Agricultural Sector Water Use Efficiency

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If there's one thing Arizona is the best in the nation at – it's water.
ARIZONA’S WATER MANAGEMENT SUCCESS

TOTAL WATER USE (IN MILLIONS ACRE/FEET)
- 1957: 7.1 MAF
- 2018: 7 MAF
- CHANGE FROM 1957-2018: -1%

POPULATION (IN MILLIONS)
- 1957: 1.1
- 2018: 7.1
- CHANGE FROM 1957-2018: 545%

GROSS DOMESTIC INCOME (IN BILLIONS)
- 1957: $13.4
- 2018: $287.9
- CHANGE FROM 1957-2018: 2,049%
Water Use By Sector (2018)

- Municipal Use: 21%
- Agricultural Use: 73%
- Industrial Use: 5%
Arizona Water Use By Source (2018)

- Colorado River: 36%
- In-State Rivers: 18%
- Reclaimed Water: 4%
- Groundwater: 42%
Agribusiness in Yuma has adapted to changing technologies and markets to evolve into a world class venture that is a model for efficiently using water to maximize agricultural production and economic value. It is a driving force for the financial strength of the community in Yuma and is a key component of Arizona’s vibrant economy.
There have been numerous changes within the Yuma districts to improve water use efficiency. They include:

- Modifications of conveyance systems and turnouts to allow high volume deliveries
- Implementation of improved scheduling
- Delivery practices including the use of Supervisory Control and Data Acquisition (SCADA) systems for gate control and the use of electronic metering devices.

*“A Case Study in Efficiency – Agriculture and Water Use in the Yuma, Arizona Area, February 2015”*
1980 Groundwater Management Code

**Issue:** Severe groundwater depletion

**Approach:** Collaborate among different sectors and stakeholders

**Goals:**
- Control severe groundwater depletion
- Improve groundwater supplies through conservation and development of additional water supplies
- Provide the means for allocating Arizona's limited groundwater resources

**Solution:** Groundwater Management Code

Former Arizona Governor and Interior Secretary Bruce Babbitt signing the GMA
Groundwater Management
Active Management Areas

Active Management Areas (AMAs)
- Phoenix
- Pinal
- Prescott
- Santa Cruz
- Tucson

Irrigation Non-Expansion Areas (INAs)
- Joseph City INA
- Harquahala INA
- Douglas INA
Active Management Area Goals

Phoenix AMA
• To achieve safe-yield by the year 2025

Pinal AMA
• To preserve agricultural economy for as long as feasible, while considering the need to preserve groundwater for future non-irrigation uses

Prescott AMA
• To achieve safe-yield by the year 2025

Tucson AMA
• To achieve safe-yield by the year 2025

Santa Cruz AMA
• To maintain a safe-yield condition in the active management area and to prevent local water tables from experiencing long term declines
Groundwater Regulatory Structure

- Registration of all wells
- Adequate Water Supply
- Community Water Systems Documentation
  - Expansion of irrigated acres is prohibited
  - Monitoring and Reporting
- Assured Water Supply
- Groundwater Withdrawal Fees
- Management Goals, Plans & Conservation Programs
Each irrigation groundwater right is assigned a maximum annual groundwater allotment based on the water duty and water duty acres associated with the land, while allowing for some flexibility.

**Components of the Base Program**

- **Water Duty** – The amount of water that is reasonable to apply to irrigated land
- **Water duty acres** – The highest number of acres irrigated between 1975 – 1980
- **Flexibility account** – allows right holders to accrue credits or debits based on annual water use to accommodate for varying climatic and market conditions
A.R.S. § 45-568.02 (G)
The BMP Program shall be designed to achieve conservation that is at least equivalent to that required under the Base Program

- Farm operator agrees to implement approved BMPs on their farm relating to water conveyance, irrigation systems, and efficient water & soil management practices.
- Must implement and report on practices annually, in addition to adhering to water use reporting requirements, under BMP farm unit number.
- No annual allotment to adhere to, therefore the water duty and flexibility account provisions are irrelevant to IGFRs while enrolled in the BMP Program.
Category 1:

**Water Conveyance System Improvements**

Participants may earn points based on the percentage of the farm’s acreage that is served by an approved conveyance system.

- Concrete lined ditch
- Pipelines
- Drainback system
Category 2: 

Farm Irrigation Systems

Participants may earn BMP points based on the types of irrigation systems used. More efficient types of irrigation systems are granted more points.

- Slope Systems
- Sprinkler Systems
- Drip Systems
Category 3:  
Irrigation Water Management Practices

Participants may earn BMP points by implementing practices that will increase a farm’s overall efficiency of water application in a growing season.

- Field management such as laser touch-up or furrow checks
- Irrigation management such as surge, temporary sprinklers, or scheduling services
- Continuing education
Agricultural BMP Program

Category 4:

Agronomic Management Practices

Participants may earn BMP points by implementing combinations of plant and soil management practices to conserve water over the length of growing season.

• Crop management: rotation, use of transplants, residue management, etc.
• Other agronomic practices: surface conditioning, using plastic mulch, planting in the bottom of furrows, etc.
Water use data reported to ADWR comes from:

• Irrigation rights greater than 10 irrigation acres

• BMP Farm Units
  - Can be made up of multiple Irrigation Rights, but only submit one report

• Irrigation Districts
  - Some districts report on behalf of their right holders
Agricultural groundwater use has declined ~37% since 1985 in response to the introduction of CAP water to the AMAs.
As Arizona transitions to a drier future, we must continue to promote a culture of conservation - one that enables the unbeatable quality of life and boundless opportunity we enjoy.

GOVERNOR DOUG DUCEY SIGNS ARIZONA DCP LEGISLATION (1.31.19)
Questions?

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