Approved: February 12, 2001
Date

MINUTES OF THE HOUSE COMMITTEE ON AGRICULTURE.

The meeting was called to order by Chairman Dan Johnson at 3:30 p.m. on January 29, 2001, in Room 423-S of the Capitol.

All members were present.

Committee staff present: Raney Gilliland, Legislative Research Department
Gordon Self, Revisor of Statutes Office
Kay Scarlett, Committee Secretary

Conferees appearing before the committee:
Bill Howgill, Governor's Legislative Liaison
Brownie Wilson, Kansas Water Office
Susan Stover, Kansas Water Office
Dr. Marc Johnson, Dean and Director, College of Agriculture, K-State Research and Extension, Kansas State University
Dr. Gary Clark, Irrigation Engineer, Kansas State University
Dr. Kent McVay, State Soil and Water Conservation Specialist, Kansas State University

Others attending: See attached list

Minutes of the January 22 and 24 meetings were distributed. Chairman Johnson asked members to notify the committee secretary of any corrections or additions by February 5, or they will be considered approved as presented.

Representative Miller requested introduction of a House Concurrent Resolution urging Congress to remove or limit the executive branch's unilateral trade sanction authority. Seconded by Representative Dahl, the motion carried.

Bill Howgill, Governor Graves' Legislative Liaison, reported on the Governor's vision for the maintenance and preservation of the High Plains Ogallala Aquifer. In his State of the State address the Governor supported the recommendation made by his Task Force on Water to stop depletion of the state's aquifers by 2020. Mr. Howgill explained that the Governor's position is not that the use of the aquifer be stopped, but rather to maintain it in a sustainable way for future generations. (Attachment 1)

Al LeDoux, Director, Kansas Water Office, referring to an article in the January 28, 2001, *Wichita Eagle*, stated that neither the Kansas Water Office nor the Kansas Water Authority is ready to support zero depletion of the state's groundwater.

Brownie Wilson, Kansas Water Office, reviewed the Kansas High Plains Aquifer Resources assessment undertaken as part of the mandate to the Kansas Water Authority by the 1999 Legislature. He noted that although there are other aquifer units in Kansas, the High Plains Aquifer is the most heavily utilized aquifer system in the state and represents the primary source of water for most of western and south central Kansas. (Attachment 2)

Susan Stover, Kansas Water Office, outlined a "two pool" management proposal that would establish a "use pool" and a "conservation pool" within the Ogallala Aquifer. She explained that a two pool management approach would address the rate of groundwater depletion, provide time for transition to reduced water use, protect some groundwater for future generations, and have management decisions made on local aquifer conditions. (Attachment 3)

Dr. Marc Johnson, Dean and Director, College of Agriculture, K-State Research and Extension, Kansas State University, reiterated K-State Research and Extension's commitment to developing and promoting technology and management systems to ensure quality and conservation of surface water and groundwater in Kansas as outlined in their Five-Year Work Plan presented to the Kansas Legislature in January, 1998. (Attachment 4)

Dr. Gary Clark, Irrigation Engineer, Kansas State University, discussed water conservation and management for Kansas irrigated crop production systems. He reviewed current programs, activities, and accomplishments, as well as future research and educational programs planned to address water conservation in irrigated production systems. (Attachment 5)

Dr. Kent A. McVay, State Soil and Water Conservation Specialist, Kansas State University, discussed the success of dryland no-till cropping systems in Kansas. He noted that conservation tillage systems make better use of precipitation, and that if long-term goals for Kansas include reducing the use of groundwater for agriculture, producers need to be motivated to better utilize the precipitation received. (Attachment 6)

Representative Thimesch distributed copies of a memo from Raney Gilliland, Kansas Legislative Research Department, concerning state inspected meat processing facilities in Minnesota. (Attachment 7) The Representative, also, provided copies of an article by Joel Crews in the January 2001 issue of *Meat & Poultry* regarding the decision in the lawsuit brought against the U.S. Department of Agriculture by a group of Ohio meat processors to allow state inspected companies to ship product over state lines. (Attachment 8)

The meeting adjourned at 4:45 p.m. The next meeting is scheduled for January 31, 2001.

HOUSE AGRICULTURE COMMITTEE GUEST LIST

DATE: JANUARY 29, 2001

NAME	REPRESENTING
Sarah Messinger	IANS
John Milburn	Associated Press
C. Benjamin	Sierra Club

STATE OF KANSAS

BILL GRAVES, *Governor*
State Capitol, 2nd Floor
Topeka, Kansas 66612-1590

(785) 296-3232
1-800-748-4408
FAX: (785) 296-7973

OFFICE OF THE GOVERNOR

TO: House Committee on Agriculture

FROM: Bill Howgill, Legislative Liaison

RE: Zero Depletion in the High Plains Aquifer

DATE: January 29, 2001

Mr. Chairman and members of the committee, thank you for allowing me a few moments to speak this afternoon on the Governor's vision for the maintenance and preservation of the High Plains/Ogallala Aquifer.

In his 2001 State of the State address, Governor Graves said, "To achieve long-term viability of Kansas' communities, industries and agricultural producers, I support the recommendation made by my Task Force on Water: by 2020 we stop depletion of our state's precious aquifers." It is important that this committee and the citizens of Kansas who depend on the aquifer understand the Governor's position, which is not that the use of the aquifer be stopped. Rather, he wants to assure that the people who rely on this resource will have access to it for decades to come.

You will hear testimony following mine from the Kansas Water Office on an idea known as The Two-Pool Concept. This concept, on which the Water Office will expound in a moment, is one that has been explained to the Governor and one, which in theory, he supports. However, he recognizes that different areas of the High Plains should be treated according to their circumstances and further understands that we need more data to be able to see the full range of potential solutions. This has culminated in his additional funding of the Kansas Geological Survey so that they can give us a clearer picture of the aquifer's geology. We are excited to have all the research available: a three dimensional mapping of the bottom of the aquifer to fully understand its depth; an academic analysis of the aquifer's varying geologic makeup—which will better explain water availability and recharge frequencies; and a determination if there are untapped areas of the aquifer that we have yet to realize.

What the Governor proposed in the State of the State was a means to determine what options exist--in addition to the two pools--that we should consider which will allow us to build some consensus on the best options to begin the long-term effort of implementing a strategy. It is for that reason the Governor began this discussion and asked the Geological Survey to make available all of the information.

House Agriculture Committee
January 29, 2001
Attachment 1

We have asked interested parties—the Water Office, the Department of Agriculture, legislators, among others—to float the Two Pools Concept to test its viability and receive grass-roots feedback from local interests.

The Governor appreciates the committee's interest in this important issue. He looks forward to western Kansans' ability to manage areas of the aquifer to the betterment of western Kansas life.

Thank you for the opportunity to visit with you today. Mr. Chairman, I am happy to answer any questions you or the committee may have.

