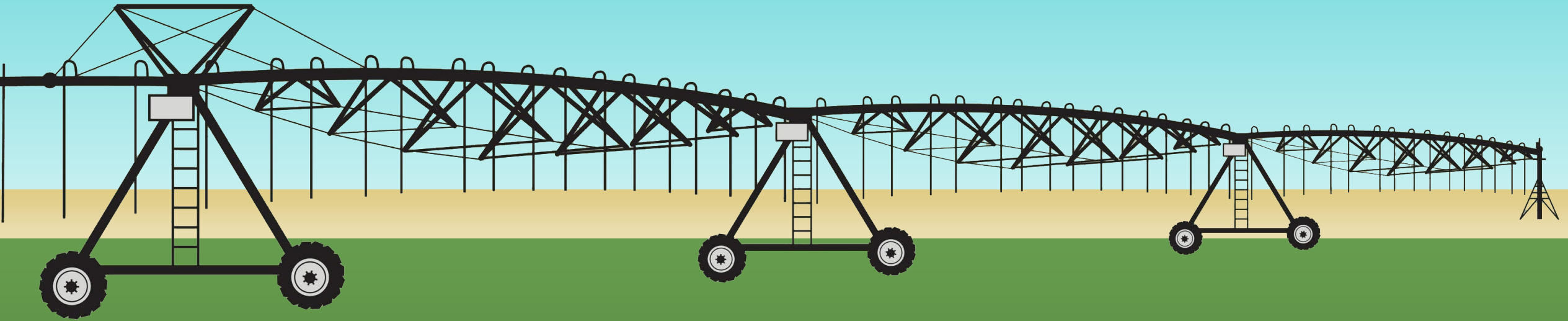


Water Profitability: Comparing alfalfa & other forages in arid regions.



Matt Yost | Utah State University
matt.yost@usu.edu | 435-797-4210

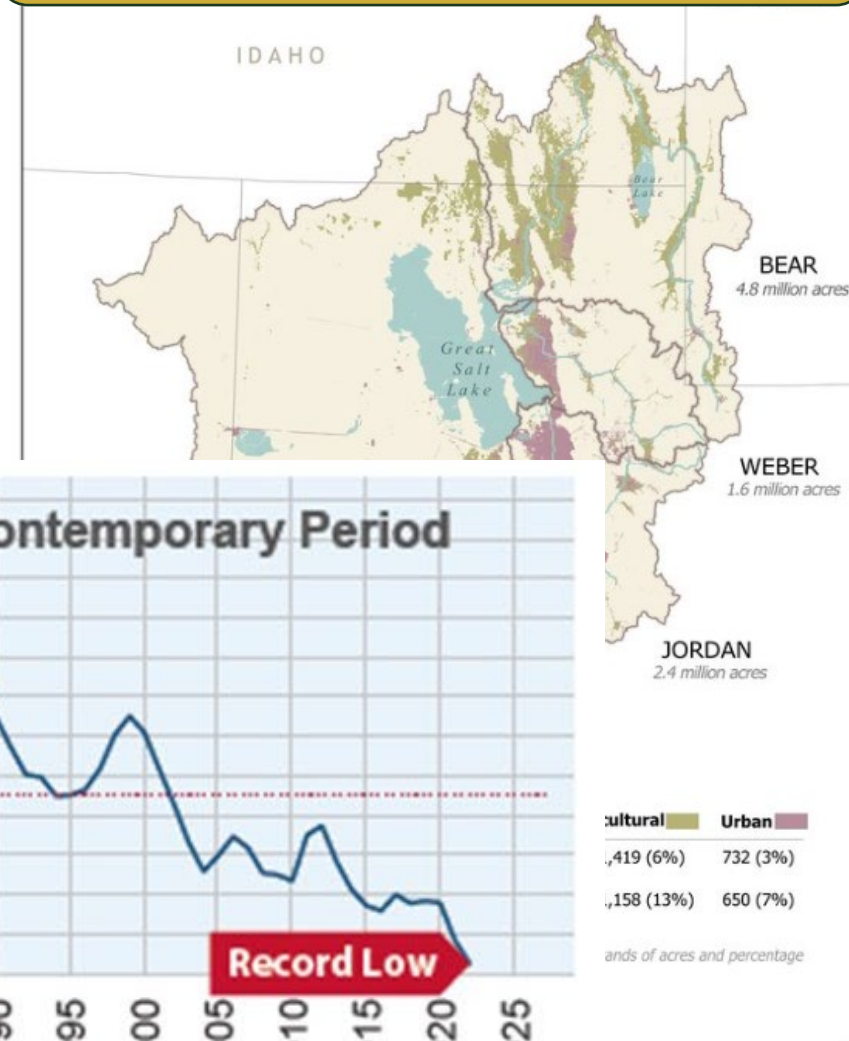
**INSERT
HERE**



300 – 750K acre-ft / year

25 to >60% of
ag water

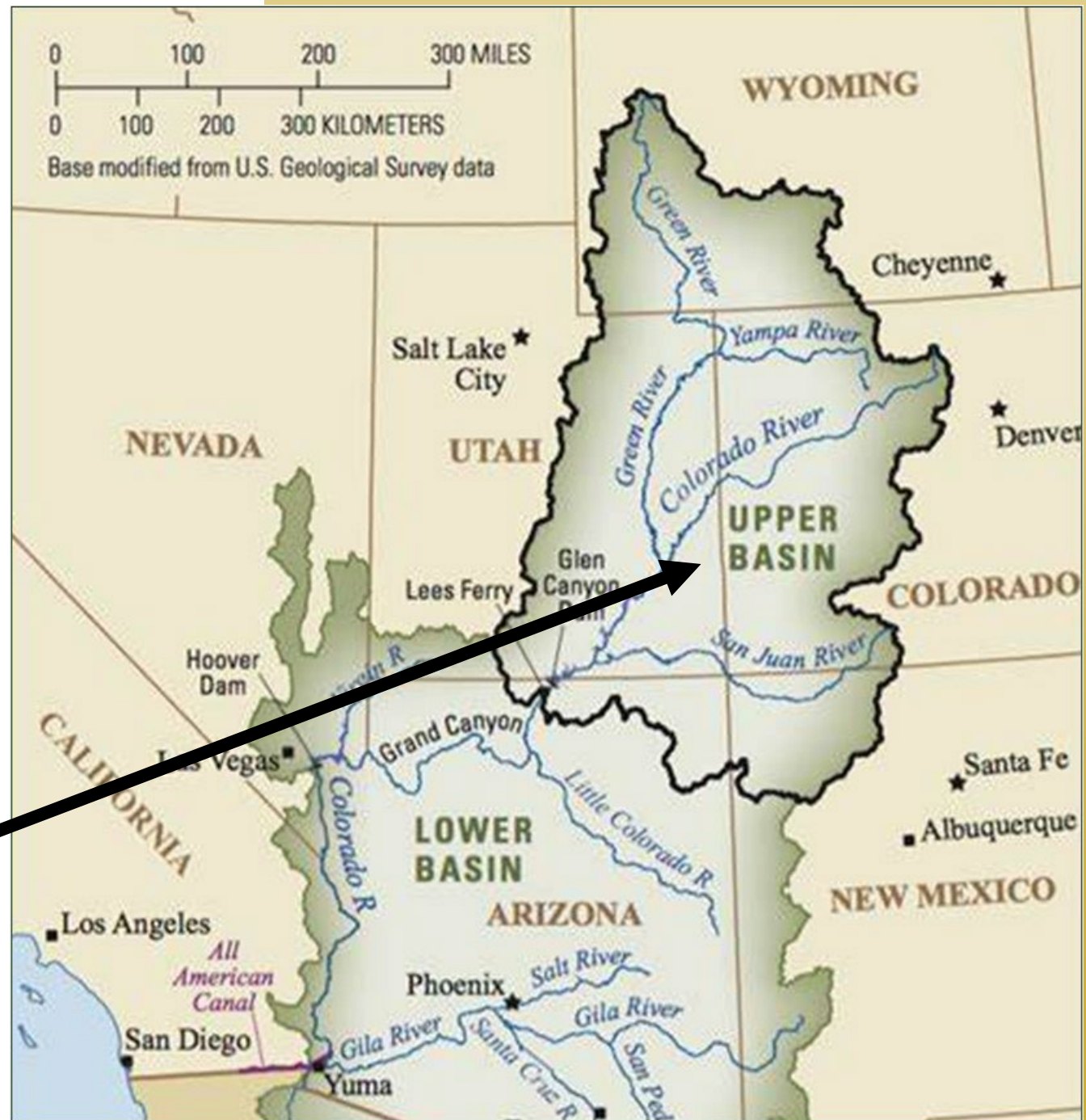
Great Salt Lake



Sources: US Geological Survey Historical Elevation at Saltair Boat Harbor

Colorado River Basin

***“Reduce use
by 2-4 million
acre feet” –
BOR in 2022***



Why it's time for Utah to buy out alfalfa farmers and let the water flow, Editorial Board writes

Alfalfa farming represents 0.2% of the Utah economy but uses 68% of available water.



