CULTIVATING AGRICULTURE WATER RESILIENCY IN UTAH

DRAFT

A Down Payment on the Future

PHASE I: ASSESSING THE POSSIBILITIES (2018 H.B. 381)

OBJECTIVE:

The Agricultural Water Optimization Task Force was formed in 2018 by the Utah State Legislature (H.B. 381). The Task Force's initial objective was to:

Identify and initiate research that identifies how the State could:

1. Optimize agricultural water supply and use
2. Improve the quantification of agricultural water use

The Task Force initiated research to achieve this objective with funds appropriated by the legislature. Research was completed during the 2019-2021 growing seasons. All but one study are complete.

KEY FINDINGS

Proven technologies and methods for optimizing irrigation, cropping, and tillage already exist that can reduce water consumption and maintain agricultural production. These can be leveraged, improved, and implemented in Utah (Barber and Peters 2020).

Field testing of different combinations of LEPA/LESA sprinkler systems, tillage, crops, cover crops, and deficit irrigation have proven the feasibility of reducing water consumption and maintaining agricultural production in Utah (Yost et al. 2021).

Drip irrigation works, is less consumptive, requires less diversion, and maintains yield vs. surface irrigation (Allen et al. 2021).

Quantification of diverted and applied water provides significant benefits to the producer, community, and environment and is desired by water users and water managers. The Emery County experience is proof positive that this works in Utah (Green et al. 2020).

Ground-based and remote sensing technology exists to provide water users and water managers with the water diversion, application, and depletion information they need (Jacobs 2020).

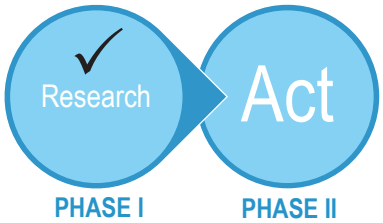
Preliminary results from field testing of ground-based and remote sensing technologies indicate that water depletion accounting is feasible in Utah (Allen et al. forthcoming).

What is agricultural water optimization?

The implementation of agricultural and water management practices that maintain or increase viable agriculture while minimizing negative impacts on water supply, water quality, and the environment.

CONCLUSIONS

1. Utah must innovate and adapt to address acute drought and chronic water supply and demand challenges.
2. There are readily available and proven tools and approaches that can be implemented to incentivize and make progress toward agricultural water optimization and resiliency.
3. The State of Utah must invest now to preserve agriculture in Utah and enable the growth that is envisioned.



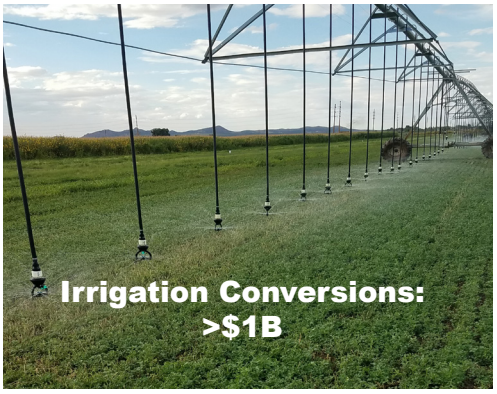
Pivoting from Research to Action

PHASE II: PIVOT FROM RESEARCH TO ACTION

The Challenge and Need

Acute droughts such as what we experienced in 2021 are a **significant threat to the viability of our farms and ranches.** Utah agriculture is facing relentless pressure from growth that is transforming agricultural lands and increasing demands on a limited water supply. Long-term climate trends have decreased and will likely continue to decrease the available water supply. **Immediate action that optimizes the use and management of our finite water supplies is needed** to both preserve agriculture and sustain the desired growth in Utah for future generations.

The Task Force estimates that an investment of >$6B would improve drought resiliency and could potentially reduce diversions by up to 20-30% for Utah's irrigation and canal systems. Utah must make a significant investment now.