WEEKLY COLUMN

Week of January 15, 2001

BY GOV. BILL GRAVES

Groundwater Issues have Social, Political and Economic Impacts

The Ogallala aquifer with its vast store of underground water is the economic lifeblood of many Western Kansas families, communities and industries. I recently laid out a goal to stop depleting this valuable natural resource by the year 2020. My goal in doing so is not to cut off this supply of water, but to maintain it in a sustainable way so that many future generations can benefit from its existence.

It is no secret that groundwater supplies in parts of Kansas are being depleted at a rate much faster than they can recharge. Over time, this depletion can create a water supply inadequate to support agricultural irrigation, municipal needs, domestic use and industrial development. I am simply advocating the kind of water planning and management necessary to keep the aquifer viable for as many of these uses as possible, for as long as possible.

This is not a new idea. Several of our local Groundwater Management Districts have already implemented water management practices designed to prolong the life of the aquifer. The Kansas Water Authority, the Kansas Water Office, The Division of Water Resources within the Kansas Department of Agriculture, the Kansas Geological Survey and other state and local partners have been working to collect data and identify strategies to extend the use of the available groundwater.

I am proposing a science-based approach. We need to evaluate groundwater with the latest technology and determine some efficient options for maximizing its use and minimizing its depletion. This will not happen today or tomorrow. I have targeted a 20-year phase-in which recognizes the limitations of current data, and the need for research and cooperation at every level.

I envision a plan whereby we can identify a portion of the aquifer that remains available for use by the public, and a portion that is set aside for conservation. Our efforts will then center on preventing the depletion of the conservation pool while developing ways to make the best use possible of the available pool.

I cannot do this alone. Neither can any state agency, regional group or local citizen. This must be a team effort or it will fail. Maintaining a viable and long-term source of water for Western Kansas is an important mission, and I hope to find enough support to make it succeed.

- ***For more information about this or other issues related to state government, contact Gov. Bill Graves' office at 800/748-4408, or visit the Governor's website at ink.org/public/governor***

-30-

STATE OF KANSAS

Bill Graves, Governor

KANSAS WATER OFFICE
Al LeDoux
Director

901 S. Kansas Ave.
Topeka, Kansas 66612-1249

785-296-3185
FAX 785-296-0878
TTY 785-296-6604

TESTIMONY BEFORE HOUSE AGRICULTURE COMMITTEE JANUARY 29, 2001 AT 3:30 P.M. IN ROOM 423-S KANSAS HIGH PLAINS AQUIFER RESOURCES

By Brownie Wilson

House Agriculture Committee
January 29, 2001
Attachment 2

Slide 1

The Kansas High Plains Aquifer

Kansas Water Office
901 S. Kansas Ave
Topeka, KS 66612
785-296-3185
http://www.kwo.org

Introductory Slide

Slide 2

House Substitute for Senate Bill 287- Aquifer Resources

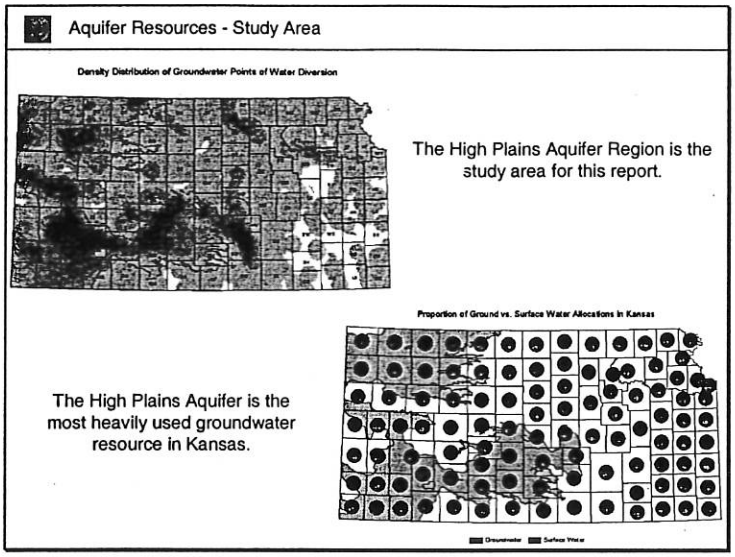
The 1999 Legislative Session- House Substitute for Senate Bill 287

By January 8, 2001, the Kansas Water Authority shall study and develop recommendations related to:

- Aquifer resources, recharge rates, availability of surface water resources and the long-term prospects related to any necessary transition to dryland farming in areas of the state to maintain sustainable yield and minimum streamflow levels
- The potential for competing water needs for at least the next 20 years and the means of addressing the competition

This assessment of the Kansas High Plains Aquifer was undertaken as part of several mandates directed to the Kansas Water Authority from House Substitute for Senate Bill 287 (1999 Legislative Session). The report on Aquifer Resources is the primary topic for this presentation, however, it has related issues to the potential for competing water needs.

Slide 3

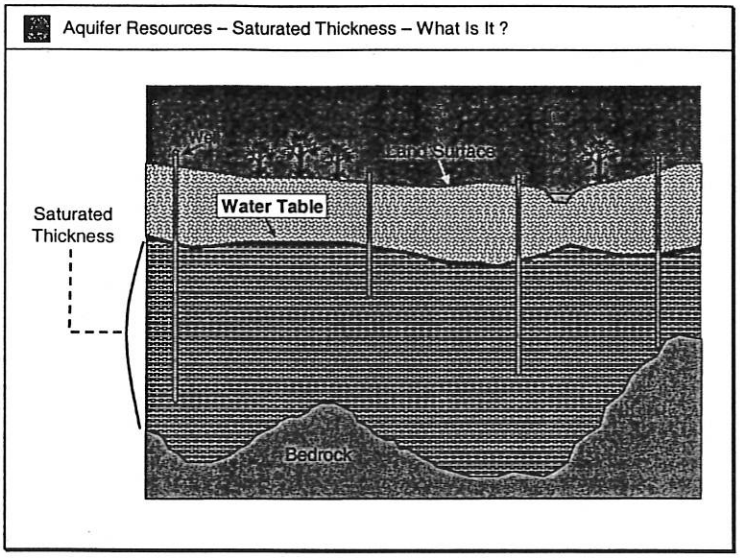


The aquifer resources report focuses on the High Plains Aquifer in Kansas. Although there are other aquifer units in Kansas, the High Plains Aquifer represents the most heavily utilized aquifer system in the state and represent the primary source of water for most of western and south,central Kansas.

The map in the upper left shows the density of all wells for currently active water right allocations where ground water is the source of supply. The red outline represents the saturated portion of the High Plains Aquifer. Although there are areas of extensive well development (e.g. Kansas-Lower Republican alluvium and the Wichita Well Field) throughout the state, the majority of ground water wells in Kansas as a whole are drilled within the High Plains Aquifer Region.

