

A large center pivot irrigation system is shown in operation over a green agricultural field. A long metal arm extends across the field, with multiple wheels supporting it. A single wheel in the middle has a person standing on it. Several nozzles along the arm are spraying water, creating a misty atmosphere. The background shows rolling green hills under a cloudy sky.

# Managing Water for Optimal Yields: Irrigation in North Dakota

North Dakota Irrigation Association

October 2, 2025



# Managing Water to Optimize Agriculture

- **Economic Impact of Irrigation:**
- 1 acre of irrigation=4 acres of dryland
- During drought:
- 1 acre of irrigation=6 acres of dryland
- **Working to update these numbers**
  - Opportunity for partnership

## Irrigation supports....

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- Growth of specialty crops
- Value-added processing
- Risk mitigation for a \$30B/year industry
- Economic contribution multiplies across the state.



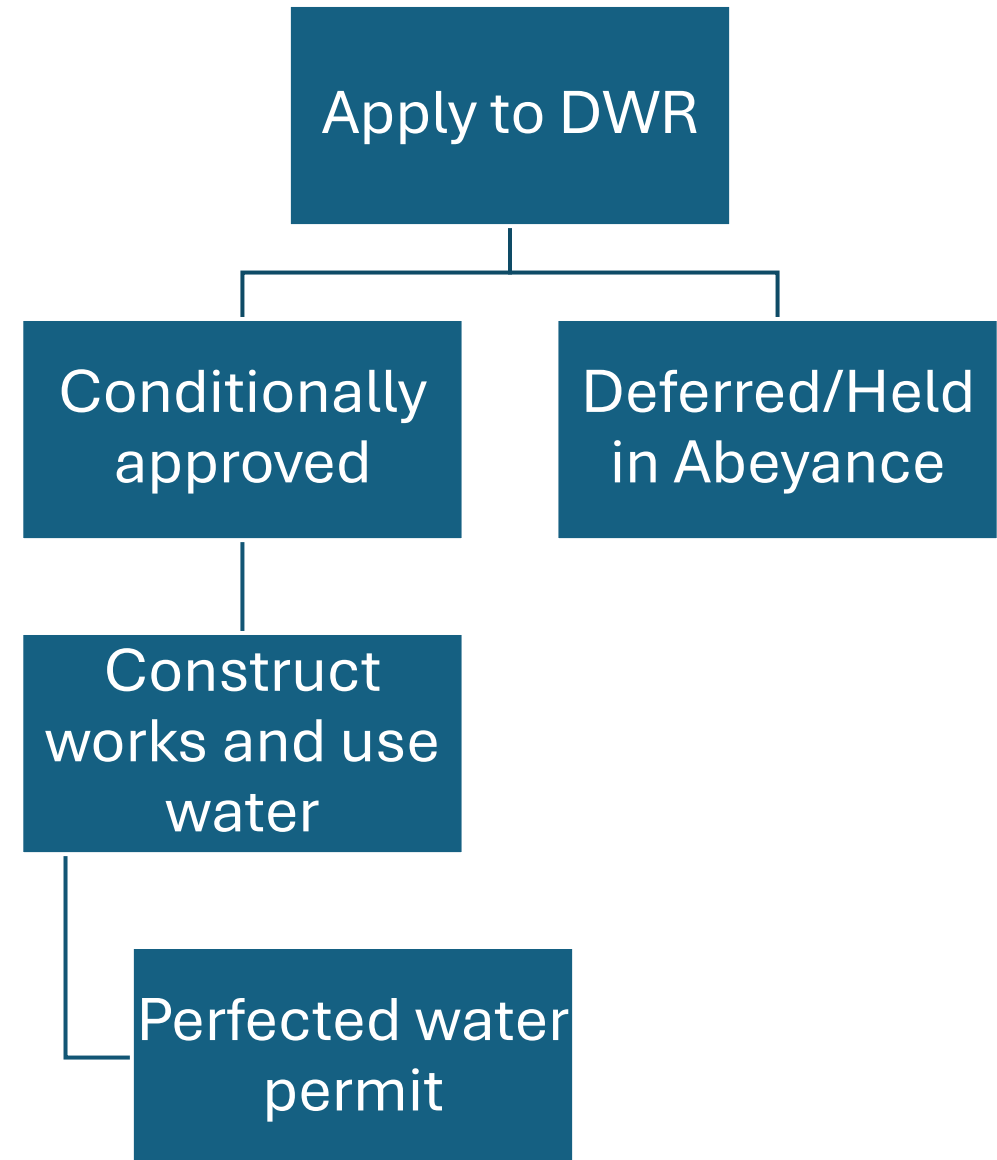


## Types of Water Used for Irrigation

- Surface water
  - Rivers, lakes
  - Missouri River/McClusky Canal
- Groundwater
  - Aquifers
  - Highly competitive

# Permitting process

- Western water law: Prior appropriation doctrine
- All water is permitted by the state—Department of Water Resources
- Timely review and processing of permits is a challenge





## Types of Infrastructure Investment

- Underground:
  - Pipes
  - Pumps
  - Wells
- Above ground:
  - Pivots
  - Power

# Costs

- Approx. \$150,000 for a 'base model' center pivot
  - Doesn't include all the infrastructure to use the pivot (e.g. pipe, well, electricity)
- 360Rain models run about \$250,000. This model can cover odd shaped fields and get water to field corners, but applies less water than a traditional pivot.
- Technology to increase water efficiency, like variable rate, are usually add-ons to a base model
- Costs vary considerably depending on the water source and the distance the water needs to move
- Costs also associated with development and preparation

