

An aerial photograph showing a long, straight canal filled with water, flanked by earthen levees. The canal runs through a desert landscape with sparse green vegetation and some brown, tilled fields. In the background, there are low mountains under a clear sky. The text is overlaid in yellow.

Getting Water to the Crops

Yuma's Agricultural Water:
What You need to Know
January 13, 2016

Getting Water to the Crops

Little Drops of water

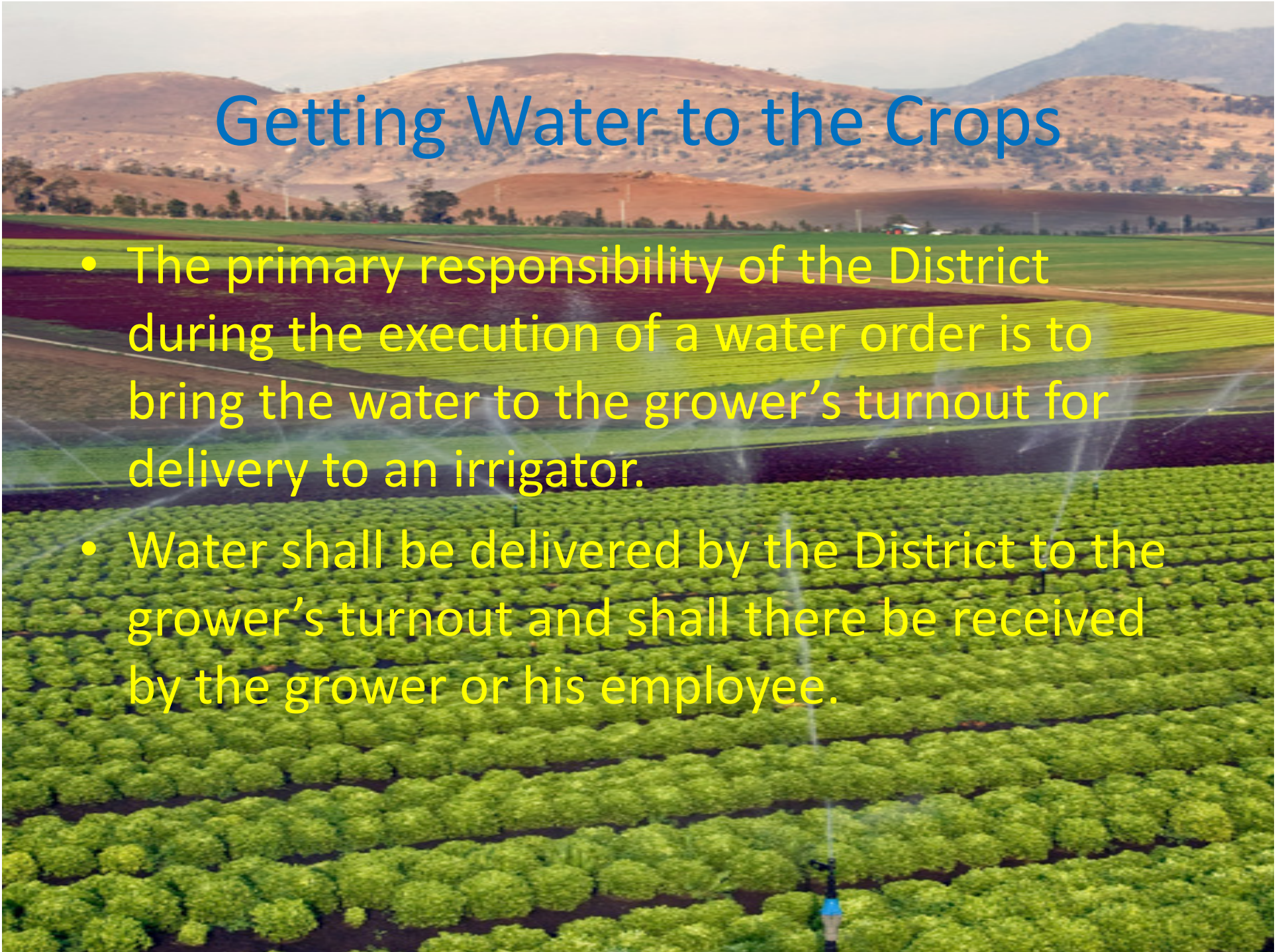
On little grains of sand

Sure do make a difference

In the price of land

Getting Water to the Crops

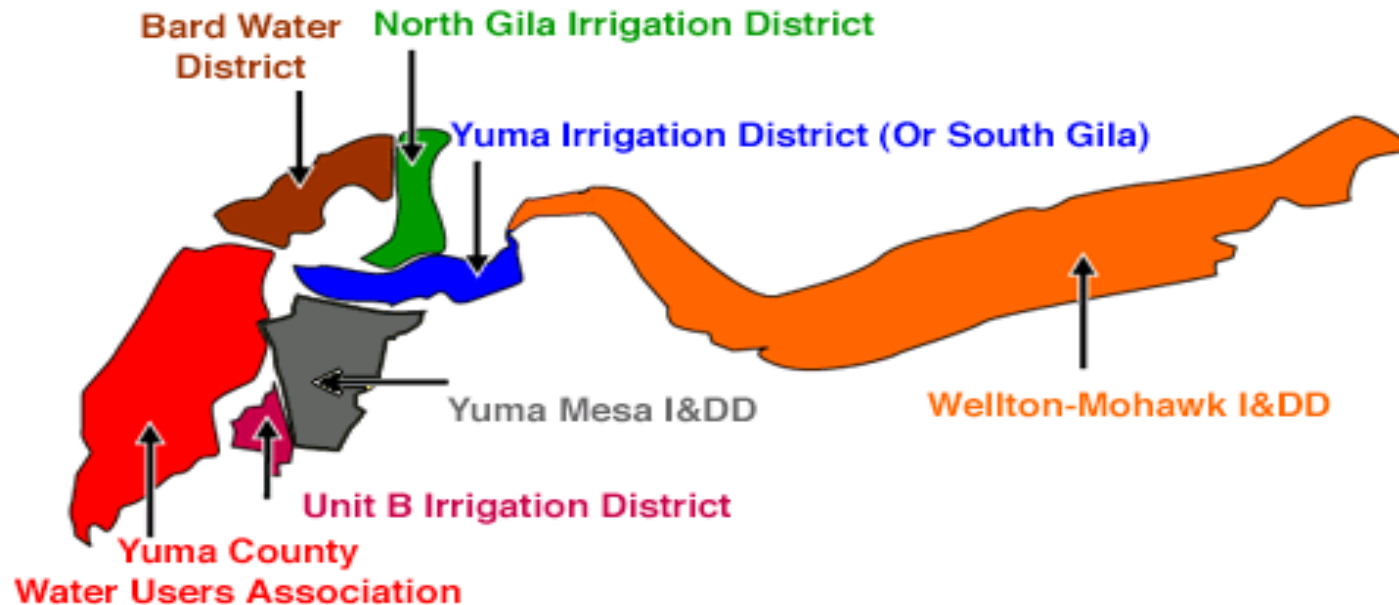
- The primary responsibility of the District during the execution of a water order is to bring the water to the grower's turnout for delivery to an irrigator.
- Water shall be delivered by the District to the grower's turnout and shall there be received by the grower or his employee.





Wellton-Mohawk Division of the Gila Project

The District was created by an act of the Arizona State Legislature on July 23, 1951. It was organized to provide a legal entity which could enter into a contract with the United States to repay the cost of this irrigation and power project, and to operate and maintain the project facilities. Congress authorized the irrigation features on July 23, 1947 as the Wellton-Mohawk Division of the Bureau of Reclamation's Gila Project with a consumptive use entitlement. President Truman signed that legislation into law on July 30, 1947.