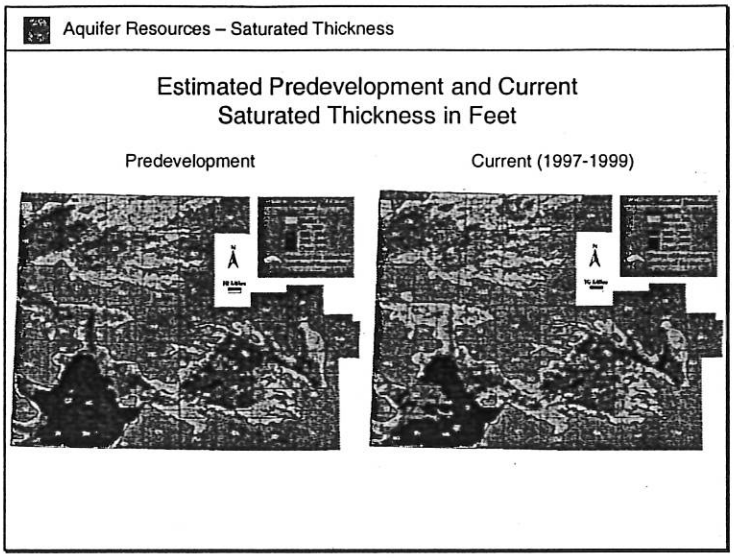
The map in the lower right shows the proportion of ground versus surface water allocations in the state. Again, notice ground water represent the dominant source of supply in the High Plains Aquifer region, although there are some large surface water components associated with surface irrigation ditch companies and reservoirs operations.

Slide 4



Saturated Thickness is the vertical thickness of a hydrogeologically defined aquifer in which the pore spaces are filled (saturated) with water. Saturated Thickness is commonly used as an indicator of the amount of available water and its rate of change. In addition, it is also often used in setting water management and use policies and regulations. Saturated Thickness is a key aquifer component used in this report.

Slide 5

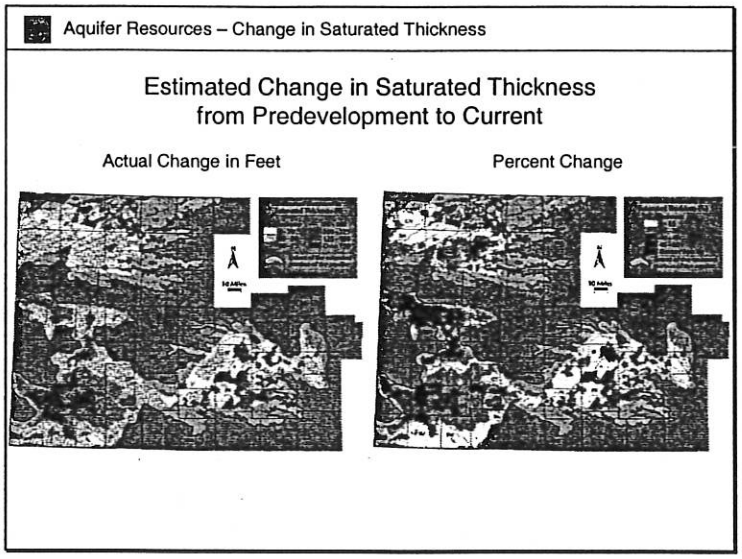


These maps portray the estimated saturated thickness in the Kansas High Plains Aquifer in predevelopment and current time periods. The "blank" or gray areas of the High Plains Aquifer on these maps do not have an adequate number of monitoring wells to permit useful estimates. In western Kansas, these areas are mostly fringe areas of the aquifer and are likely to be in the lowest (0-50 feet) category.

"Predevelopment" is defined as a period of time before extensive ground water development occurred. "Current" saturated thickness represents the average estimated saturated thickness from 1997 to 1999.

In both maps, ground water resources are unevenly distributed in ways primarily controlled by bedrock topography and patterns of recharge and discharge. South, central Kansas operate under "safe yield" policies and as a whole, have shown little change over time. The Ogallala portion of the High Plains Aquifer (e.g. GMD 4, 1, and 3) all show areas of substantial groundwater declines, however, Southwestern Kansas, where the bedrock is the deep beneath the land surface, has historically and still is relatively "water-rich" in terms saturated thickness.

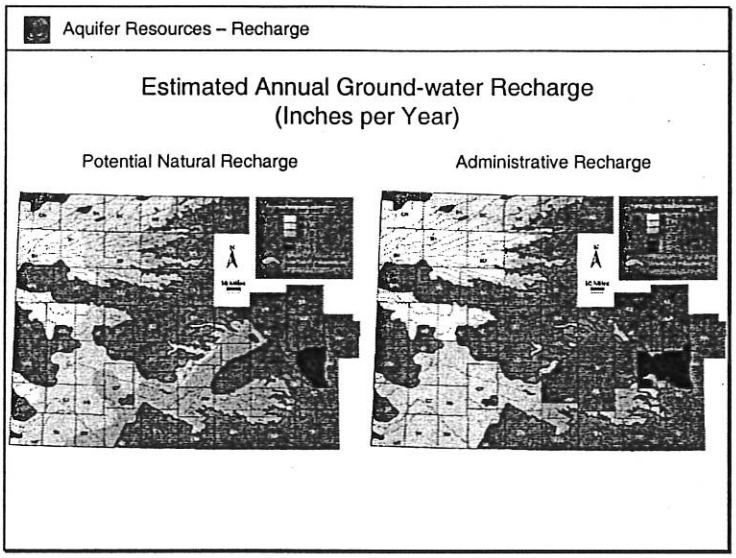
Slide 6



These maps show the actual and percent change in the saturated thickness of the High Plains Aquifer from predevelopment to present day. The maps show the greatest actual change in the saturated thickness has occurred in southwestern Kansas, however, because of the large volume of water currently still present, the percent changes in this area are not proportionately large. For areas that had marginal saturated thickness to start with, the percent change based on the total predevelopment saturated thickness may be somewhat misleading. For example, 30 to 50 feet is used as an approximation of the saturated thickness required to support large volume pumping. If the original saturated thickness was less than 100 feet, then a 50 percent change in the saturated thickness could actually represent 100 percent of the usable water for large volume requirements. The changes, relative and absolute, need to be interpreted in the light of predevelopment and current saturated thickness.

Although the total area showing an increase in saturated thickness (light blue) appears impressive, almost all these regions are either in the fringe areas of less than 50 feet saturated thickness, have relatively small levels of authorized water right allocations, and/or are in regions of poor water quality from natural mineral intrusion. The increases therefore represent more or less natural variations in unstressed portions of the aquifer, and in most areas do not reflect an actual increase in water available for use under current conditions.

