Kansas’ 50 Year Water Plan

aka Water Vision

Agriculture’s role in conservation
Components of the Vision

• Focus on the Ogallala/High Plains Aquifer and Water Supply Reservoirs
  – Nearly 300 action items
  – Conservation, Management, Crops & Technology and Additional Sources of Supply

• State divided into 14 planning regions
  – 160 volunteers appointed to serve on regional advisory committees
  – Committees develop over 60 action plans

• Education and funding plans developed separately
Kansas Reservoir Loss of Capacity

Percent Loss of Capacity to Date

- Melvern
- Big Hill
- Webster
- El Dorado
- Cheney
- Marion
- Hillsdale
- Clinton
- Cedar Bluff
- Waconda
- Milford
- Council Grove
- Perry
- Pomona
- Elk City
- Kanopolis
- Fall River
- John Redmond
- Tuttle
- Toronto
Watershed protection....cheapest alternative to addressing sediment and nutrients in our reservoirs
Site 1: Stateline
Aquifer declines 1996 - 2017

Change in Feet
- Decline Over -80
-70 to -80
-60 to -70
-50 to -60
-40 to -50
-30 to -40
-20 to -30
-15 to -20
-10 to -15
-5 to -10
0 to -5
0 - 5
5 to 10
Increase Over 10

1996 to 1997
2016 Water Technology Farms
2016 Water Technology Farms

- T&O Farm
  South of Garden City

- Roth-GCCo Farm
  West of Garden City

- WaterPACK / ILS Farm
  South of Larned
2016 Water Technology Farms

**T&O Farm**
- Water conservation (WCA)
- Telemetry
- MDI, Spray
- Soil water sensors

**Roth Farm**
- Effectiveness
- MDI, Bubbler, iWobs
- Zone management
- Surface/well water

**ILS Farm**
- Efficiency
- MDI, Spray
- High capacity well, sandy
- Irrigation scheduling
2017 Water Technology Farms
+ 2017 Water Technology Farms

**Hatcher's Farm**
- iWob, Bubbler, and spray
- Soil vs plant sensors
- Scheduling

**Circle C Farm**
- iWob, Bubbler, and spray
- Variable rate irrigation
- Cover crops use and mixes

**NW Tech College Farms**
- Soil water sensors
- Partner with 6 local water users
- Workforce development
Local Enhanced Management Areas (LEMA)

- Approved by 2012 Legislature
- Locally-led through groundwater management districts
- Allows for locally identified water use reductions with state enforcement
  - Water use flexibilities allowed
  - Does not permanently alter water right
  - Water allocations packaged into 5 year flex accounts
- Mandatory participation for water users

Legend:
- Point of Diversion
- Sheridan & High Priority Area
- Township
- County
- Groundwater Management District

Kansas Water Office
Water Conservation Areas & Local Enhanced Management Areas

• Local developed management plans with state approval/oversight

**Wichita County Water Conservation Area Management Plan**

**Purpose**

The social and economic vitality of the Wichita County community is dependent upon our water supply. In order to reduce the rate of decline of water levels in our aquifer and extend the life of our water supply, we propose to establish a Water Conservation Area within the boundaries of Wichita County. The management plan for the Water Conservation Area is presented herein and shall form the basis of a Consent Agreement and Order Designating a Water Conservation Area as required by K.S.A. 82a-745. The participating water right owners have reached a consensus and agree to the terms and conditions contained in this proposed management plan.

**Goal**

The water right owners participating in the Wichita County Water Conservation Area have joined together because of their collective desire to sustain their community by conserving their groundwater resources. The participants have concluded that this goal can be achieved by taking the following actions:

1. Implement substantial reductions in water use based upon a defined period of historical use.
2. Encourage participation by providing flexibility in beneficial use, place of use, and quantity of annual use so that participants can adjust to weather conditions, market conditions, and advancements in technology.
3. Participate for a period that is compatible with typical crop rotations and long enough to indicate measurable results.
4. Provide a process for ongoing renewal and renewal of water conservation area agreements (i.e., consent agreements).
5. Establish a scheduled review process to review the terms and conditions of this management plan based upon lessons learned through experience and to accommodate changes in technology.
6. Establish an enforcement process to obtain compensation from those participants that fail to fulfill the responsibilities contained in their respective consent agreements.
7. Establish a governing board to guide the management plan review process.

The structure of this management plan is focused on irrigation use because that accounts for the vast majority of water use within Wichita County. Water rights with other beneficial uses may participate in the Water Conservation Area if feasible. We support and encourage all livestock and municipal water users to implement conservation measures and we specifically support the stockwater and municipal water use goals adopted by the Upper Smoky Hill Regional Advisory Committee in 2015. These goals are contained in Appendix 1.
WCAs

- Conservation factors range from 10-29% of average water use in approved plans
- Multi-year allocations
- Flexibility to move water between enrolled water rights
- Totally voluntary
LEMAst

• 1st LEMA established in Sheridan County
  – 100 sq mi, 5 year, 55” allocation per water right, 20% reduction
  – 5th year complete. Locals asked for renewal
  – Economic evaluation showed no significant impact
Public outreach and other activities

Laurie Bedord
Successful Farming Advanced Technology Editor

IRRIGATION, INNOVATION SAVING WATER IN KANSAS

by Laurie Bedord

In southeastern Kansas, where the lack of rain has become a persistent problem, farmers rely on irrigation to feed thirsty crops. Their well-water from the Ogallala Aquifer is running low.
WTF/WCA Results

• Roth - Garden City
  – Yield – 241 on 5”
  – Neighbor’s yields
    • 233 on 14”
    • 222 on 13.5”
  – Soil moisture probes made the difference

Franklin Farms-Goodland

  - Added probes in ’17
  - 9.8” applied
  - Yield 208 bu.
  - Saved $74 per acre on pumping costs
Building Water Resource Workforce

- NW Tech & Local Irrigation Companies partnering with neighboring landowners, GMD 4 and KWO to develop water technology farms within the Precision Ag Dept at NT
- Students working on campus & in the field to develop irrigation water management skills
- Irrigation Technology (soil probes, Variable Rate Irrigation) and Scheduling to demonstrate water savings and profitability
- Six farms participating this year