

## Irrigation in Alabama

*Irrigation and water conservation*

## Introduction

- Irrigation improves agricultural production
- Irrigation allows crops to grow in deserts
- Irrigation has costs
  - Urban growth places greater demands on a finite resource.
  - Continued irrigation “salts” the land, eventually turning it fallow.



In 1991, after several years of drought, this lake in California was almost dry.

## Introduction

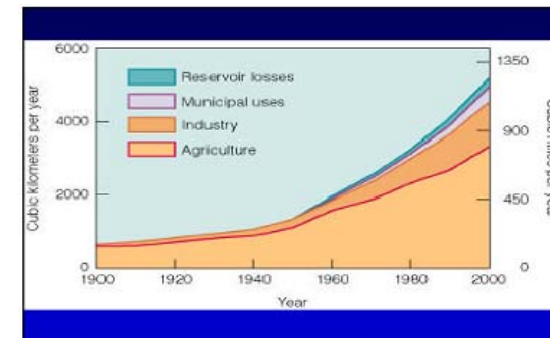
- Western, irrigated farms have displaced eastern, rain-fed farms.
  - Arizona produces more cotton than Alabama
  - New Mexico competes with Georgia in pecan production
  - Eastern farmers have switched to pasture land, timber or sold out completely
- A project is under way in Alabama to study the viability of *sustainable* irrigation as a method to improve Alabama farm production, allowing them to compete with irrigated, western farms.



Natural Arizona

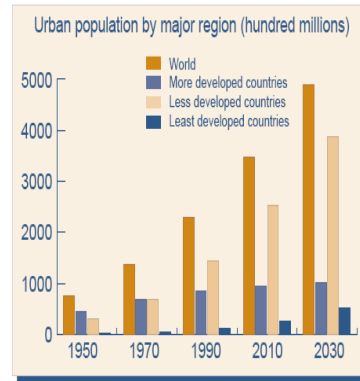
## Western Irrigation

- Irrigation *consumes* the greatest percentage of water withdrawals.



## Irrigation is competing more with urban areas for the same water

- San Diego paid for irrigation conservation improvements to claim more water rights for urban use.
- Arizona passed the groundwater management act, requiring all water use come from proven, sustainable sources



## Irrigation can have high environmental costs

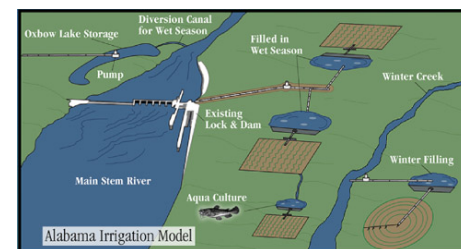
- Salt and mineral buildup can create fallow land. The solution is a “flush” which requires more water...
- Selenium buildup due to irrigation in California caused harm to migratory birds, requiring Federal intervention.

## The future of farming in America

- California’s central valley supplies about ½ of the nations fruits and vegetables.
- Western farms use a large percentage of available water but produce a small percentage of job opportunities and income.
- The lost farmland would have to be “made up” somewhere else; possibly outside the country.
- Eastern farms could also replace this lost agricultural production.

## Eastern Irrigation

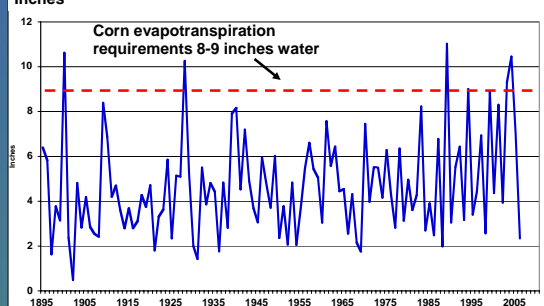
- Traditionally, irrigation was used in areas with inadequate rainfall.
- Areas (such as Alabama) have more than adequate annual rainfall. Quantities falls just short of what (or when it) is needed.
- Western farms require up to 4 linear feet of water for crops.
- In Alabama, farmers would require only a few linear inches to compete.