Gila Gravity Main Canal Headworks Imperial Dam



Gila Gravity Main Canal Headworks Imperial Dam



Gila Gravity Main Canal – the “Y”

Avenue 12E –Station 791+37 (15 Miles)



Texas Hill

Avenue 56E



Operations

- Water Ordering – bottom up
- Water Delivery – top down

THE RIVER

FIELD

THE RIVER

FIELD

Water Ordering



Field Level

- Grower (or foreman or irrigator or office manager) places water order, usually three days in advance.
- Grower confirms order one day ahead
- Water needed in less than three days treated as “request water”.
- Ordered water has priority over request water.



Field Level

- What is an order:
- Name of User and contract number
- Zanjero division, lateral and turnout
- Flow rate and hours needed
- Desired Delivery Date

Field Level

- Set turn time – water at field gate at a set time
- Water must be run for a set time – usually 12 or 24 hours.
- Sequential – water moves from one gate to the next in rotation.
- Flexible – start time, run time, and end time are flexible within system capacity.

Lateral or Ditch Level

- Water orders aggregated into daily lateral heading schedules.
- Problem – 20 CFS capacity: two 15 CFS orders for the same day.
 - First order first
 - Ordered water over request water
 - Shorter run first, longer run second
 - Produce over row crops (Daylight)
 - Value of a good ditch rider: Judgment – no one rule fits all situations.



Lateral or Ditch Level

- Rules governing water service:
- are needed,
- should be written and provided to water users,
- are usually approved by the Board,
- Protect the system and protect employees,
- Water users know what to expect.



Division Level

- Lateral water requirements aggregated in division order.
- May be used in scheduling water to individual laterals, scheduling relift pumps or wells, scheduling personnel.
- Zanjero Run Sheets

Main Canal Level

- Scheduling water into Main canals to meet division orders – canal heading operation and transit time.
- Scheduling cuts and use of storage capacity.



District Level

- Aggregate Main Canal flow requirements into District need.
- Address capacity issues (water available, pumping capacity, canal capacity).
- Transmit order to supplier (Reclamation)
- Master Order Wednesday for following week
- Yuma Mesa is the Gila Gravity Watermaster

District Level – Revised Water Order

- Master Order Wednesday for following week
- Revise Master Schedule 3 Days out
- Adjust with Gila Rider 1 day out
- Handle any “mis-match” with storage or carry-overs

Mis-Match? What Can Go Wrong?

- Late Request water
- Weather – rain or shine
- Pumps – they only fail when you need them.
- Insufficient water available (district order not matched)
- Water Ordered but Not Delivered (WOND)

WOND

- Redirected to another District
- Redirected to Storage
 - Senator Wash
 - Brock Reservoir
- Excess Delivery to Mexico
- WOND puts further demands on Lake Mead



Delivery

- Who makes it all work:
 - Reclamation runs the River
 - Imperial Dam (Operated by IID)
 - Gila Gravity Water Master (Yuma Mesa)
 - Gila Riders
 - District Dispatch
 - Zanjeros
 - Irrigation Foremen, Irrigators

Gila Gravity Main Canal Headworks Imperial Dam



12 Hours to Pumping Plant No. 1

30 foot lift, 6 – 1100 HP Pumps



Pumping Plant No. 2

85 Foot lift, 5 – 3000 HP Pumps



6 Hours later - Pumping Plant No. 3
55 Foot lift, 4-1850 HP Pumps
Head of the Mohawk Canal



Mohawk Canal

2-36 hours travel time



Mohawk 18.8 Relift



Dome Canal Heading (Gravity)



Wellton 11.7 Heading and Check



Lateral Travel Time

1-6 Hours



Delivery to the Field (Finally!)



60 Miles

Gila Gravity Heading



Texas Hill 3.5





Questions?

Comments?

Discussion?