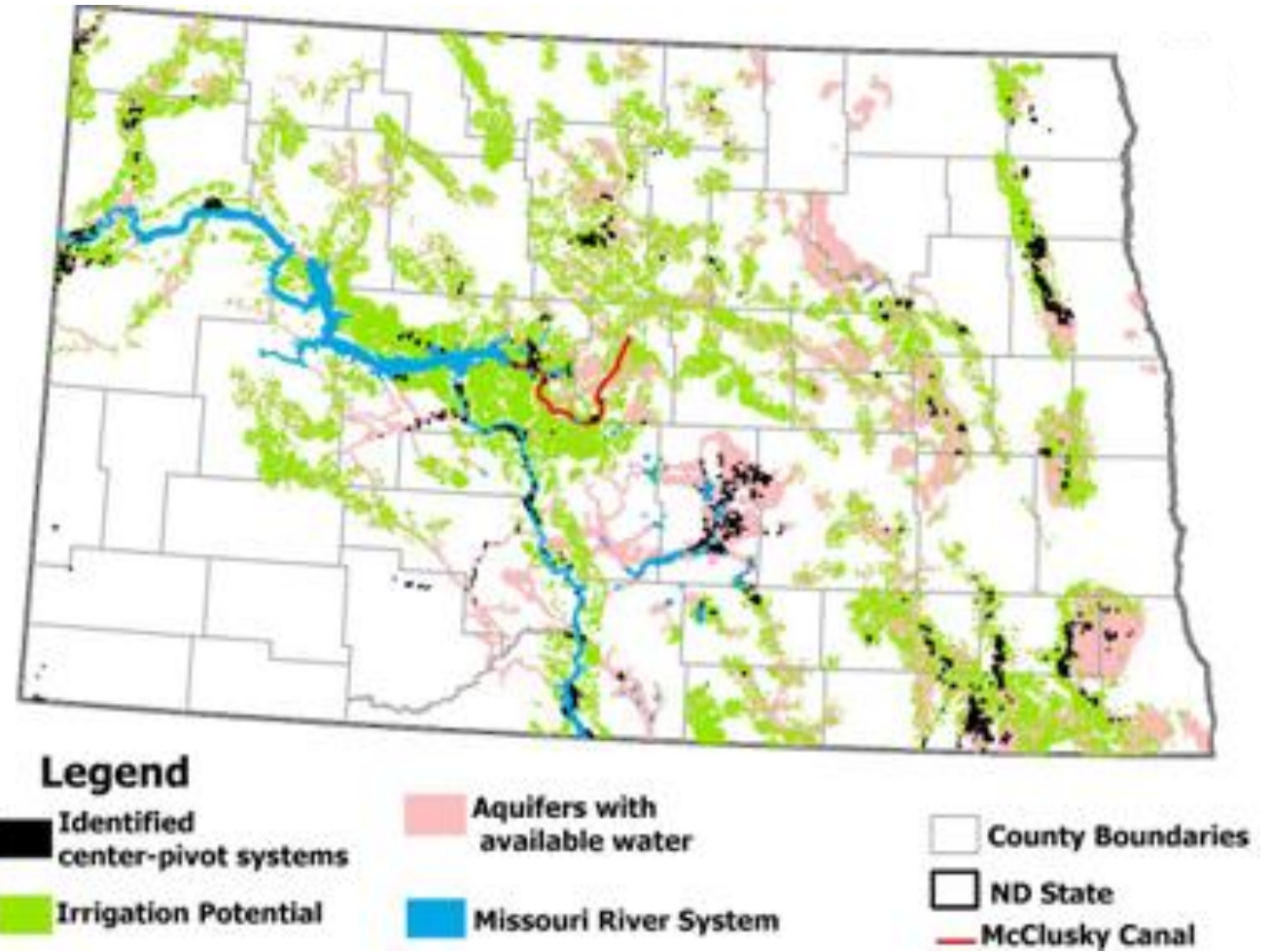


# Irrigation Development

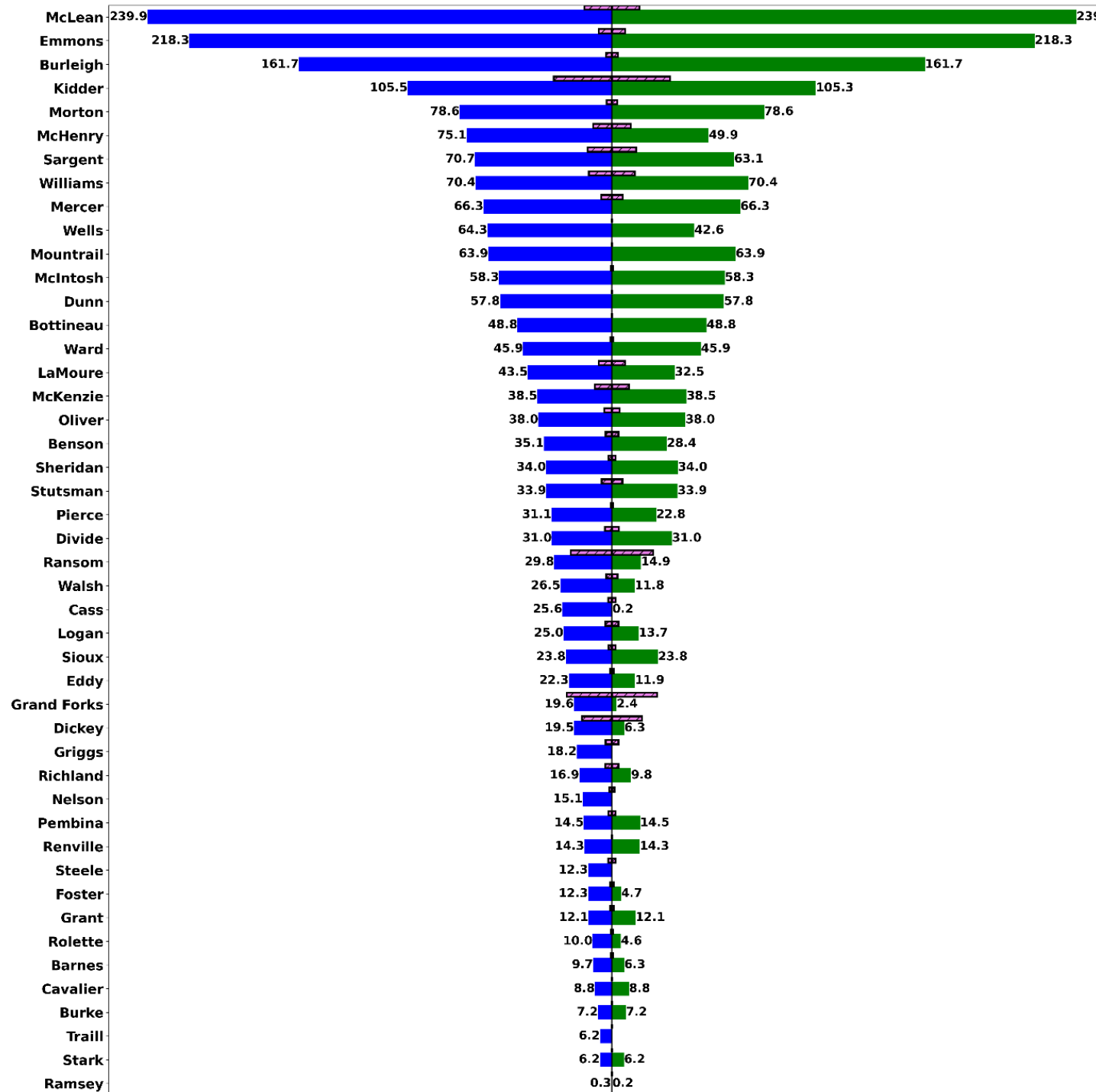
- Approx. 300,000 acres under irrigation
- Potential for as much as 1.52 million acres
- Limitations include water availability and financing