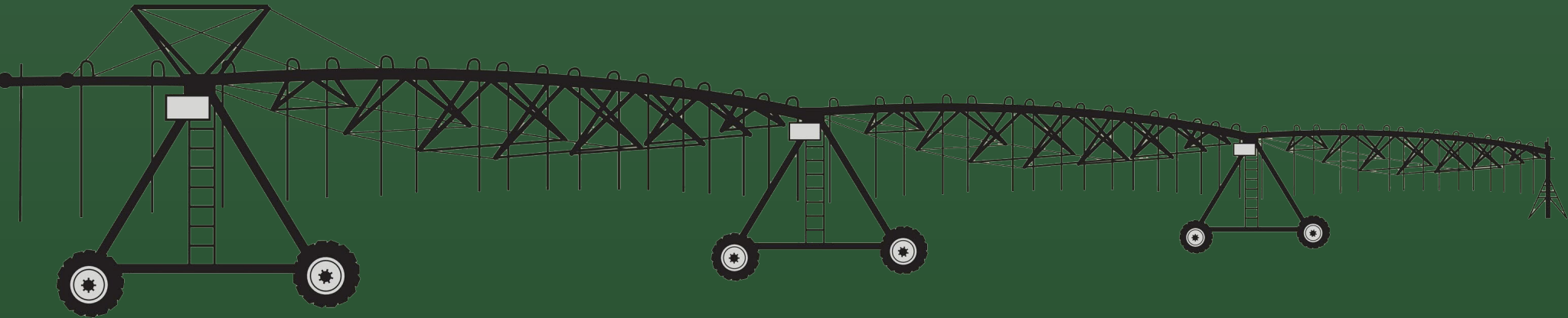
10 Reasons Why Alfalfa is Suitable for the West

- 1. High Water Use Efficiency**
- 2. Irrigation Flexibility**
- 3. Low Input**
- 4. Resilient and Adaptable**
- 5. Benefits Other Crops in Rotation**
- 6. Improves Soil, Water, and Air Quality**
- 7. Pollinator and Insect Diversity**
- 8. Wildlife Habitat**
- 9. Harvest Flexibility and Storage**
- 10. Low Risk and Local Food Production**

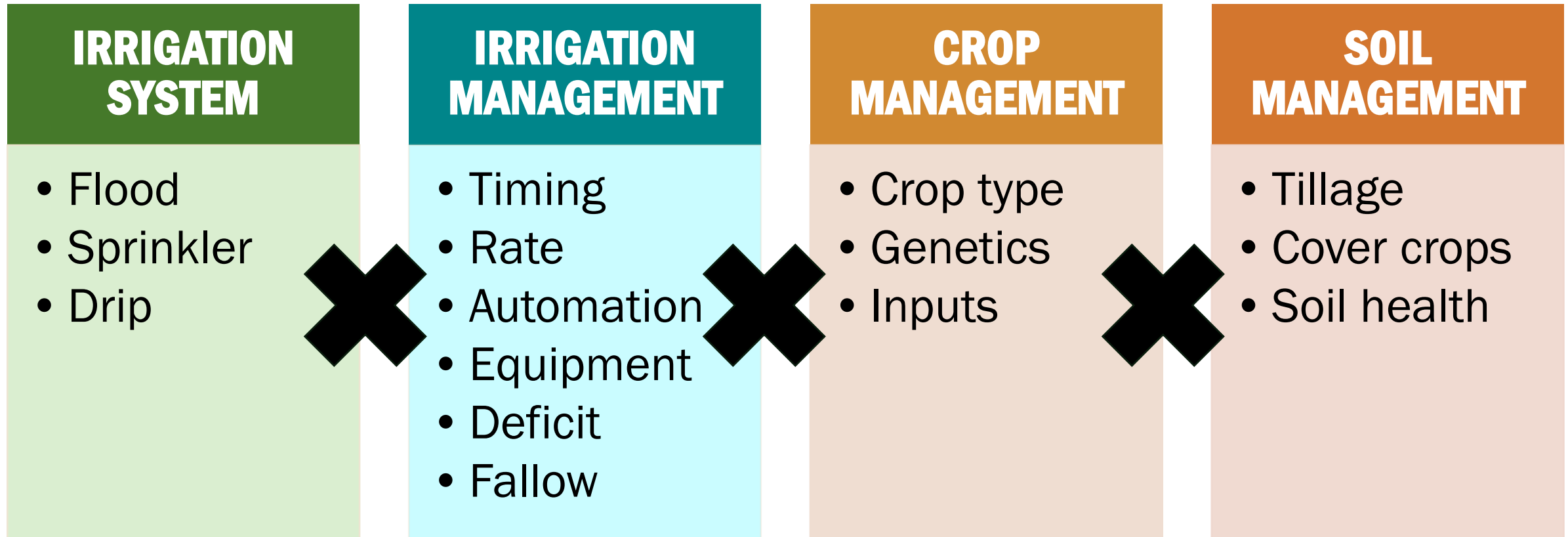




How can we
OPTIMIZE WATER
use on farms?

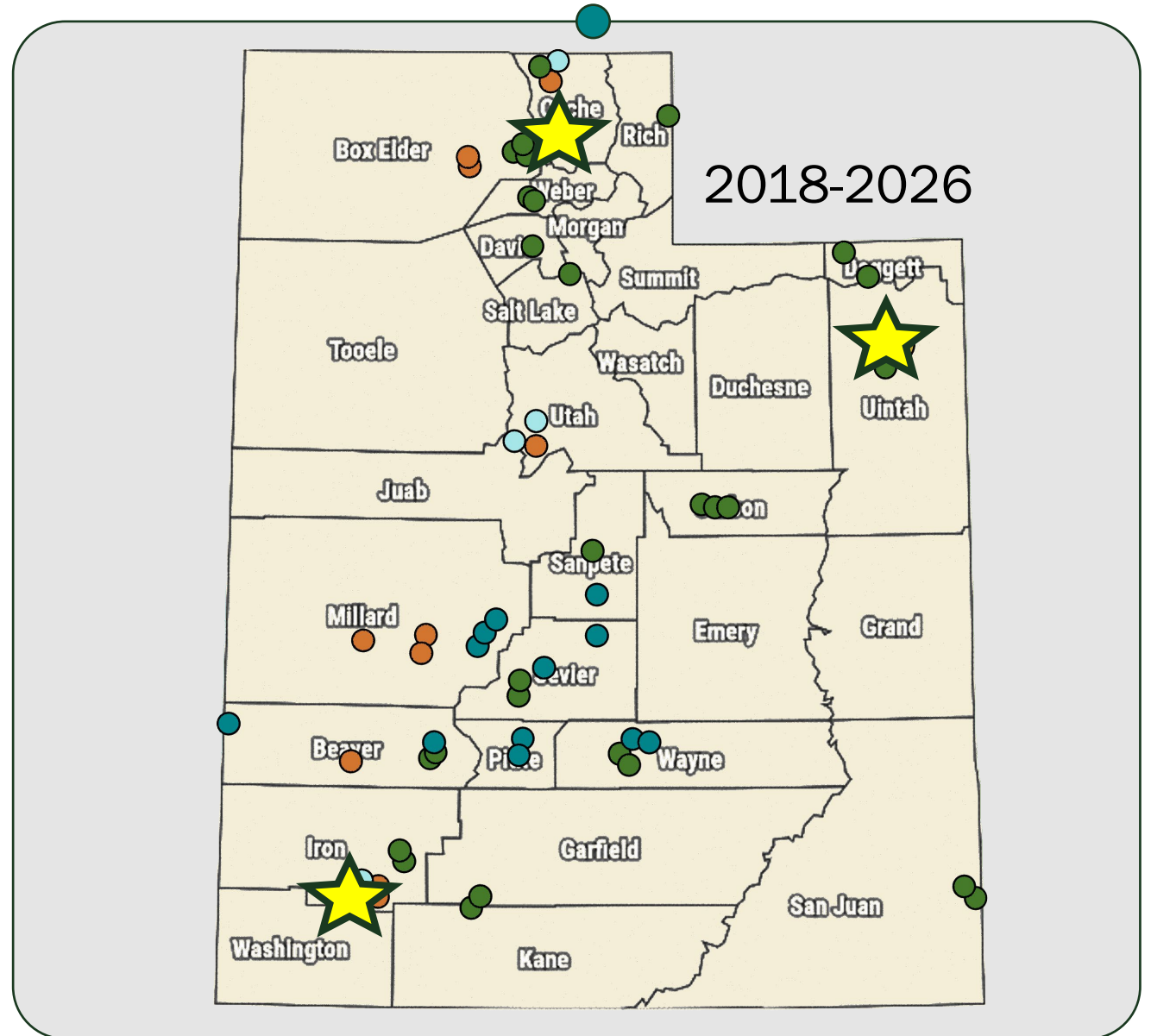


WATER OPTIMIZATION ON THE FARM



ON-FARM RESEARCH & EDUCATION

- Irrigation systems
- Irrigation management
- Crop management
- Soil management
- ★ Combinations





