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.

- 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.

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

Corn evapotranspiration requirements: 8-9 inches of water.

Coastal Plain June Rainfall

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

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.