Slide 7

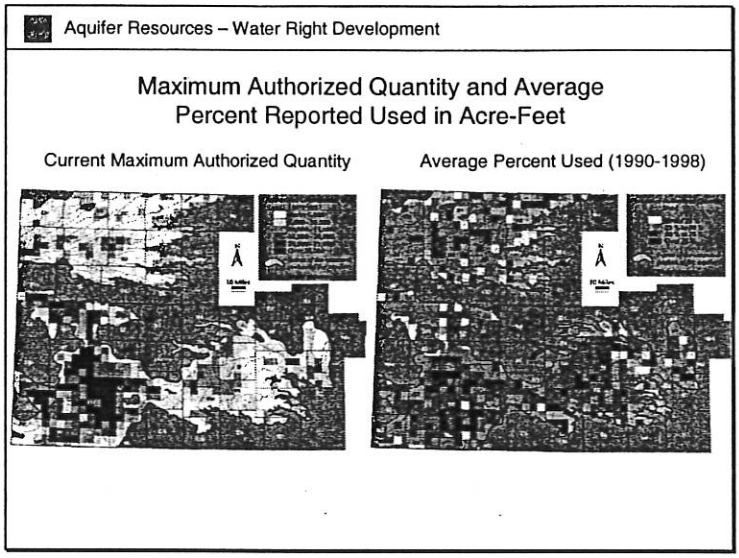


The potential natural recharge map shows the annual amount of precipitation-based recharge in inches for western and central Kansas as estimated in the US Geological Survey (USGS) Water Resources Investigations Report 87-4230. The distribution of annual recharge follows a similar pattern to that of annual precipitation across the state, that is, it progressively decreases as one moves westward across the state. The climatic conditions are such that not only is precipitation low in western Kansas, but most of it is lost to evaporation from the soil surface and transpiration from plants. More than 99% of the rainfall is returned to the atmosphere in 14 southwestern Kansas counties, and more than 95% is returned throughout the western half of the state, thus resulting in meager recharge to the High Plains aquifer in that region. (In eastern Kansas an average of 85% of the rainfall is returned to the atmosphere.) Thus, climatic conditions constitute a primary control on recharge, although vegetation and soils also influence recharge.

The administrative recharge map shows the amount of annual recharge, in inches, that is available for appropriation based on rules and regulations adopted by KDA-DWR. The map shows areas of special administrative recharge, such as the boundaries of the five Groundwater Management Districts (GMDs) and the KDA- DWR Unit Basins in south-central Kansas.

Of all the factors in the evaluation of groundwater resources, the rate of recharge is one of the most difficult to derive with confidence. Estimates of recharge are normally subject to large uncertainties and spatial and temporal variability. The USGS recharge estimates may be considered representative at the county level. No stream seepage, irrigation return flow, or other sources of recharge were considered in this USGS analysis.

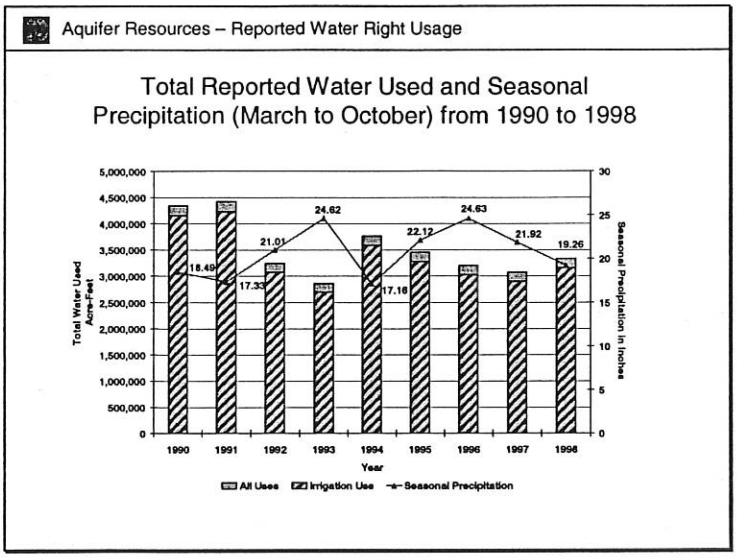
Slide 8



The current maximum authorized quantity map represents the amount of ground water currently authorized or allocated, by township, to water rights located within the High Plains Aquifer region. This is not the amount of water actually pumped but rather how much could be pumped if all water right allocations pumped their full authorized quantity. Due to climate, economic factors, and farm management practices, the actual reported amount of water used in an area is typically somewhat less than the total use authorized for that area.

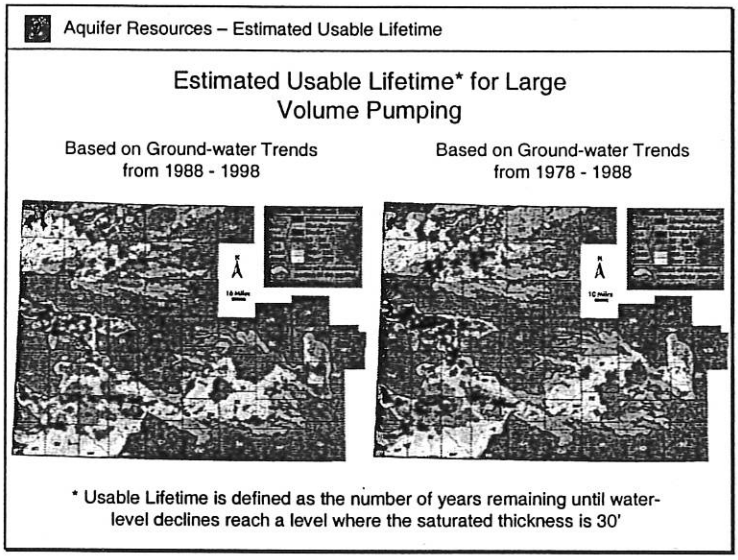
The average percent used map shows the average amount of ground water reported used, expressed as a percentage of the maximum authorized quantity appropriated, and is based on the average reported water use from 1990 to 1998 for each township. For all water rights within the Kansas High Plains Aquifer region as a whole, the average percent of the authorized allocations of groundwater is just over 50 percent.

Slide 9



This graph shows the total amount of ground water reported used by water rights within the High Plains aquifer in comparison with the seasonal precipitation from 1990 to 1998. For water rights within the Kansas High Plains aquifer region, groundwater consistently accounts for approximately 99 percent of the total reported use, and the average fraction of groundwater used for irrigation is approximately 95 percent of the total. The graph also shows the inverse relationship between water use and seasonal precipitation that occurs between the months of March to October. As would be expected, when more precipitation occurs during the growing season, the need for supplemental water use, primarily irrigation, decreases.

