

TAWC-Solutions

Water and Crop Management Tools

- ▶ **ET tool:** uses evapotranspiration to know when and how much water to apply.
- ▶ **Resource Allocation Decision Aid Tool:** matches available water to the crop for best economic return.
- ▶ **Heat Unit Calculator:** regional cotton and corn heat unit tracking.
- ▶ **Irrigation Calculators:** gallons per minute, time, and contiguous acre calculators.

Economic Impact of Agriculture: Texas Southern Plains Region

- ▶ Agriculture contributes approximately \$7 billion annually in economic activity to the Texas South Plains economy.
- ▶ Cotton is Texas' number one cash crop with approximately 50% produced in the Texas High Plains.
- ▶ In the Texas South Plains, 55% of cotton acres are rain-fed and 45% are irrigated.
- ▶ 70% of cotton production in the Texas South Plains is from irrigated acres.
- ▶ Livestock production from regional feedyards is a major contributor to economic activity.
- ▶ In 2016, 4.7 million head of fed-cattle were marketed in Texas, mostly from Texas High Plains feedlots.



Mission of TAWC



- ▶ Promote water conservation through outreach and communication.
- ▶ Provide a bridge between producers, researchers, and industry.
- ▶ Demonstrate methods and technologies for obtaining maximum profit with minimum water.
- ▶ Create a model of trust through a "Producer Teaching Producer" approach.
- ▶ Sustain the ability of agriculture to feed and clothe the world while protecting the land and all its natural resources for future generations.

You can help make a difference by partnering with us to continue this water management effort.

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In less than 50 years, more than half of what took millions of years to accumulate has been depleted. What will be left of the Ogallala Aquifer after the next 50 years?



SHIFTING GLOBAL ISSUES

- ▶ Increasing population
- ▶ World food supply
- ▶ Energy
- ▶ Weather extremes
- ▶ Water supply

OGALLALA AQUIFER Texas High Plains

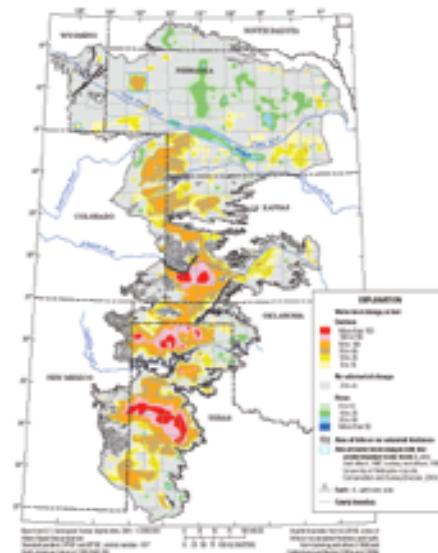
- ▶ The aquifer covers 174,000 square miles across 8 states in the High Plains of the United States.
- ▶ More than 95% of water pumped is for irrigated agriculture.
- ▶ The Texas South Plains is on the southern end of the aquifer, is an intensive agricultural production area, and is the focus of this program.

Timeline of Major Developments in Irrigation on the Texas High Plains

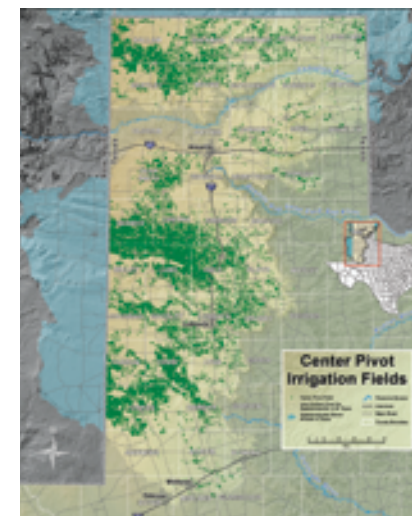
1950's-60's	1960's-70's	1980's	1990's	2010's	2025
Major Irrigation Development	Peak in Irrigated Acres	Center Pivot Irrigation Systems	Lepa Irrigation	Sub-Surface Drip Irrigation	?

Since the development of irrigation in the Texas High Plains, 50% of the aquifer has been depleted over the last 50 years.

Water-level changes and change in water in storage in the Ogallala Aquifer
Predevelopment to 2013



Location of the 24,523 center pivot irrigation systems across the Texas High Plains in 2004



Irrigation: Yesterday and Today

- ▶ The first irrigation well on the High Plains was drilled in Bailey County in 1909.
- ▶ Open discharge pumps and ditches were used to deliver water with the introduction of furrow irrigation in the 1940's.
- ▶ The 1950's and 60's were a period of rapid development of irrigation.
- ▶ Underground tile replaced open ditches in the 1960's and 70's.
- ▶ Center pivot systems became the primary water delivery method in 1980's and 90's.
- ▶ Sub-surface drip systems are becoming the most efficient irrigation method.



TAWC Activities

- ▶ Annual Field Days
- ▶ Field Walks during the growing season
- ▶ Annual Water College
- ▶ Provide decision making tools to assist in irrigation and crop management
- ▶ Member of Field to Market Alliance to promote sustainable crop production
- ▶ Publish annual reports