irrigated area
- The main controls
 - Length/width
 - Soil type
 - Slope
 - Flow rate

If changing length, width or flow rate are not options...

- Efficiency achieved by:
 - Maintained border strips
 - Reduce seepage and overflow
 - Reduce low and high spots
 - Land leveling
 - Engineered slope

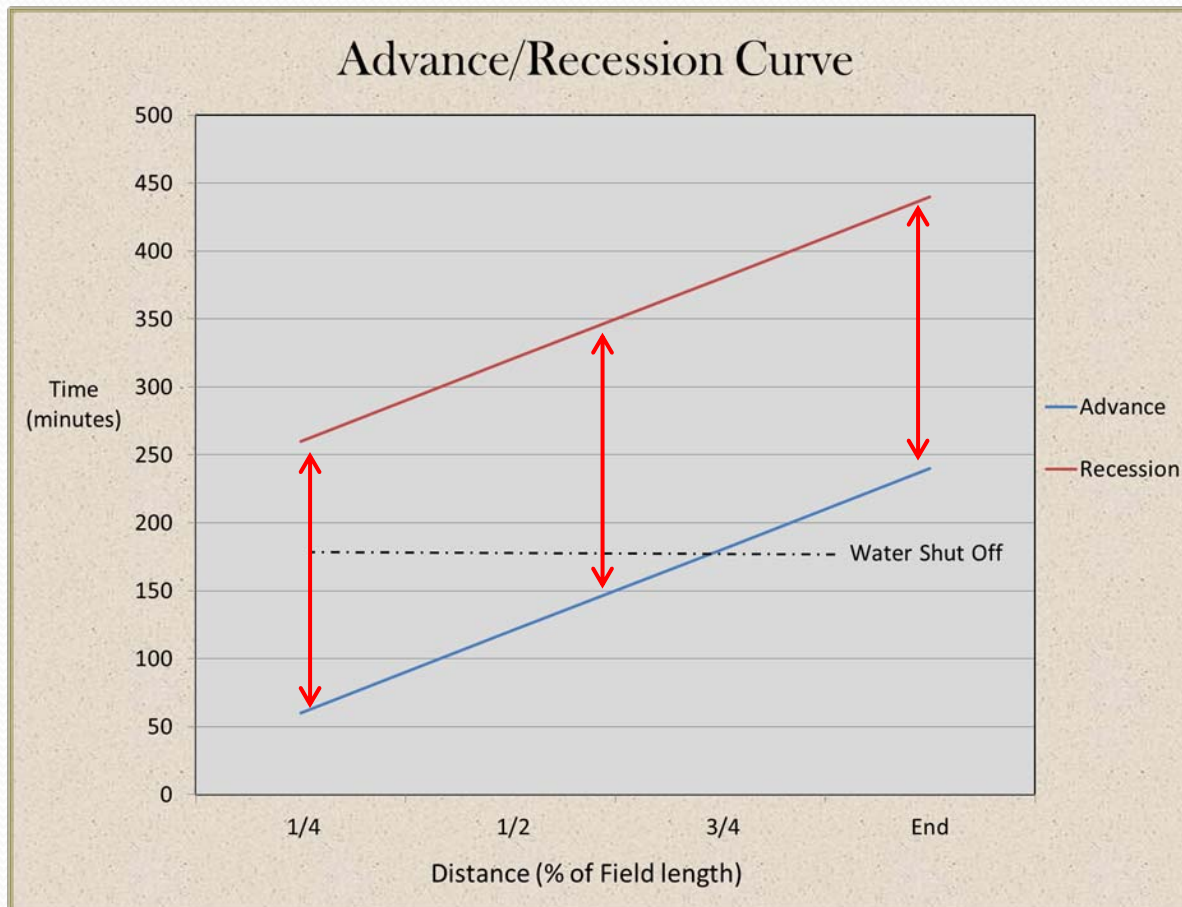


Distribution Uniformity on Flood Evaluations (44) MIL 2002-2013



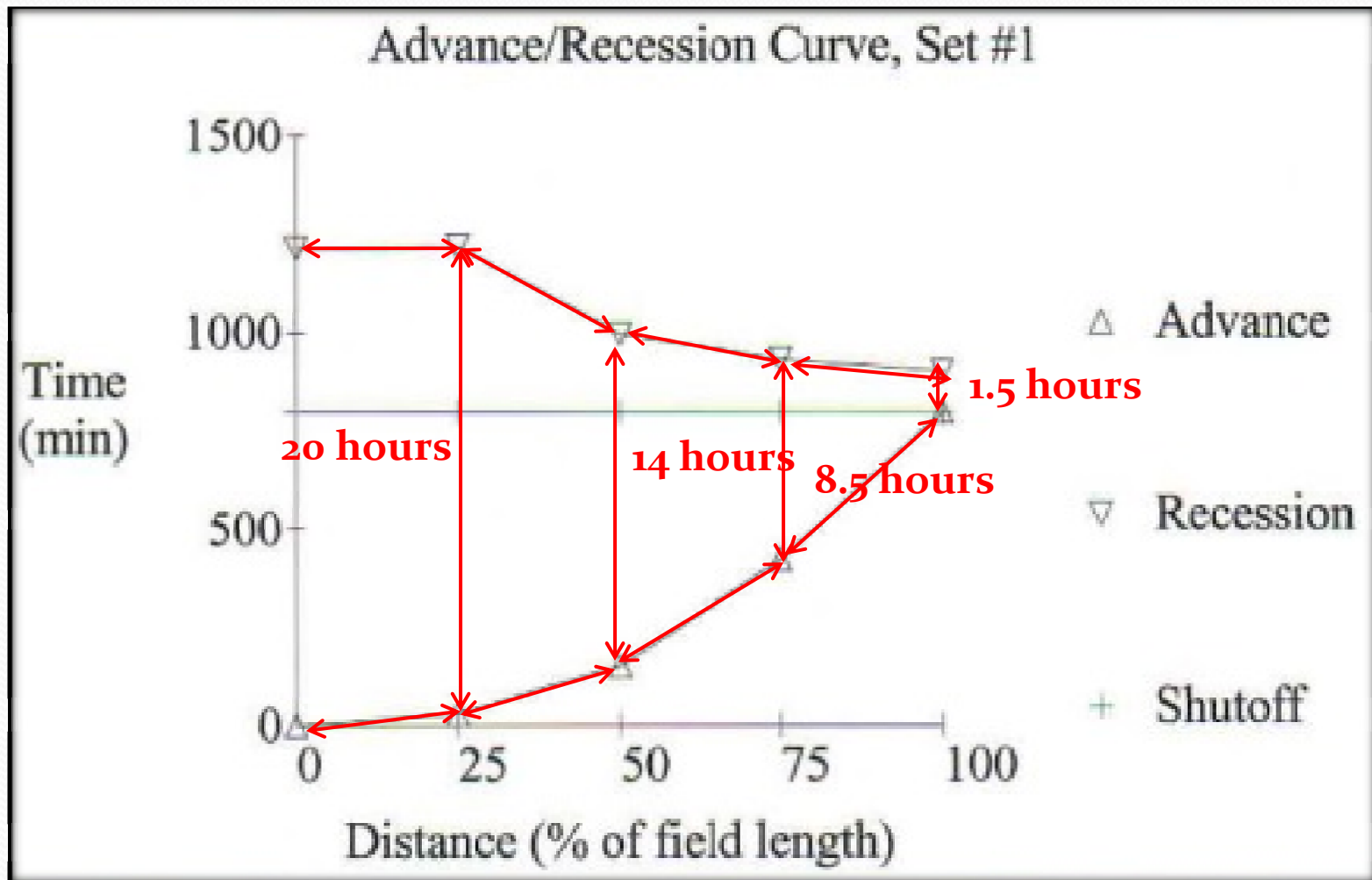
Understanding Advance and Recession Times