SPRINKLER IRRIGATION TECHNOLOGIES



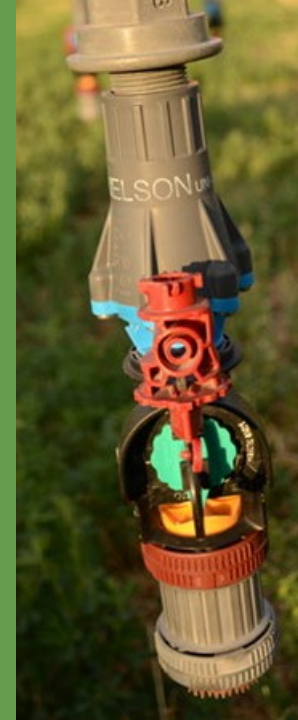
MESA
Mid-elevation
spray



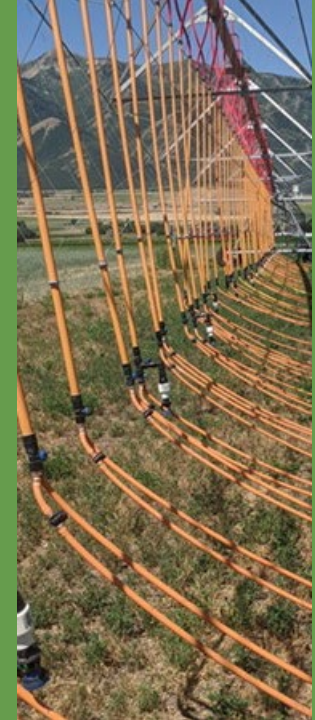
LESA
Low-elevation
spray



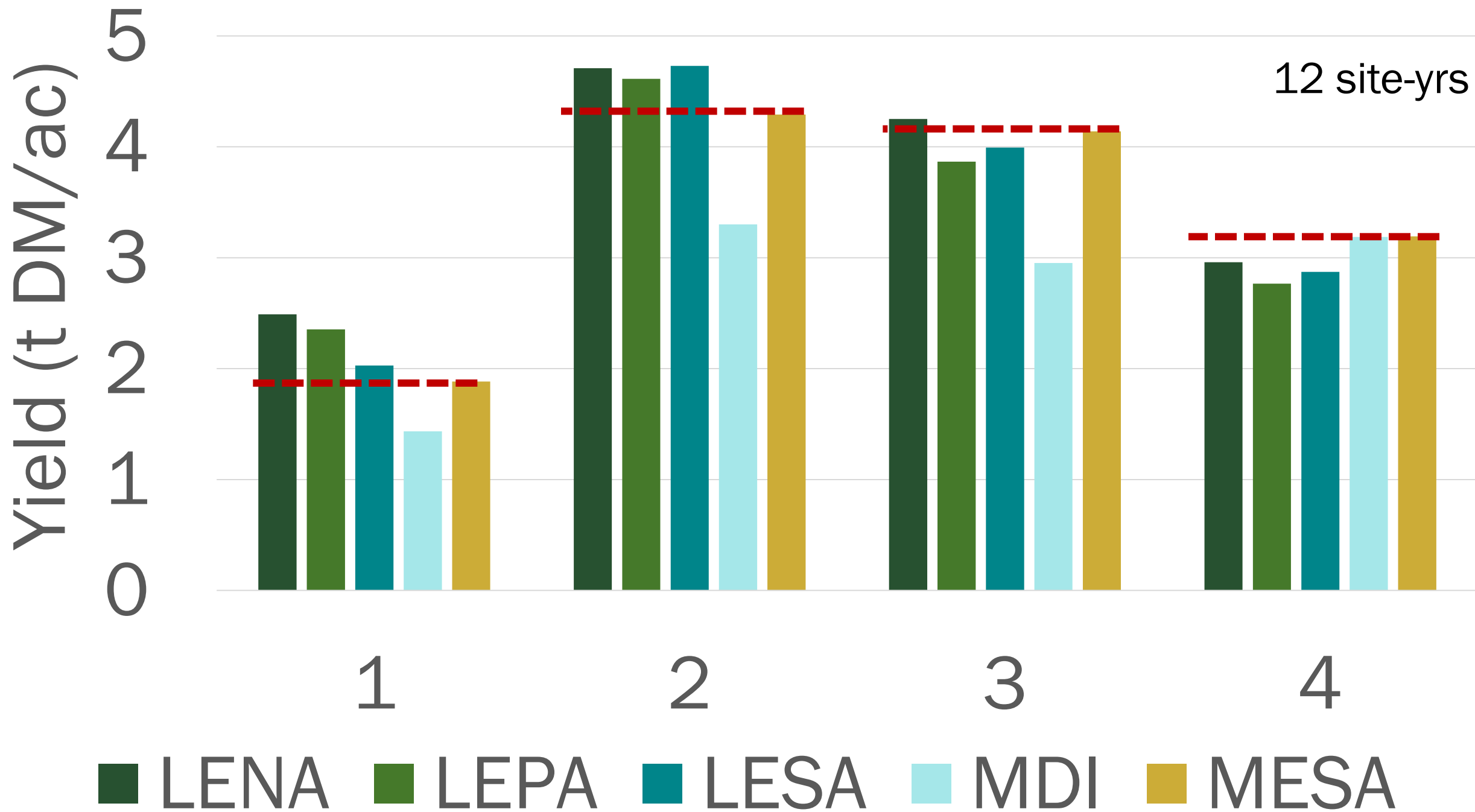
LEPA
Low-elevation
shroud

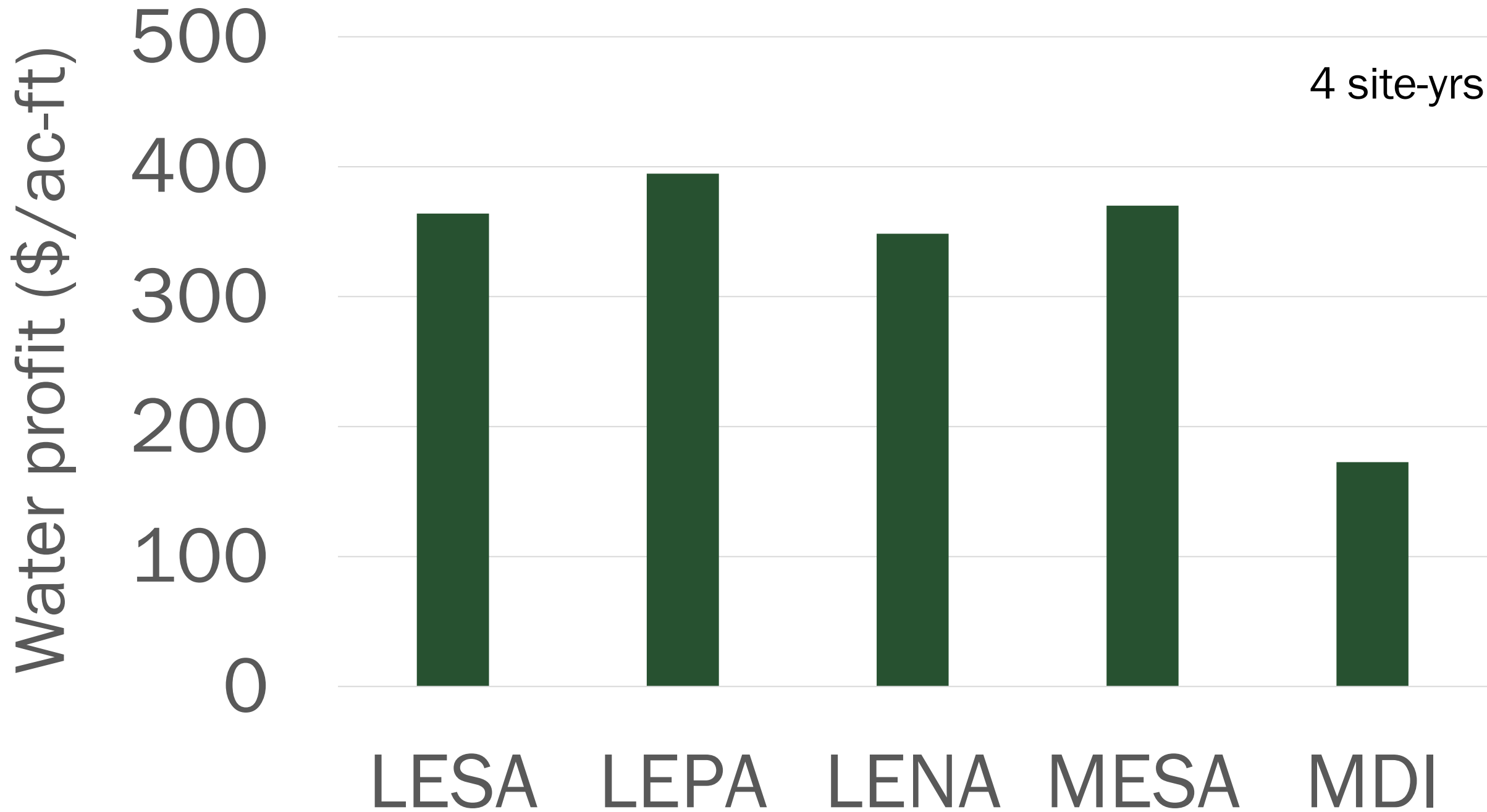


LENA
Low-elevation