# Water Availability



Counties



## Is Southern California prepared to avoid a 'Day Zero' water crisis?

Pure Water Southern California is projected to cost \$8 billion and produce up to 150 million gallons of drinking water daily by purifying...

## Could an aqueduct bring water to western Kansas, or is it a pipedream?

The Ogallala aquifer that sustains parts of western Kansas has been declining rapidly, and some farmers say the solution is an aqueduct running across the...

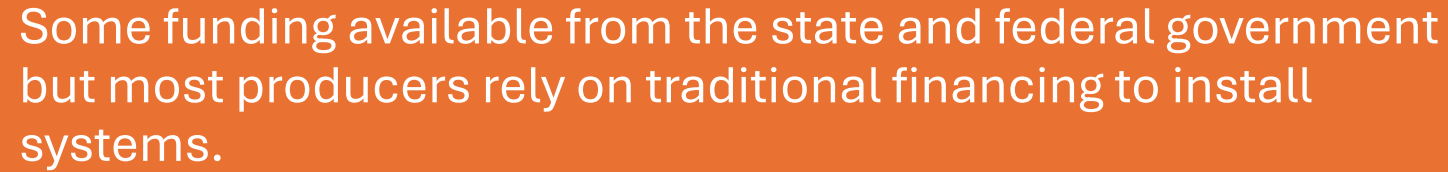
## Arizona faces continued Colorado River water cuts, uncertainty about future access

Arizona faces an 18% reduction of its Colorado River water allocation in 2026 and uncertainty about future years.


# Missouri River: Use It or Lose It

# Financing

Some funding available from the state and federal government but most producers rely on traditional financing to install systems.



The federal government at times has supported cost share for upgrades in systems to achieve water savings.



The state provides cost share for installation of 'shared works' for irrigation districts.



The state also provides interest rate buydown for irrigators purchasing new systems.

- Up to 4%; lifetime cap of \$90,000
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# Challenges with traditional financing

- Unless a producer can use land as collateral, traditional loan terms are for at most 10 years (average probably closer to seven).
- This can be a barrier for new and beginning producers especially.
- Pivots have a lifespan of 30+ years and the underground equipment even longer.





# Meeting the Challenge

- How can we collaborate to solve the financing challenge?
- Are there ways we can think outside the box to meet this need?

# Thank you!

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