Slide 10



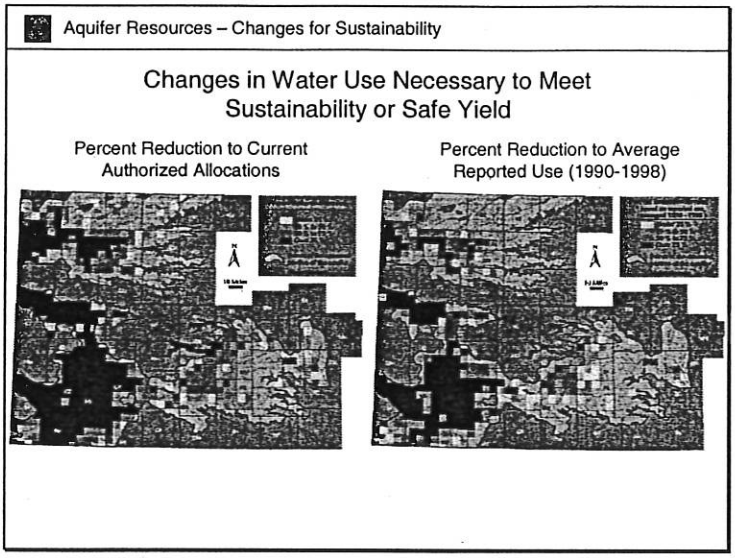
Usable lifetime is defined here as the number of years remaining until water-level declines reach the level where saturated thickness is 30' -- an approximate value at which large-volume pumping, primarily irrigation, is likely to be impractical, even though other low-volume wells can still function if they are completed at the base of the aquifer. At this point of 30 feet, it is assumed, other lower volume water demands, such as municipal, industrial, and stockwatering, can still operate within the safe yield of the aquifer if they are completed to bedrock. The water demands for these lower volume uses are anticipated to be within or less than amount of natural ground water recharge, and thus can be operated on a sustainable level.

Both maps presented here use the current estimated saturated thickness to determine areas in which the resource has already been exhausted for large volume pumping (saturated thickness 30' or less), and as a starting point for determining the number of years remaining in the aquifer's usable lifetime. The difference between the two maps comes from their use of water-level data from different time periods to calculate the trend in water level change -- the first map presented uses the difference between the average water-levels from 1987-1989 (1988) to 1997-1999 (1998) to establish a linear trend in water-level change based on a ten-year period. The second map is based on water-level trends between 1977-1979 (1978) to 1987-1989 (1988). The water-level trends are then applied to the current saturated thickness values to project the number of years it will take for the saturated thickness to reach the 30' mark assuming that the trend in groundwater change is constant.

These two time periods show a consistent linear trend in water level in most regions experiencing decline (see appendix on groundwater decline rates) although they represent significantly different climatic conditions. The decade of the 1990s has been significantly wetter than the 1980s, resulting in less water use and higher rates of recharge (see Water Usage). Other factors that may have contributed to the overall reduction in the rate of water-table declines in the 1990s include untimely climatic events, more efficient use of water, and increasing awareness that groundwater is a limited resource.

The estimates are not predictions of aquifer depletion, but rather projections -- what would probably happen if past rates and patterns of use continue into the future. It is also important to note that these estimates do not consider the increased costs of pumping, well replacement, etc., as water tables drop or future climatic conditions.

Slide 11



In order to reach a level of long-term sustainable use of a groundwater resource, average withdrawal must be no greater than average recharge. These maps show the percent change required in terms of the maximum authorized quantity and average reported use. The maps mirror to some extent the map of Current Maximum Authorized Quantity. Because large-scale recharge changes gradually across the region, and actual pumping is related to authorized pumping, the fraction, or percentage of use reduction required for sustainability is lower in areas of low or moderate water right development than it is in regions with high densities of water rights.

The most striking feature of the two maps is the very high percentage of reduction in authorized use required to match recharge. Overall, a lower percentage reduction in actual use is required. The difference is most noticeable in northwest Kansas and in regions close to the boundary of the saturated portion of the aquifer. Although reductions in actual use of a third to a half at the township level would bring extraction to the approximate magnitude of the recharge in some areas, the core irrigation regions in southwestern and western Kansas are pumping 3-4 times the estimated long-term recharge value.

Given that some amount of recharge is assumed to occur everywhere, some level of sustainable use is possible throughout the aquifer system. It is anticipated that this sustainable use would consist of lower volume water demands, such as municipal, industrial, and stockwatering, which can operate within the safe yield of the aquifer if they are completed to bedrock.

It is important to note that the apparent changes required in the 'safe yield' districts of the eastern High Plains are the result of using the natural recharge map as a basis rather than the administrative recharge map. If the recharge values defined by regulation were used, there would be very few areas of apparent over-appropriation in Groundwater Management Districts 2 and 5.

The values presented here are estimates intended to provide general information on the scale of the reduction. Recharge values are one of the more uncertain hydrologic parameters and the USGS recharge data used in these assessments is based on broad regional intervals (e.g. 1 to 2 inches) representative at the county scale. The amount of recharge used in these maps represents the maximum value from each recharge class interval for each township. As such, the estimated reduction probably represents the lower end of the estimated required reductions to meet sustainability.

Slide 12

Need More Information?

Kansas Water Office
901 S. Kansas Ave
Topeka, KS 66612
785-296-3185
http://www.kwo.org

STATE OF KANSAS

Bill Graves, Governor

KANSAS WATER OFFICE
Al LeDoux
Director

901 S. Kansas Ave.
Topeka, Kansas 66612-1249

785-296-3185
FAX 785-296-0878
TTY 785-296-6604

TESTIMONY BEFORE HOUSE AGRICULTURE COMMITTEE JANUARY 29, 2001 AT 3:30 P.M. IN ROOM 423-S OGALLALA AQUIFER By Susan Stover

My name is Susan Stover, and I am with the Kansas Water Office. I want to thank you for this opportunity to speak to the Committee on the Ogallala Aquifer.

(Slide 1): The Kansas Water Authority recently reviewed a new idea for managing the Ogallala Aquifer. This idea, the "two pools" management of the Ogallala, would address the rate of groundwater depletion, provide time for transition to a reduced water use, protect some ground water for future generations, and have management decisions made on local aquifer conditions. This idea developed out of discussions between the Kansas Water Office, the Kansas Department of Agriculture-Division of Water Resources, the Kansas Geological Survey and the western Groundwater Management Districts. The Kansas Water Authority agreed this idea deserved further discussion and directed the Kansas Water Office and the Kansas Department of Agriculture, Division of Water Resources to present this new management idea at stakeholder and public meetings in western Kansas to get their input.

We prepared a four-page public information sheet that introduces this idea, to be used at those meetings. We want this to be a starting point for discussions, and expect revisions based on the input we receive from stakeholders and the public.

