

# Water Wise Farming:

## San Diego Case Study

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# Southern California Perspective:

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- Most of the population in southern California is very far removed from any agricultural experience
  - Little or no knowledge of agricultural production
- Value placed on having agriculture within the community at large
  - Conditions placed on the presence of agriculture
  - Agriculture is expected to behave in a certain manner
  - Generally have little to do with economics of agricultural production

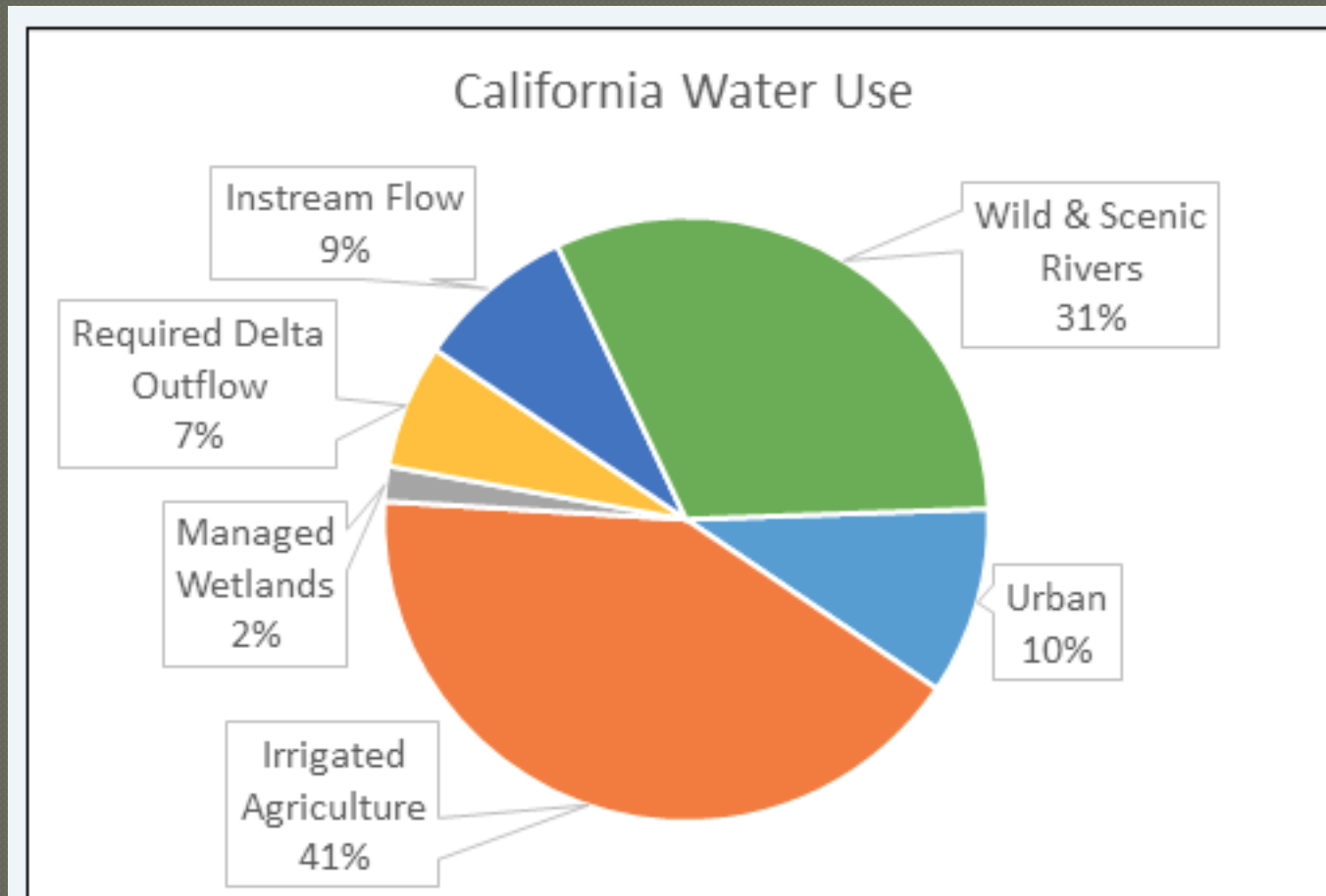
# Recent events/water curtailment:

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- There have been some extreme opinions about the Governor's plan for reductions in water use:
  - In this current drought and cutbacks, agricultural is not impacted in any way
  - Agriculture uses 80% of the water in the state
  - Agriculture contributes 2% to the economy of California

# California water use:

CDFA, April 8, 2015



# Water use is always a competitive endeavor:

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- Multiple interests-each place their needs at the top
- San Diego County as a case study
  - What has occurred there could easily happen in other locations
  - Water use in San Diego is largely municipal (85% to 15% for ag)
  - Homeowners are not nearly as efficient as growers

# San Diego County stats:

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- At the end of the line for water
  - Colorado River
  - State Water sources
- Little or no groundwater
- 17<sup>th</sup> largest ag county (by value) in the nation, \$1.9 Billion farm gate value
- Largest number of farms of any county in the nation
- Leader in production of specific commodities

# In San Diego, there is no “ag” water rate

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- Agricultural customers pay for potable water, same rates as homeowners
- Little reclaimed water use by agriculture due to cost of piping, cost of water itself
- There are 26 water districts in San Diego County, each determines its own pricing structure
  - Some use tiered structure, some straight per unit charges

# Historically:

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- Project water is only available in the western third of the county, very little population in the eastern two thirds (remains the same today)
- In the 1930s, crops grown in San Diego included grass hay, grain, dry beans, alfalfa
- Excellent place to farm
- Greenhouse industry flourished along the coast



# Cost of inputs began to increase:

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- As San Diego was discovered, land prices increased
- Cost of farmland escalated
- Water costs increased

# More than anything costs of water have influenced ag production:

- ◉ In 1990, average cost of water was \$400/ac ft
- ◉ Currently, cost is \$1700/ac ft
- ◉ Price of commodities is almost unchanged in many cases

# How does an agricultural sector thrive at \$1700/ac ft?

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- ⊙ Agriculture is a business
  - General population does not necessarily see it that way
- ⊙ Emphasis has to be on economic survival

# Increases in water use efficiency

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- There are NO inefficient irrigation methods used in agriculture in San Diego County
- Routine use of micro sprinklers, drip systems, very targeted methods
- System maintenance is highly important
- System uniformity is highly important
- Utilization of pressure compensating devices routine (farming areas are hilly)

# Utilization of soil moisture monitoring systems is commonplace

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- Huge water savings can be accomplished with a clear picture of water needs
  - Ability to target needs, not just schedule
  - Allows minute to minute manipulation and automatic on/off
  - Accurate picture 24/7 via your laptop or phone

# Change location:

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- ◉ Water in the Imperial Valley is \$20-\$40/ac ft
- ◉ Can you grow your crops there?
- ◉ Some growers have moved south of the border

# Manipulation of your crop:

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- Particularly true of permanent crops/trees:
  - “top” your trees, or prune severely
  - Use less water while they are regrowing
  - Good practice, keeps the trees appropriate size

# New varieties:

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- Great amount of work has gone into development of drought and salt tolerant varieties of crops/rootstocks: (GMO efforts here)
  - Allows for the use of reclaimed water/reused water



# Most common practice: Change crops

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- San Diego no longer grows grain, feed, dry beans of the 1930s
- Currently, San Diego is #1 in avocado production
  - This will change shortly
  - Avocados use 3-4 acre ft. of water/year
  - Min. \$5100/acre in water costs alone/yr
  - Only best growers with optimum locations will be able to make minimum profits

# Major changes:

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- ◉ Moving to systems that use minimal water, higher cash
- ◉ Hydroponics/lettuce/tomatoes/some ornamentals
  - Somewhat closed systems, recirculate
  - Best quality is under glass (greenhouse), not always required where climate is good

# Pay attention to water quality

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- Can make a big difference in how much you apply
  - Salty water-will build up salts in root zone, needs to be “leached” periodically
- Take the amount of nitrates in water into consideration when establishing your fertilizer needs
- Regulatory compliance requirements