- High DU achieved by equal amounts of water across all sections of the field



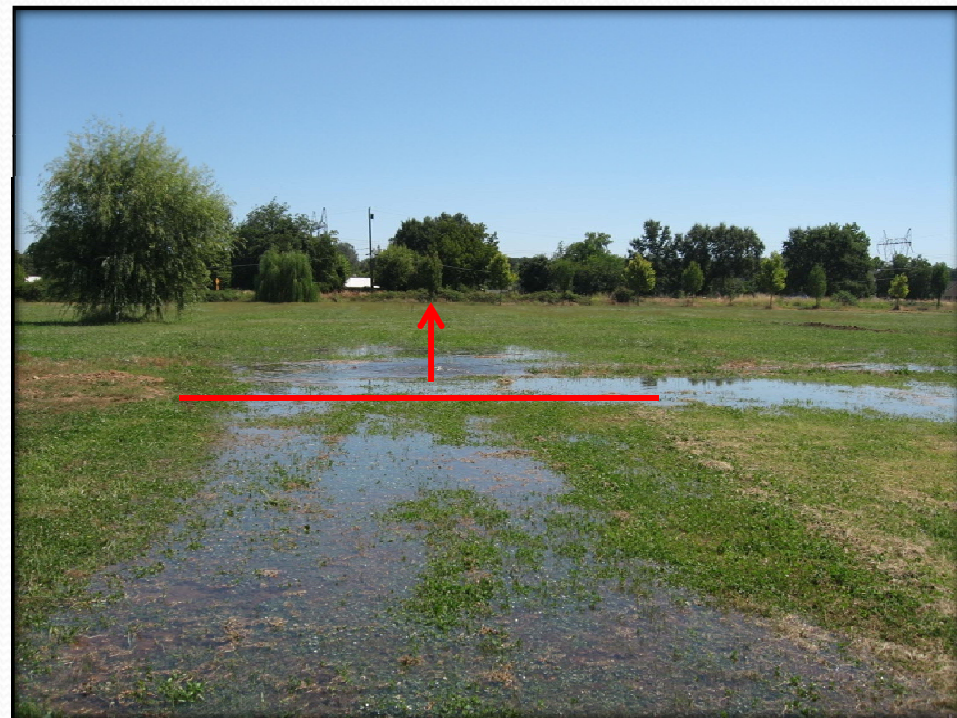
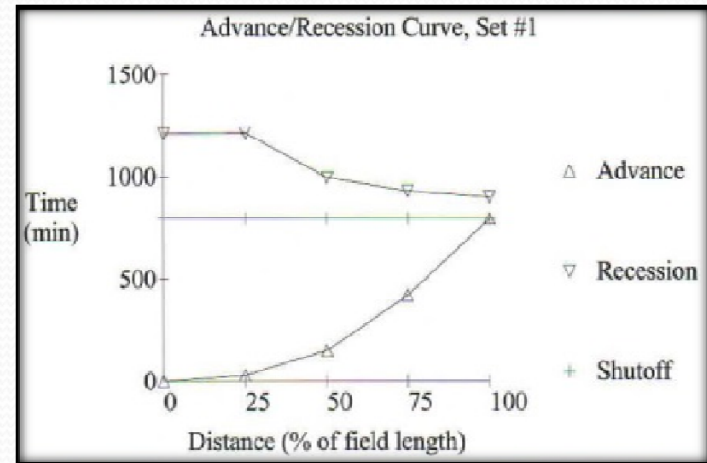
Case Study