A New Objective – To Act

Develop and implement an agricultural water resiliency plan for Utah that accomplishes the following goals:

GOALS

1. Preserve agriculture and enable smart growth in Utah for future generations

- Preserve Utah's agricultural economy
- Increase local use of Utah agricultural products
- Adapt agricultural market to less consumptive products
- Promote smart growth; protect critical agricultural lands

2. Boost the resilience of Utah's agriculture to anticipate, respond, and succeed in spite of drought and other impacts of climate change

- Quantification – Provide water users and water managers with the data (for example, via metering) they need to optimize their operation and increase water use accountability/transparency
- Tools – Reduce agricultural water diversions and consumption through improved infrastructure and methods
- Education – Increase agriculture irrigation outreach, technical assistance, education, and demonstration projects

3. Expand the capacity of agriculture to adapt to increasing demands upon a decreasing water supply

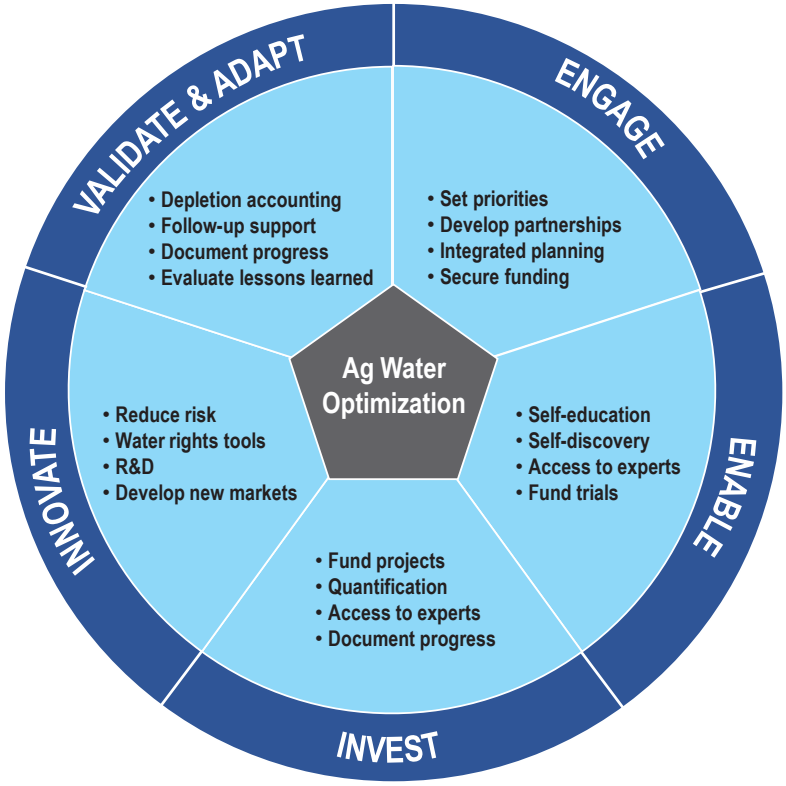
- Preserve an adequate water supply to maintain Utah's agricultural economy
- Protect non-consumptive system uses of water
- Develop basin integrated plans
- Avoid regulatory curtailments through voluntary efficiency measures that maintain agricultural production

Pivoting from Research to Action

We must define the need and develop local solutions.

A Utah Agriculture Water Resiliency Plan will:

1. **Engage** stakeholders and **enable** water users to make **voluntary** changes
2. Provide a framework for individual basin plans that will identify and prioritize **investments** from a **local** perspective
3. Incentivize water users and water managers to **innovate** to minimize risks and maximize benefits.
4. Minimize the risk of change by structuring improvements to be **temporary** until they are **validated**.
5. Develop the means to **adapt** plan elements to maximize benefits to the water user and basins.



The Agricultural Water Optimization Task Force requests a one-time appropriation of $1,000,000 to develop a framework for a statewide Agriculture Water Resiliency Plan in 2022-2023. The Task Force has already identified actions for 2022; the framework will serve as the foundation and guide for a collaborative and integrated effort to develop local solutions.