rotator

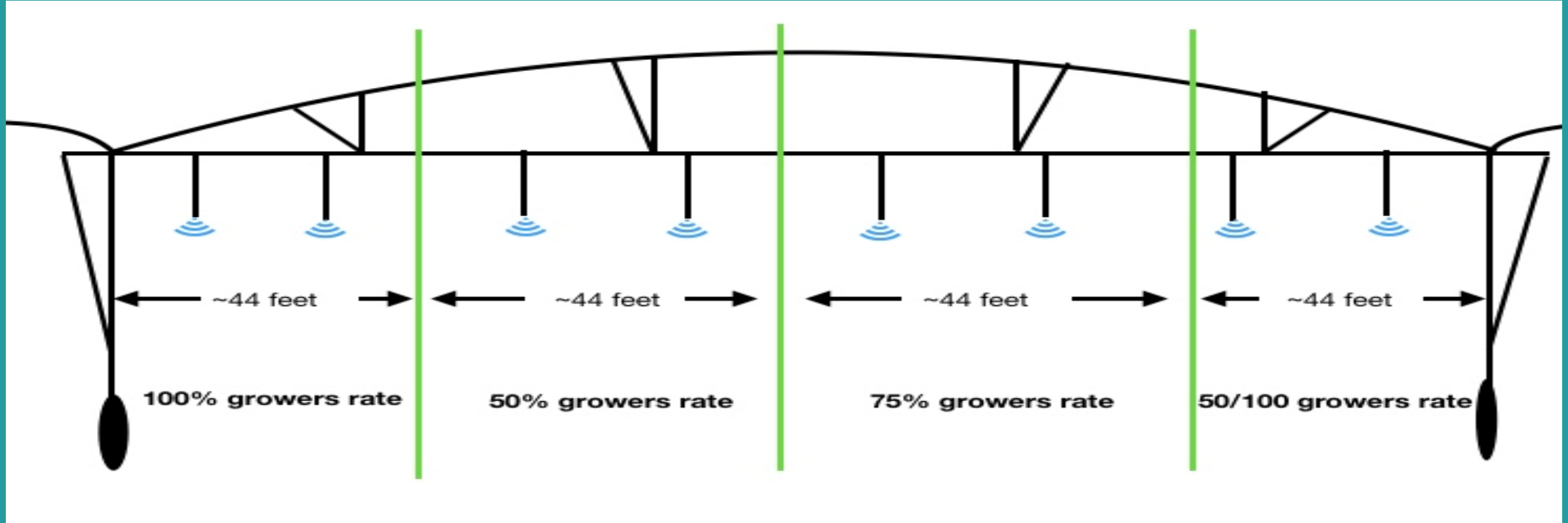


MDI
Mobile drip
irrigation

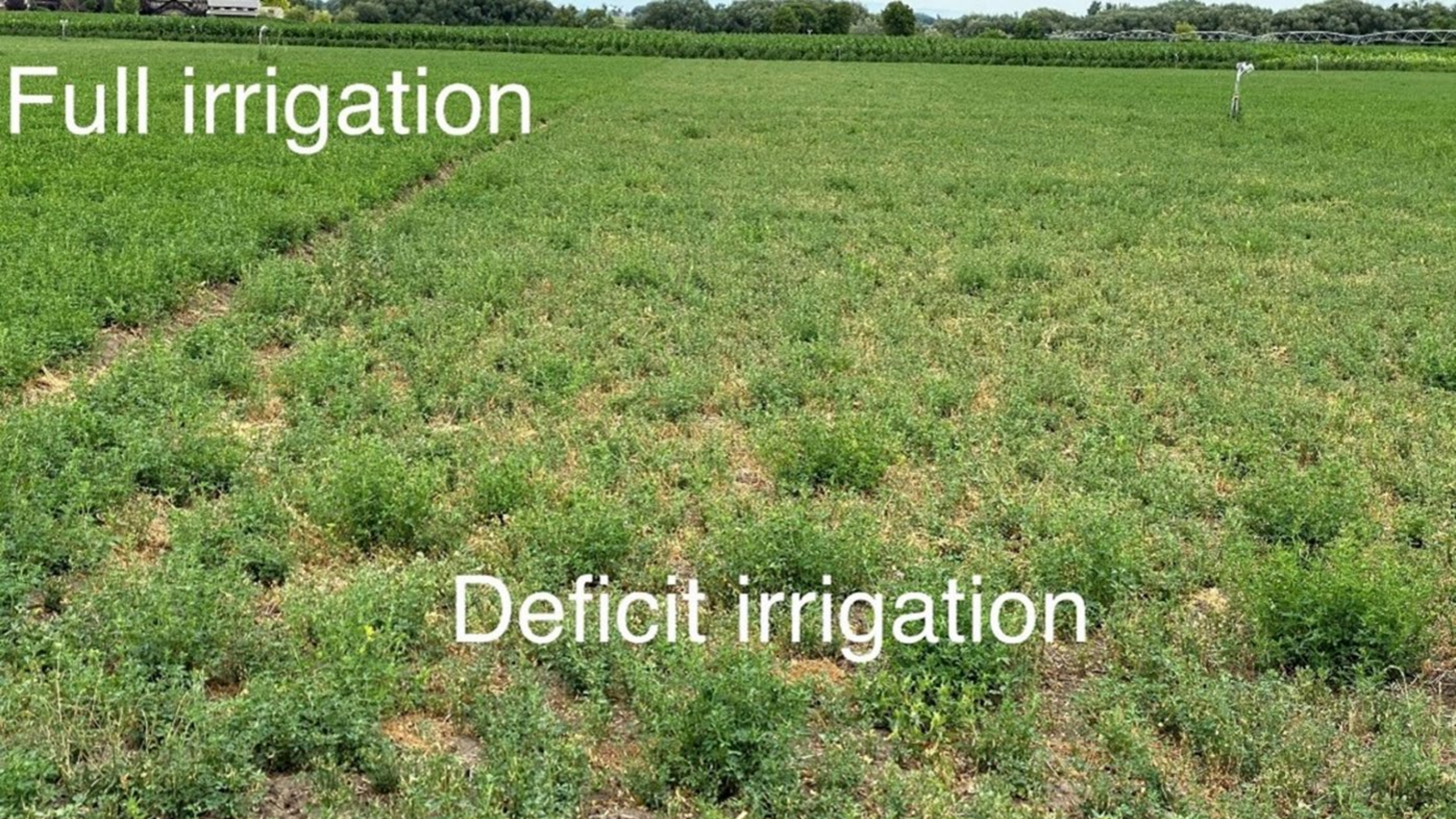




Irrigation Levels



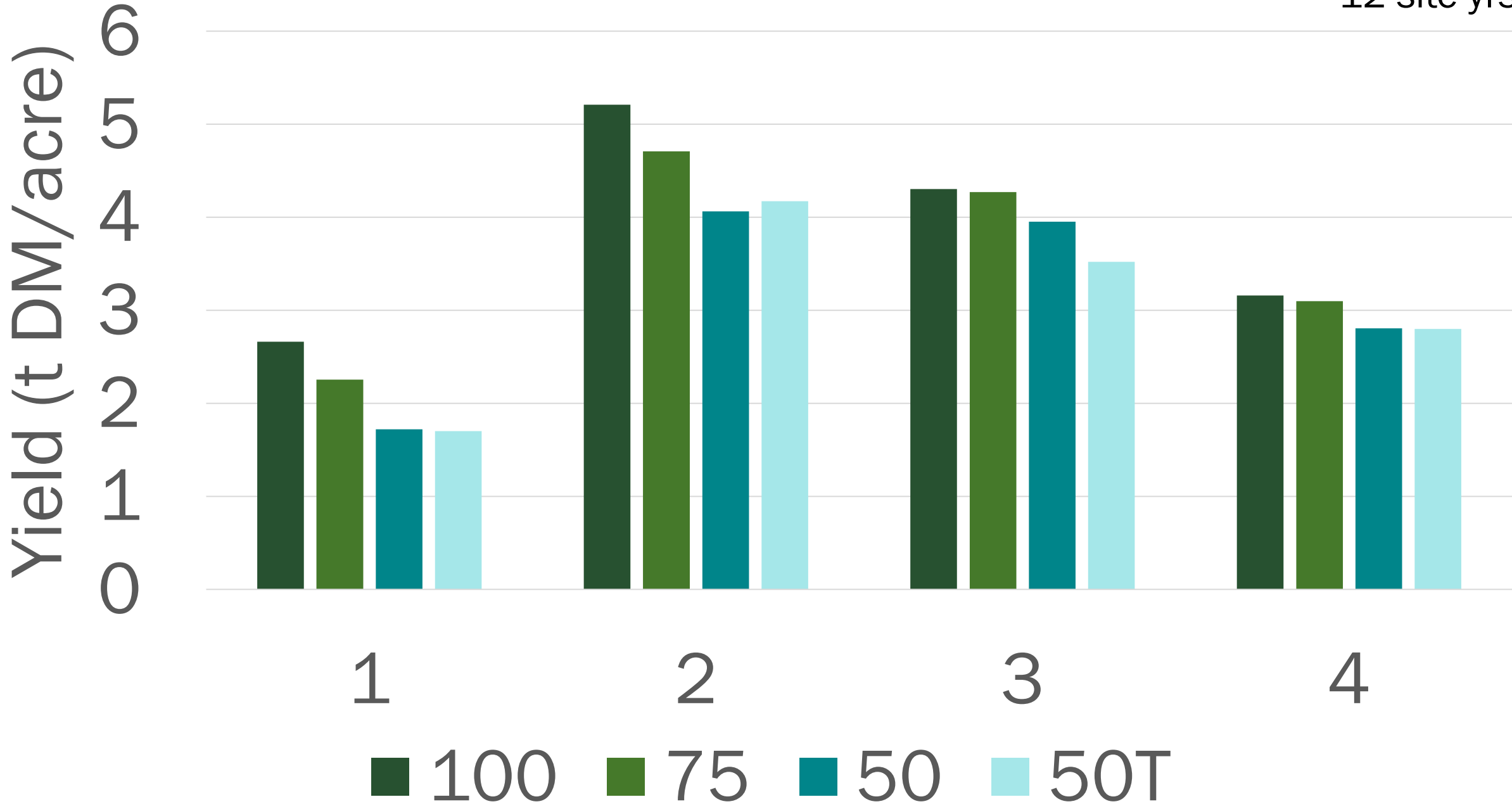
Growers rate refers to ET and decision of the farm manager.
All sites have a weather station located on the property.