## Eastern Irrigation

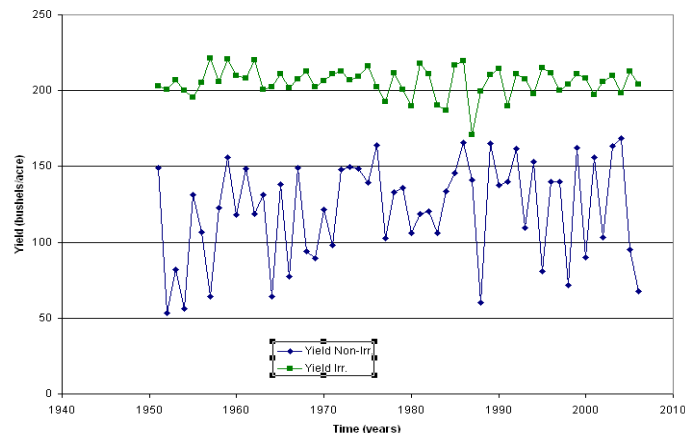
The problem with crop production in the SE

### Coastal Plain June Rainfall

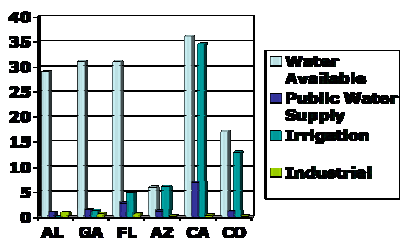


## Eastern Irrigation

Belle Mina Yield Irr. vs. Non-Irr.



## Is there enough water?



- Urban and industrial use accounts for less than 2% of Alabama's total available water supply.
  - And approximately 90% of this is returned to streams and groundwater (USGS).
- Major rivers in Alabama carry a combined 90 million acre-ft/year compared to the Colorado River at only 10 million acre-ft/yr.

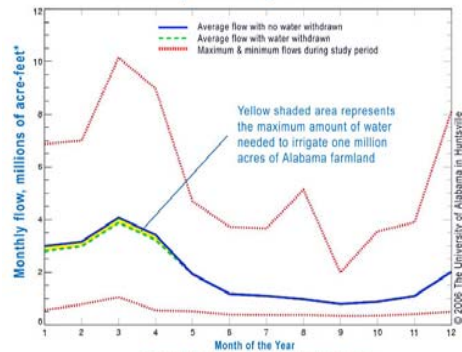
## Rain Harvesting

- Draw on water supplies in the winter months, when demand is lowest and water supplies are plentiful
- Stored in on-site reservoirs, the water would be available for irrigation during the driest, hottest times in the summer.

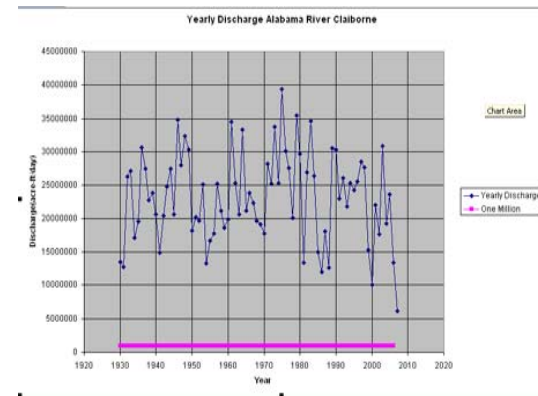
## Would the withdrawals impact our water?

### Where will we find the water?

Streamflow in the Alabama River at Claiborne Lock & Dam, from January 1931 through December 2002



## Would the withdrawals impact our water?



## Benefits

- Environmental
  - Better management of Alabama's water supply.
  - Reducing demand on western water supply.
- Economic
  - "The impact of irrigation in the state of Alabama may not be exact, but if you do whatever it takes to put **2 million acres in irrigation**, you can calculate the amount added to the economy to be between **\$500 million to \$750 million.**" - Dr. James Hairston, Auburn University
- Further benefits
  - Urban reservoir use (golf courses, urban irrigation)
  - Emergency use of reservoir water.

## Issues

- Initial capital investment
- Further study of environmental impact
- Changes in current water resource management
- State regulations controlling withdrawals.