(Slide 2): The management approach proposed would be only for the Ogallala Aquifer. The Ogallala is the largest aquifer within the High Plains Aquifer, which also includes the Great Bend Prairie and the Equus Beds aquifers. This map outlines the High Plains Aquifer and shades the Ogallala portion in gray, with a rough eastern boundary noted by the dashed line. This management approach is proposed for the Ogallala because that is where most of the ground water declines problems occur.

(Slide 3): Recharge is part of the reason the Ogallala Aquifer has had more serious declines. This map shows the potential recharge rates for the High Plains Aquifer. In far western Kansas, recharge is estimated at roughly ¼ inch per year. Moving eastward, the rate of recharge increases, but most of the Ogallala receives little more than an inch per year, on average. Further east, in the Equus Beds Aquifer, this map indicates a potential recharge rate of 3-4 inches per year. The more water coming in to an aquifer on an annual basis, the more water that can be withdrawn with no net decrease. Western Kansas also has a lower precipitation rate than central Kansas, and very limited surface water supplies. People in western Kansas have a greater dependence and demand on ground water, than those that live further east.

(Slide 4): This slide is a schematic of the "two pools" management idea. The Ogallala Aquifer can be considered to consist of two volumes of water: one, the conservation pool, would be based on the amount of annual recharge plus an additional volume necessary for it to be a source that could be used by communities; the other, the usable pool, would be the existing volume in excess of the conservation pool. In most areas, the usable pool would be much larger than the conservation pool. The usable pool would be managed as it is now, and will be used up in some period of time depending on the level of use. This is the pool to emphasize the use of conservation measures, such as more efficient irrigation systems and less water intensive crops, to extend the life of the usable pool. Once the usable pool is exhausted, and only the conservation pool remains, then the water must be managed for sustainable yield. By that, we mean the withdrawals from the aquifer cannot exceed the average, annual recharge rate *minus* any natural outflows, such as to streams or wetlands. This is the point at which zero depletion must be attained. In theory, the conservation pool could sustain healthy communities for all time.

How might implementation of this management approach impact an individual water right holder? This approach would operate within the legal water framework currently in place. The same priorities and restrictions on an individual water right that exists under the Kansas Water Appropriation Act and the specific groundwater management district's management plan would still apply. Technically, a junior water right holder may be forced to stop pumping sooner under this management approach. When only the conservation pool remains, junior rights whose use of water would continue to deplete the aquifer must stop pumping. In practice, a water right holder may decide to stop pumping long before regulations force that person to stop; higher energy costs, low commodity prices, and physical difficulties of large volume pumping from an aquifer of thin saturated thickness may make it uneconomical or impractical to pump far before the usable pool is gone. Senior water rights, whose collective annual allocated water use does not exceed the annual recharge rate minus natural outflows, would be protected through management of the pool for sustainability.

(Slide 5): This map shows the estimated usable lifetime of the High Plains Aquifer for large volume pumping, such as irrigation, assuming current water level trends continue and the aquifer is effectively exhausted when the saturated thickness is 30 feet or less. The areas in red are those with an estimated 25 years or less before the aquifer may be exhausted. This map, which is included on the handout, communicates two important messages. The first is the vivid image that the depletion of the Ogallala is a real problem; this is an issue that will not go away. The second important message, I think, is that the map isn't all red; the entire Ogallala is not projected to be exhausted within 25 years. The Ogallala Aquifer is highly variable in thickness and other characteristics throughout western Kansas. The variation in the estimated usable lifetime shown on this map reflects, in part, the variation in the aquifer itself.

(Slide 6): Because of that variation within the aquifer, the two pools approach would manage based on conditions in an aquifer subunit. Geographic areas with similar aquifer characteristics would be delineated. Within each aquifer subunit, then, the two pools would be defined. Management decisions would then be based on local conditions.

(Slide 7): Another very important component to this approach is community input. Communities share a common interest as they share a common water resource. They should have an input on the management approach. Scientists would estimate the volume in a aquifer subunit's conservation pool, based on average, annual recharge and the minimal additional amount necessary to actually use it. Beginning with the information, communities then would have input on defining the conservation pool. Areas to consider include: 1) uncertainties with the scientific data. An example is the estimated recharge rate may be a range of values; communities may want to use a conservative number, or an optimistic number. 2) Water quality; there may be areas where there are salinity or other water quality concerns with the bottom of the aquifer. 3) Physical limits on pumping as the aquifer gets thinner and thinner. 4) Environmental impacts; as the water level drops, there will be fewer natural outflows. And 5) a community may want to add more volume to the conservation pool to provide more options for the future.

Communities would also have a voice in the time frame in which the usable pool will be exhausted. This can be done informally through voluntary, incentive based conservation programs, such as installation of more efficient irrigation systems, better management of those systems, water right purchase, and other options. This can also be done formally, working through the groundwater management districts.

(Slide 8): Communities include irrigators and other producers, cities and towns, businesses and industries, and any individual who relies on water in western Kansas. Individuals can be involved in the development of water policy and in defining the two pools by participating in the state water planning process.

(Slide 9): There are currently water organizations that traditionally represent communities on water resource issues. In western Kansas, these are the Groundwater Management Districts #1, 3, and 4, the Basin Advisory Committees, the Conservation Districts and the Watershed Districts. We expect them to be very important participants in this water management idea.

(Slide 10): This management approach provides us tools to plan for the future.

1) Reduced irrigation will have a large economic impact on western Kansas, not only on the individual operator, but also on the secondary and tertiary businesses. Whenever this reduction comes, whether it occurs next year, in the year 2020, when the aquifer is effectively gone or when the usable pool is gone, there will an economic impact. By planning for that change, we can lessen the severity of that impact.

2) The two pools management approach will help in that transition from intensive irrigation. Through this management approach, there will be an increased awareness of local aquifer conditions, and communities will have input on defining the two pools and their options for the future.

3) The time to deplete the usable pool is an important opportunity to adjust to a reduced water consumption, once the usable pool is gone and water use must stay within the recharge rate. It also provides an opportunity to extend the usable life of the pool.

4) Water for human consumption must be the high priority use from the conservation pool. I think we would all agree that water to keep people alive and healthy is the most important use of water. However, …

5) Seniority of the water right is based on first in time, and not the type of use. The Water Appropriation Act gives senior water rights priority to use the water when there is not enough to meet all needs, except for special situations.

6) Water rights can be sold, bought and leased. This approach would encourage use of the open market system to shift the most senior water rights that could withdraw from the conservation pool to meet municipal needs.

7) Cities and towns can project their needs and plan to take necessary action. In some areas, where a city is located may not be where water is available; this could be addressed through water transportation infrastructure.