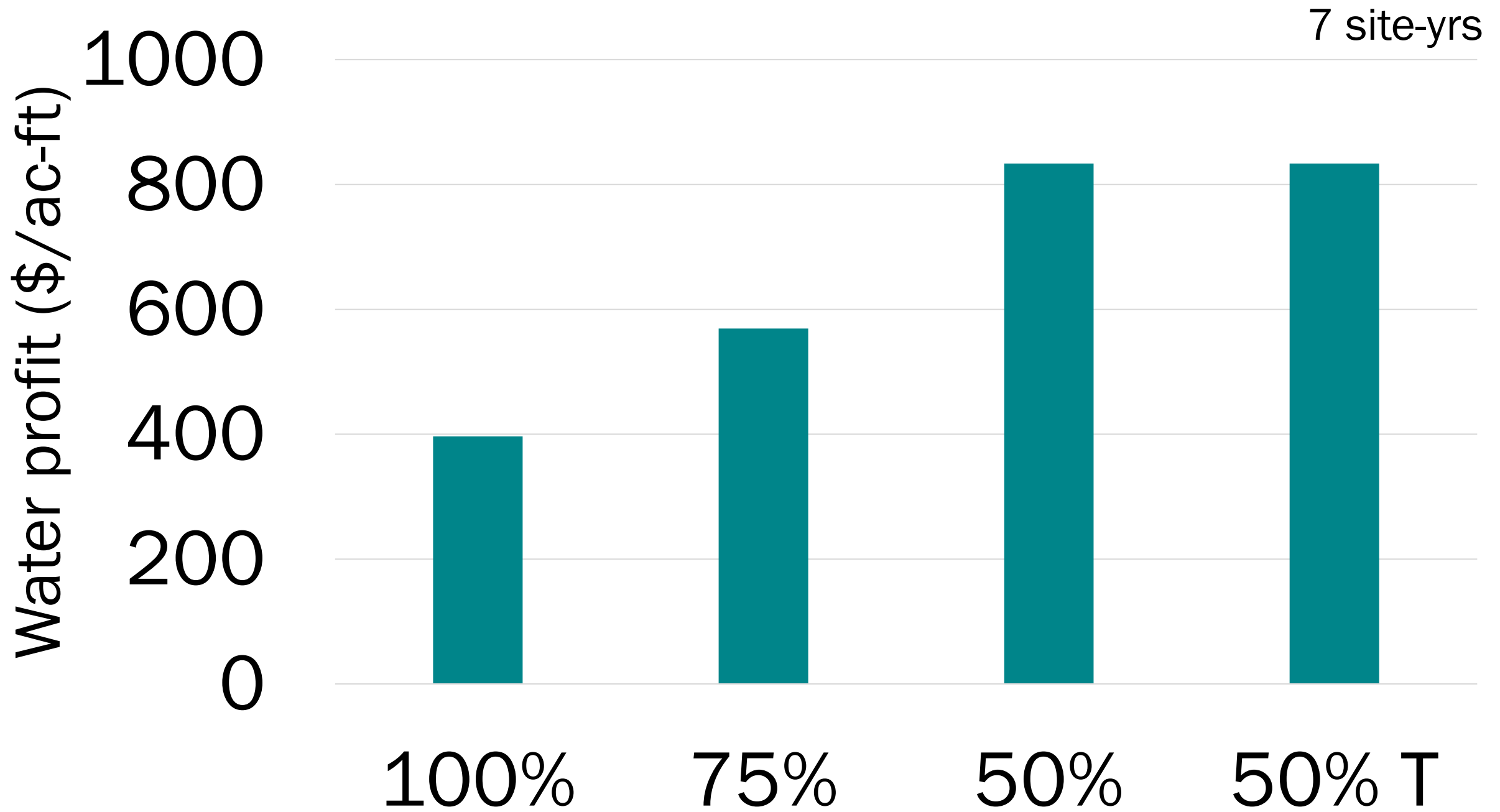


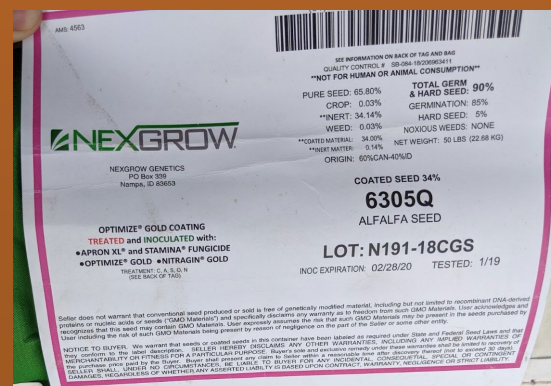
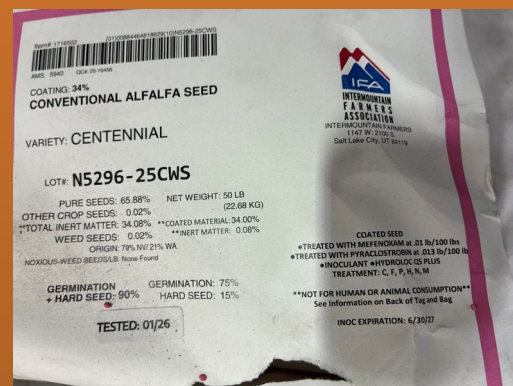
Full irrigation

Deficit irrigation

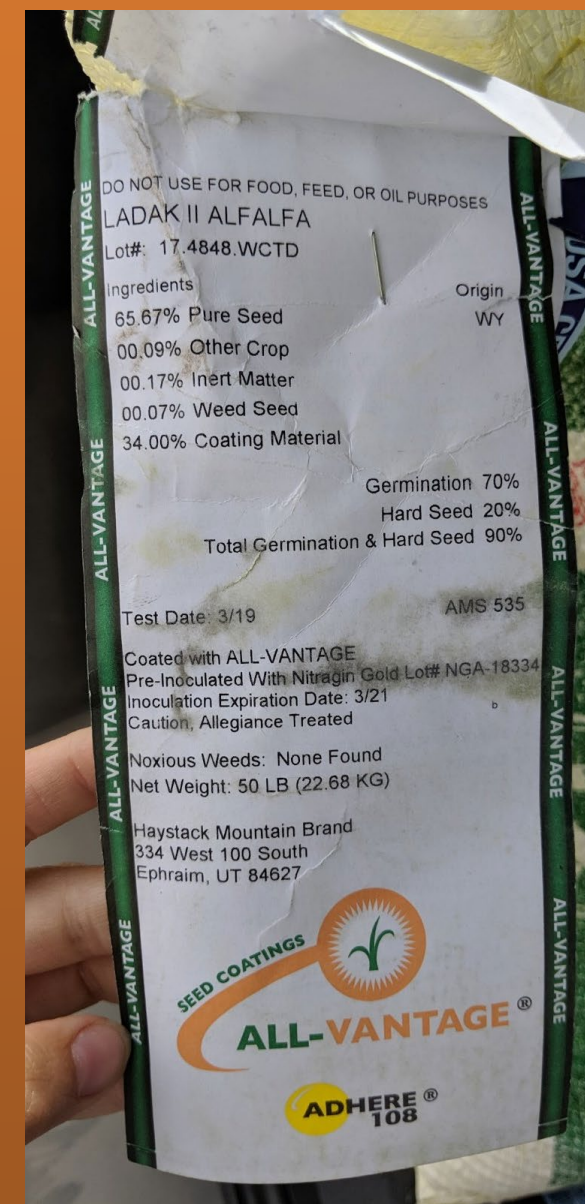
12 site-ys





[illegible]