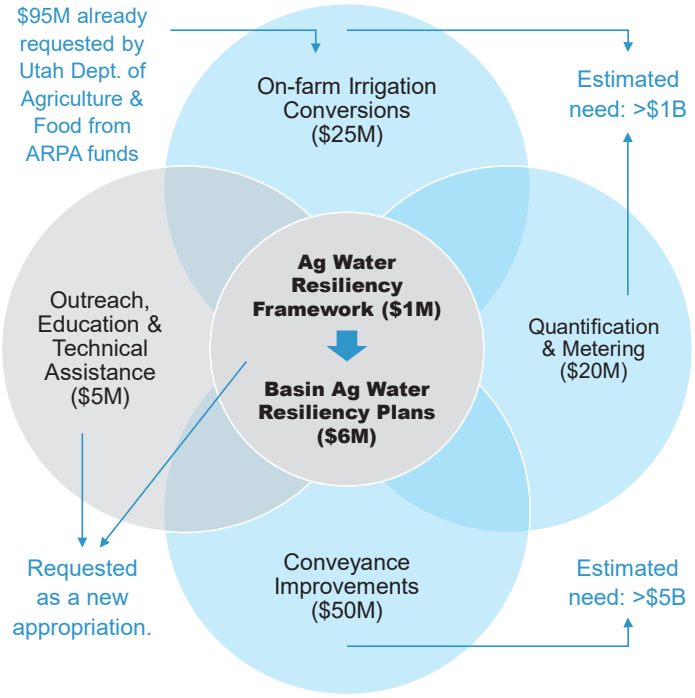
The Task Force requests a one-time appropriation of $6,000,000 to develop basin-specific agriculture water resiliency plans that follow the statewide framework. The basins will be prioritized based upon existing and forecasted challenges, potential benefits, and willing partners.

Invest $7,000,000 to develop state and basin-specific agriculture water resiliency plans. potentially reduce This is requested as a new appropriation.

Moving the Needle – A Down Payment on the Future

The Task Force recommends four areas of focus in 2022 that will initiate a bold vision for agriculture water resiliency in Utah, lay the foundation for the Utah Agriculture Water Resiliency Plan, and represent a critical down payment on the future of Utah. Three of these areas are already included in the Utah Department of Agriculture and Food's (UDAF) previous request for $95M in ARPA funds for agriculture water optimization.

Invest $100,000,000 as a down payment on agriculture water resiliency in Utah. $95,000,000 has already been requested by UDAF from available ARPA funds. $5,000,000 is requested as a new appropriation.



On-farm Irrigation Conversions

$25,000,000 for a competitive irrigation efficiency program that will optimize existing irrigation systems (included in UDAF's previous ARPA request). These projects could enable up to a 20% reduction in the amount of water being used for irrigation while maintaining agricultural production. Projects will be prioritized based upon water saved, water risk in the basin, and number of participants in the basin.

Conveyance Conversions

$50,000,000 for a competitive conveyance efficiency program that reduces evaporation and infiltration in existing canals and ditches (included in UDAF's previous ARPA request). Projects will be prioritized based upon their safety risk, existing loss of water to evaporation and infiltration, local hydrologic conditions and impacts, and opportunities to collaborate and leverage other funds. These projects could reduce water losses in canals by up to 5% to 40%.

Quantification

$20,000,000 to realize the benefits of a real-time monitoring system statewide (included in UDAF's previous ARPA request). The program would begin to meter irrigation diversions and applied water, monitor groundwater levels, provide telemetry and data management systems, provide education and technical assistance, implement an agricultural water depletion accounting program, and make the information available to water users. Data describing actual diversions and depletions is expected to directly benefit water users as they maximize their production, and benefit water managers and their communities as they plan for a resilient water supply that enables sustainable growth.

Outreach, Education, and Technical Assistance

$5,000,000 to develop and implement an outreach, education, and technical assistance program to support the implementation of irrigation improvements (new appropriation). The program will include adding two Extension irrigation specialists to focus upon outreach and education, developing a new program to develop farm-specific irrigation plans and incentivize implementation, add three Extension irrigation specialists to help identify financial assistance opportunities; provide technical evaluation, design, and assistance during installation and operation of plan elements: and implement demonstration projects throughout the state.