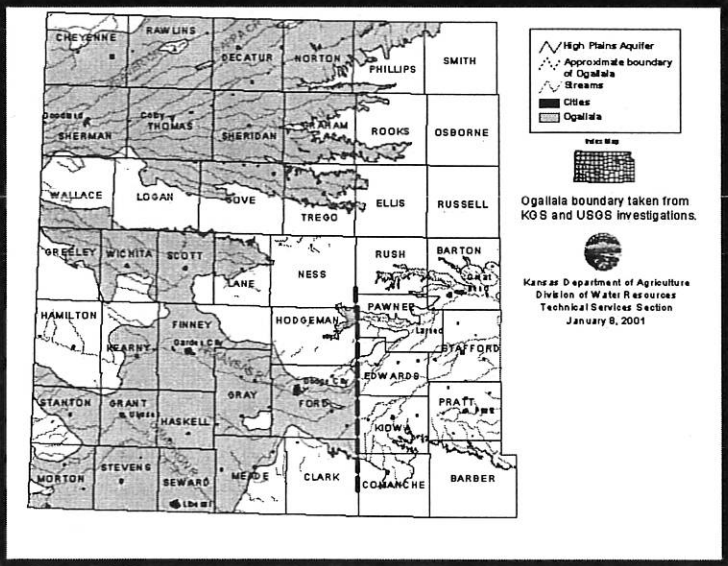
(Slide 11) Is the two pools management of the Ogallala a good idea for western Kansas? That is what we want to discuss and hear ideas from others. Most important is that people, especially those that live in western Kansas whose families and livelihoods depend on the Ogallala Aquifer, discuss a plan for the future of western Kansas. What will it look like? What sort of plan is needed to assure there will be water available for that future?

A New Idea for Managing the Ogallala Aquifer

- Address Rate of Depletion
- Help transition to less water use
- Protect ground water for future generations
- Manage on Local Aquifer Conditions

Kansas Water Office

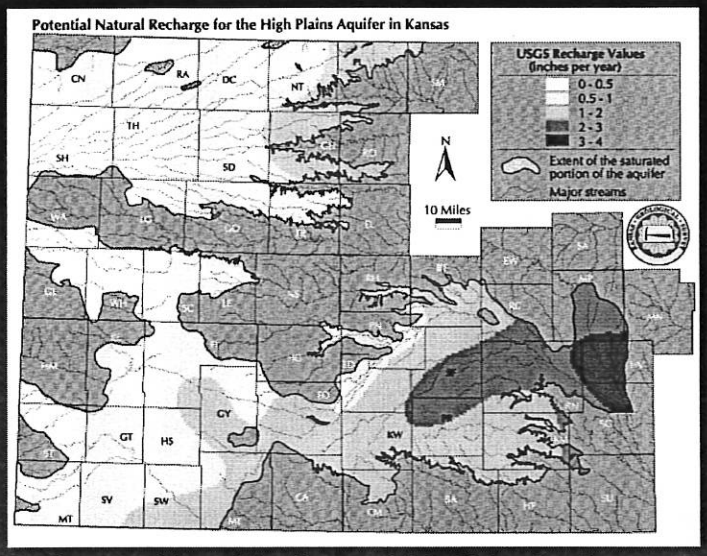
Ogallala portion of the High Plains Aquifer



Kansas Water Office

3-5

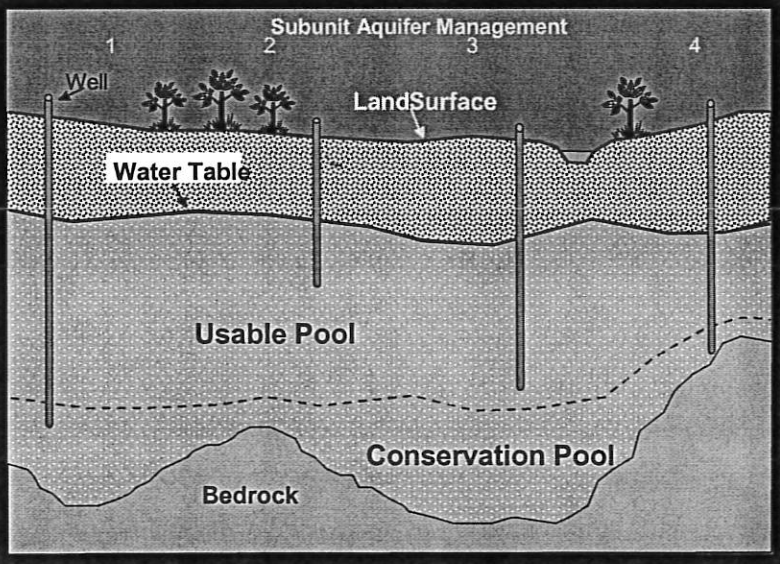
Low Recharge Potential for the Ogallala Aquifer



Source- Atlas of the Kansas High Plains Aquifer

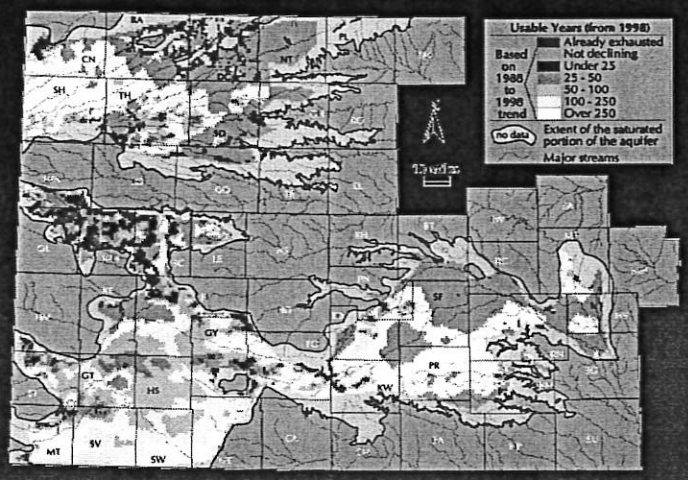
Kansas Water Office

Two Pools Approach for Aquifer Management



Kansas Water Office

Estimated usable lifetime for large volume pumping from the High Plains Aquifer, assuming current water-level trends continue and the aquifer is exhausted when saturated thickness is 30 feet or less



Source- Atlas of the Kansas High Plains Aquifer

Kansas Water Office

Aquifer Subunits

- Geographic Areas with Similar Aquifer Characteristics
- Two Pools Would be Defined Within Each Subunit
- Management Decisions Would be Made on Local Conditions

Kansas Water Office

Communities Share A Common Interest

Communities Would Have Input on Management Approach

- Defining the Conservation Pool
  - Uncertainties with Scientific Data
  - Water Quality
  - Physical Limits on Pumping
  - Environmental Impacts
  - Water Options for the Future
- Time Frame in which Usable Pool will be Exhausted