- Advance time slows at half way point
- Recession time fast

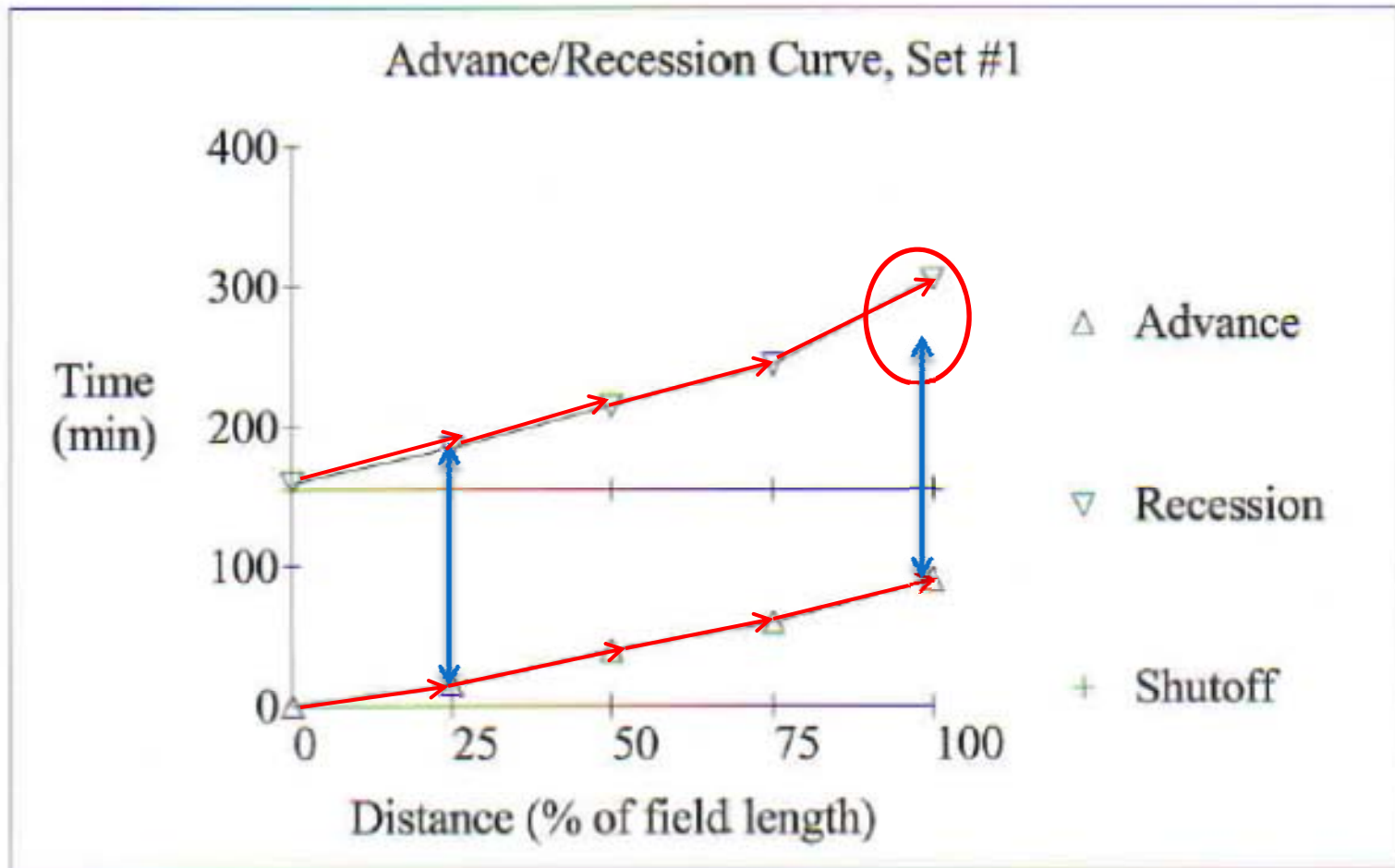


Issues with this system

- First quarter
 - 20 hours
- Last quarter
 - 1.5 hours
- Causes
 - Border Strips
 - Erosion around head above check valve
 - Erosion down check
 - Allows seepage into neighboring dry check
 - High & low spots in check



High DU System



Poorly defined borders



The Big Picture

- Water shortages
 - Create difficulty for consistent deliveries
 - Improvements in water conveyance will help but....
 - Need help from all water users!
 - How you use water effects others on the system
 - Increased on farm efficiency can lead to inconsistencies in delivery quantity and timing



Where Can I Make Improvements?

- Perform system inspections!
- How does water move through checks?
 - Smooth, uniform flow
 - Indicates surface conditions
 - Identify leaks
 - Border & surface inspections
- Perform routine maintenance!
 - Especially after grazing events



Questions/Comments

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