VS



12 site-yrs

Yield (t DM/acre)

5
4
3
2
1
0

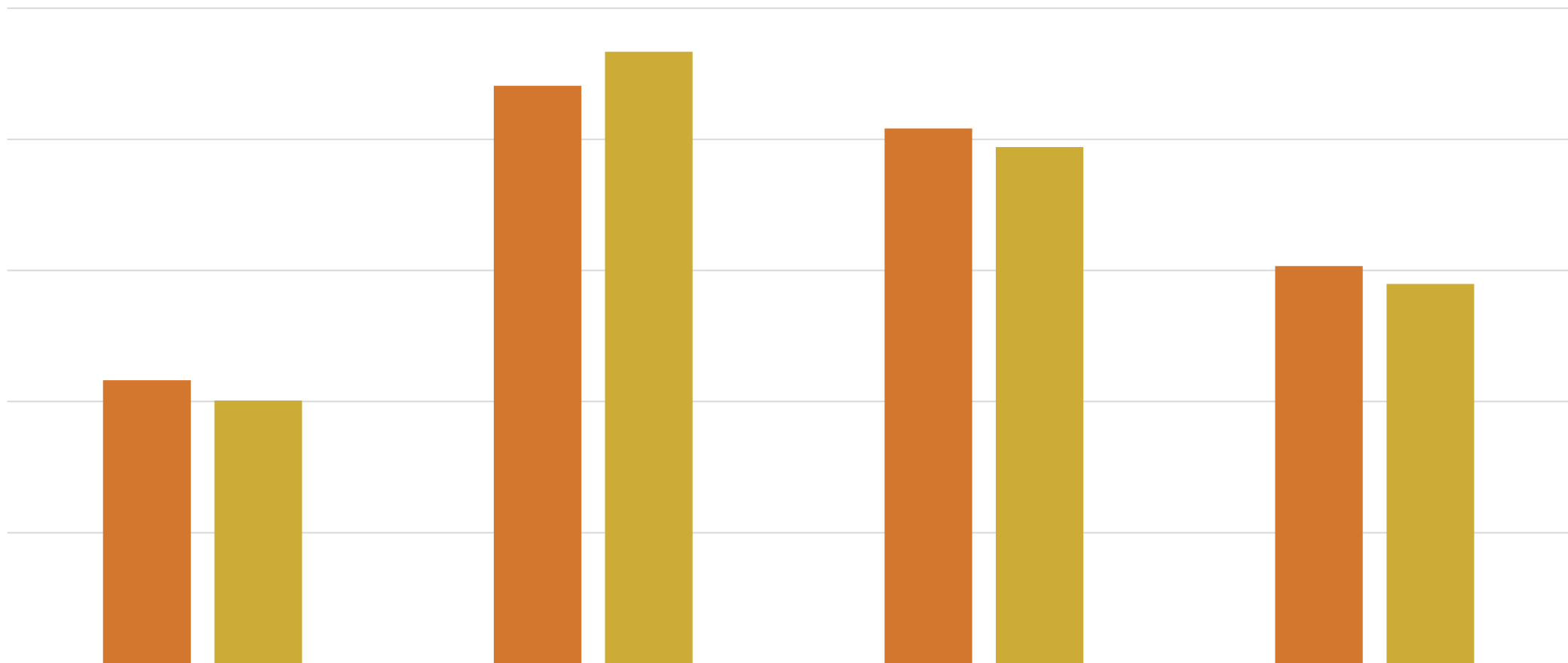
1

2

3

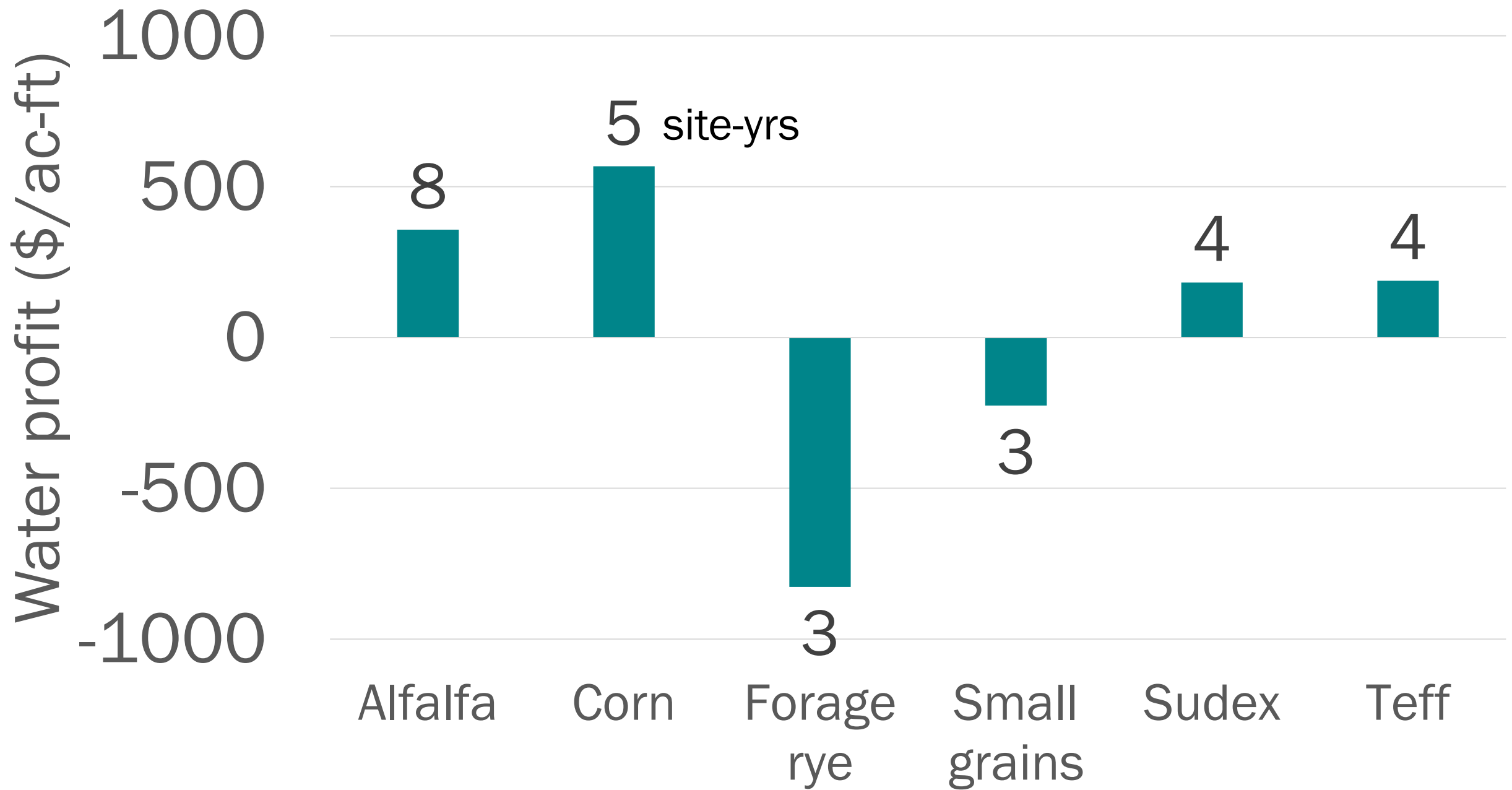
4

■ CONV ■ DT

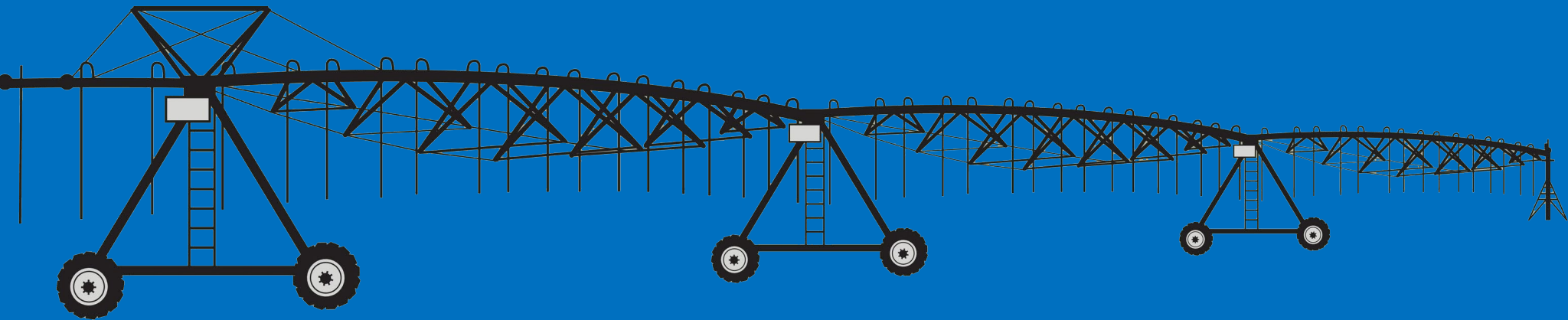




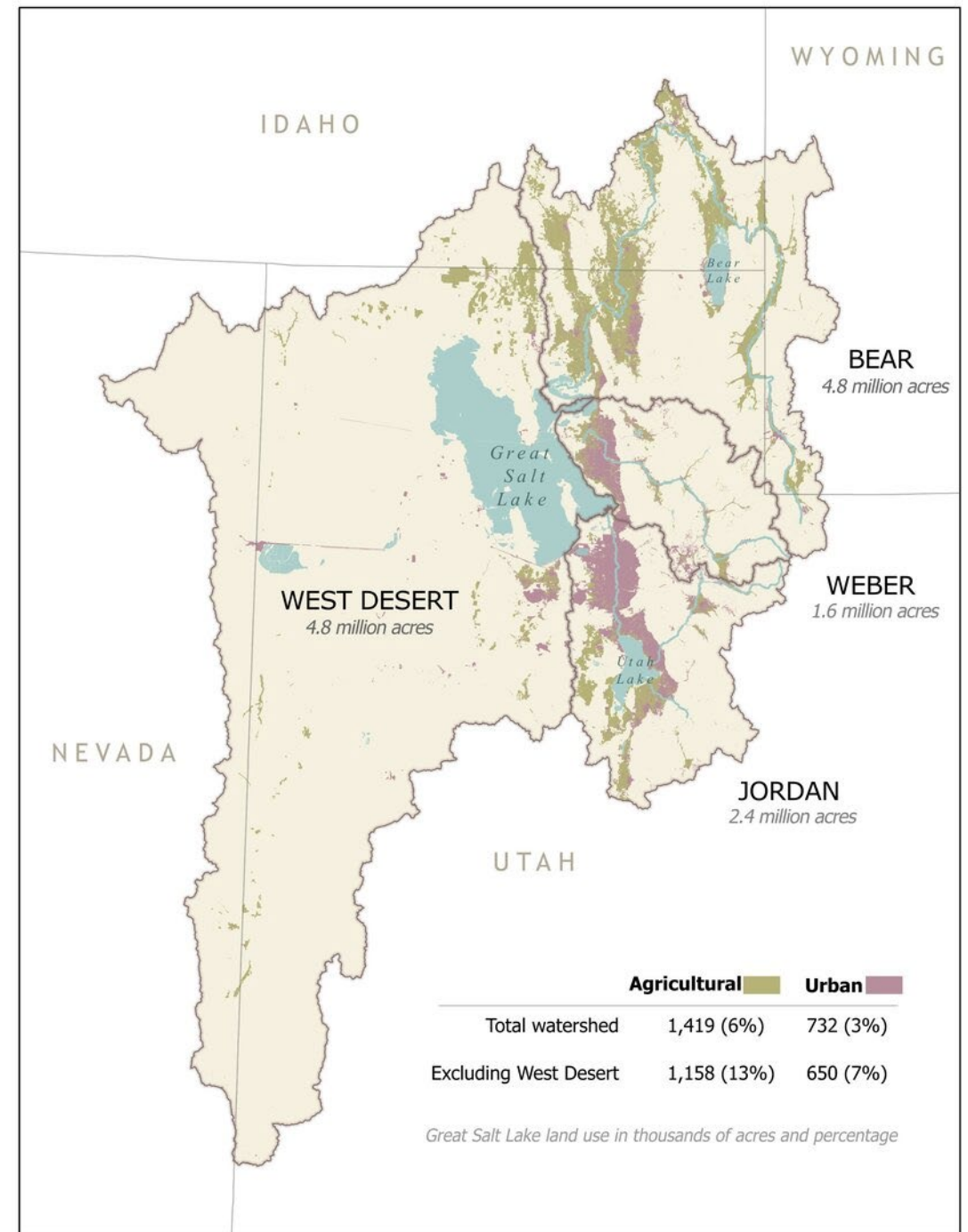
Alternative crops



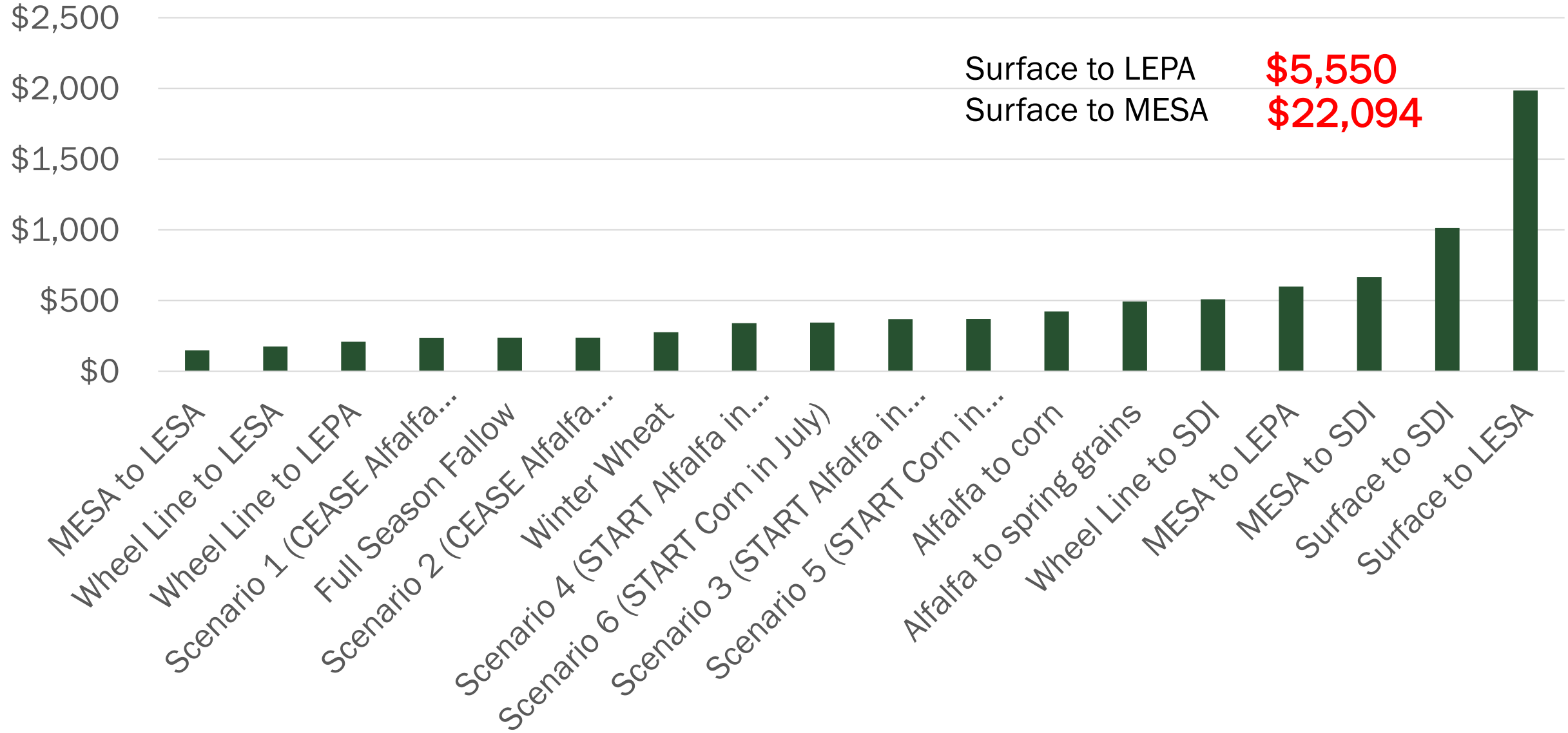
HOW FAR CAN OPTIMIZATION TAKE US?



NEED:
300 – 750K
acre-ft / year



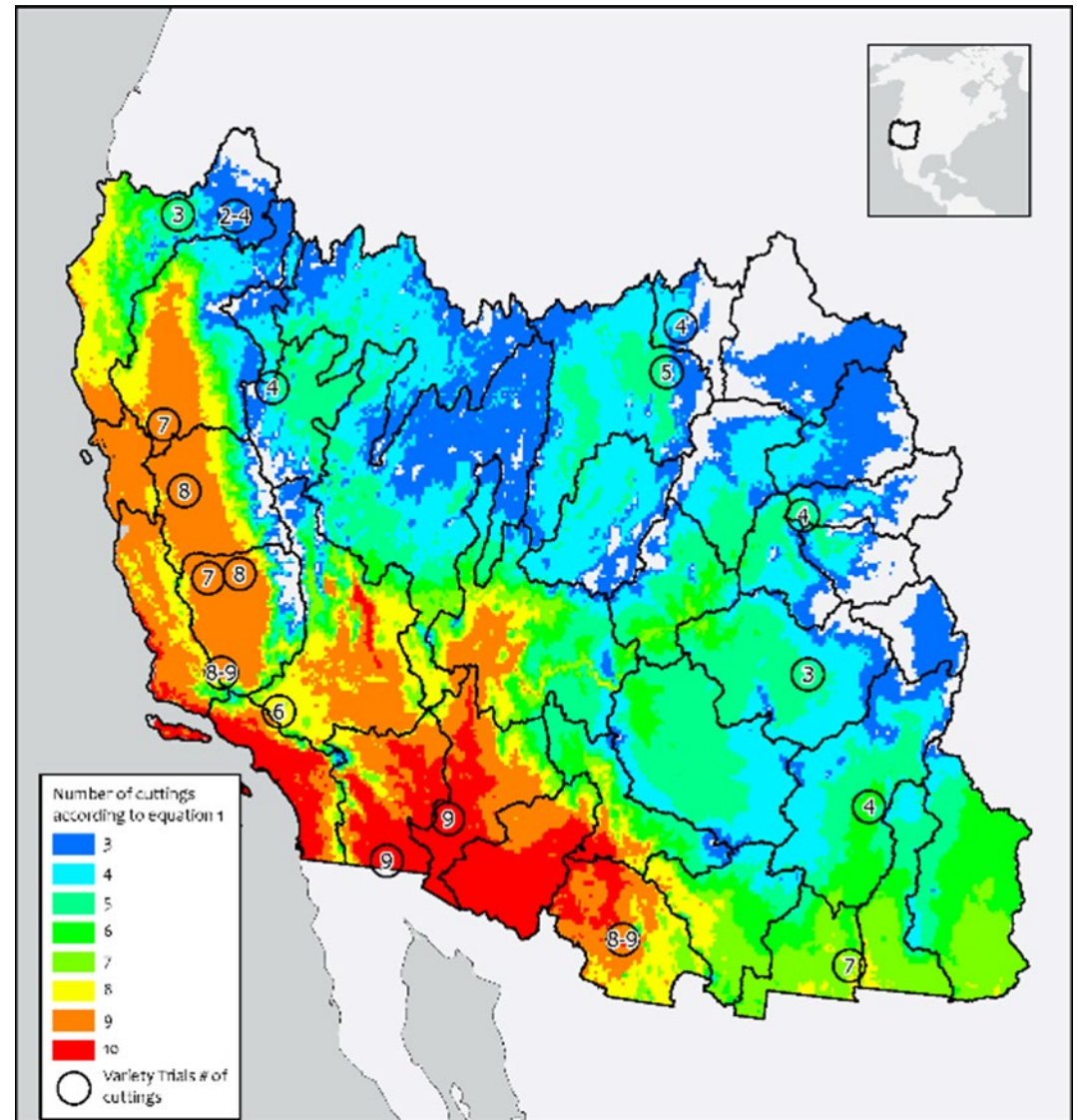
Cost per acre-foot of savings

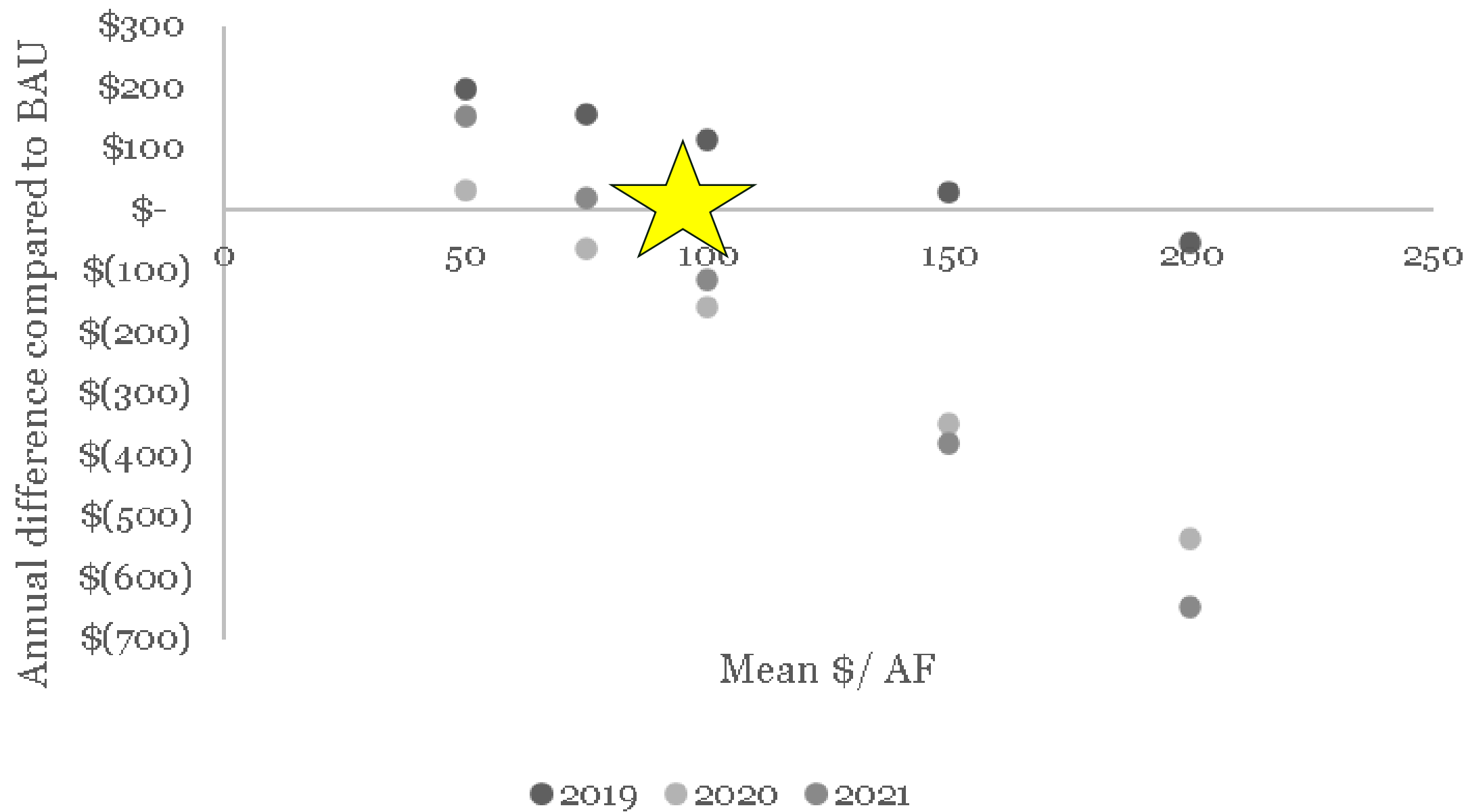


Water markets and ALFALFA

August - October

*about 3 million acre
feet with most of
savings in 3-4 cut
systems*

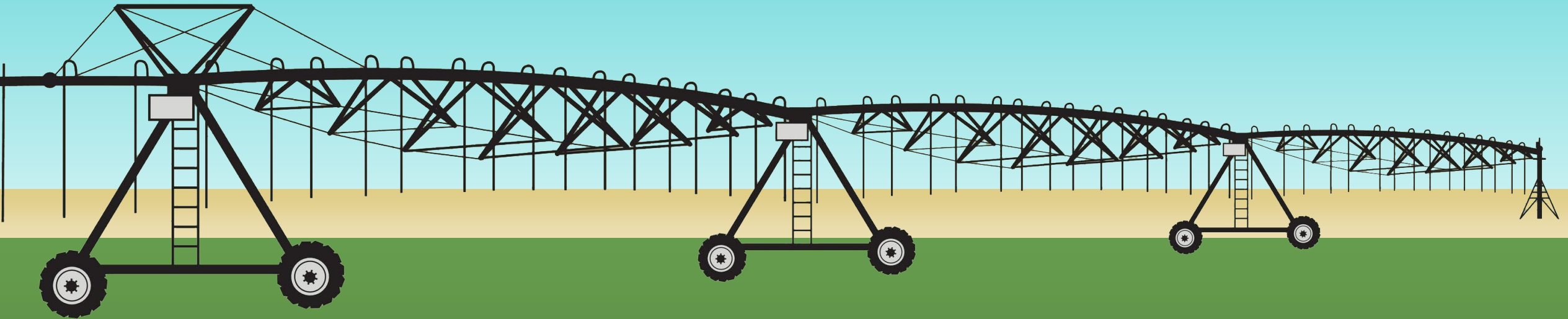




Take Home Points

- New irrigation technologies can improve alfalfa yield and water profitability
- Deficit irrigation can increase water profitability
- No benefit of drought-tolerant genetics on yield or profitability
- Alfalfa has better water profitability many other forages except corn.
- **Alfalfa flexibility can be a large solution to the western water woes!**

THANK YOU



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