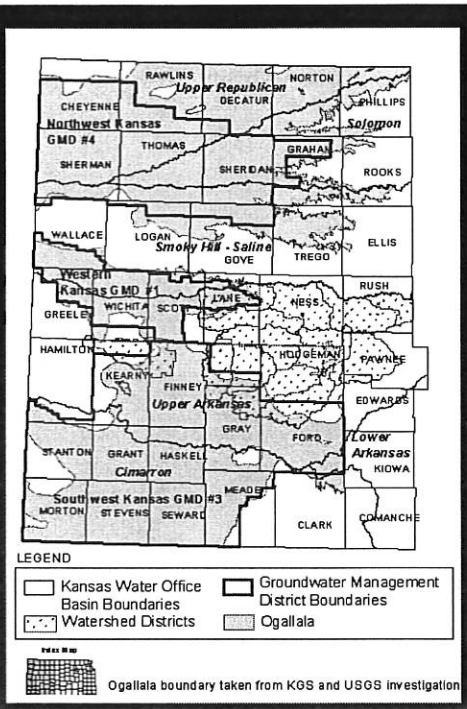
Kansas Water Office

Communities Include:

- Irrigators and Other Producers
- Cities and Towns
- Businesses
- Industries
- Individuals Who Rely on Water in Western Kansas

Kansas Water Office

3-8



Water Resource Organizations

Kansas Water Office

Planning for the Future

- Reduced Irrigation Will Have an Economic Impact
- Two Pool Management Approach will Help in that Transition
- Time to Deplete Usable Pool Is an Opportunity to Adjust
- Water for Human Consumption Must be the Highest Priority Use From the Conservation Pool
- Seniority of the Water Right Determines Priority
- Water Rights Can be Sold, Bought, and Leased
- Cities and Towns Can Project Their Needs

Kansas Water Office

Plan for the Future of Western Kansas

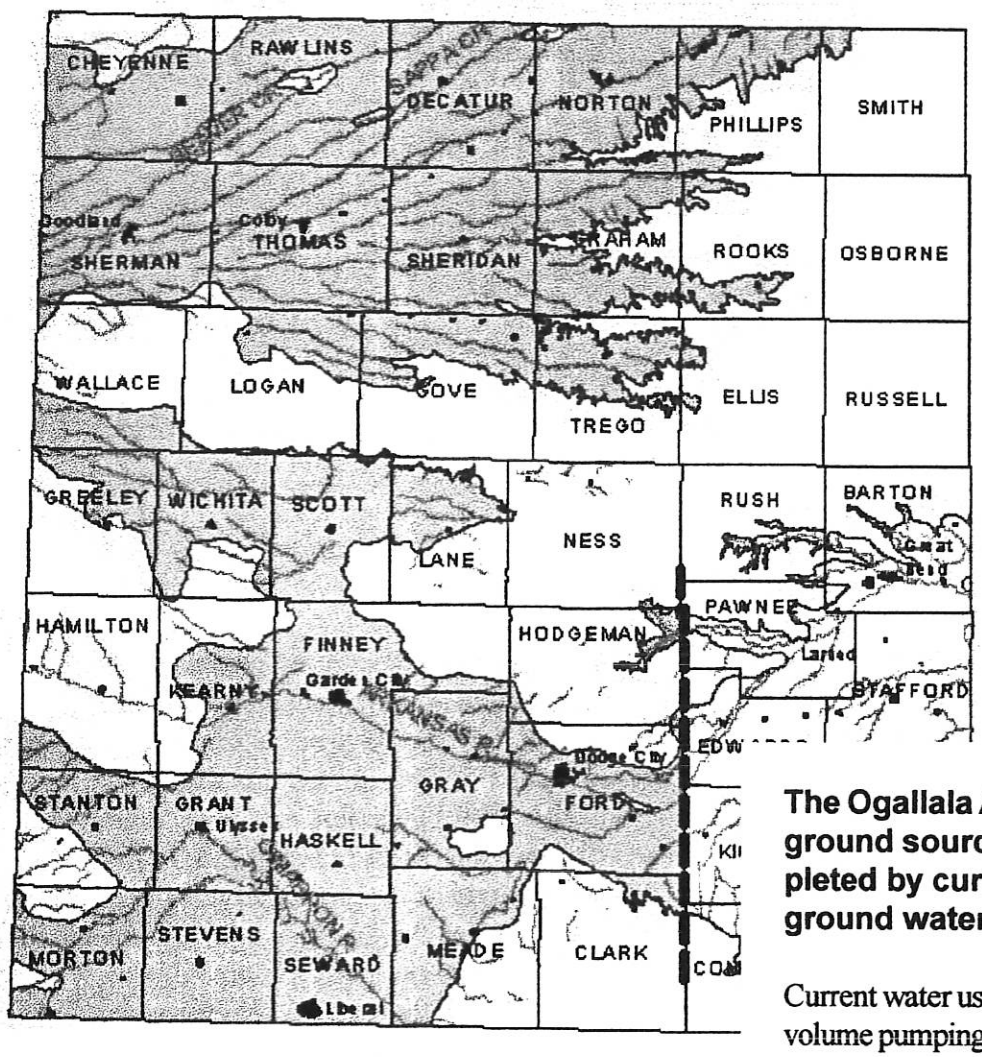
Stakeholders, Basin Advisory Committees, Public Meetings and Workshops: February – March 2001

Report to Kansas Water Authority: April 11-12, 2001

Kansas Water Office

A New Idea for anaging the Ogallala Aq fer for the Future

A new idea for managing the Ogallala aquifer is proposed that will address the rate of depletion of ground water supplies in western Kansas and protect some of it for future generations.



Ogallala boundary taken from KGS and USGS investigations.

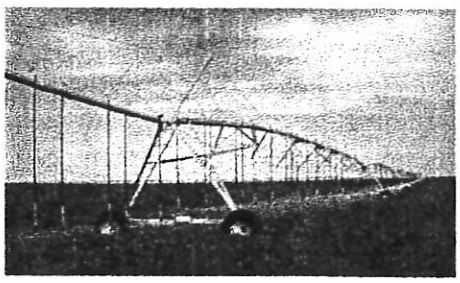
Kansas Department of Agriculture
Division of Water Resources
Technical Services Section
January 8, 2001

The Ogallala Aquifer, a large underground source of water, is being depleted by current water usage and ground water development

Current water usage, primarily widespread large-volume pumping for irrigation, is depleting the primary supply for western Kansas. Water is being pumped faster than it can be replenished each year by precipitation that seeps through the soil and down to the aquifer. If current puming rates continue, the usable supply of ground water eventually will be exhausted.

The decline of the Ogallala Aquifer poses a tremendous challenge to the economy of western Kansas.

As ground water supplies become inadequate to support widespread, large volume irrigation, not only will farmers be affected, but so will the businesses and communities that are part of the irrigated agriculture economy. Water planning and management can help individuals, businesses, and communities prepare for the future.



The idea of managing "two pools" of water in the Ogallala: a plan for the future?

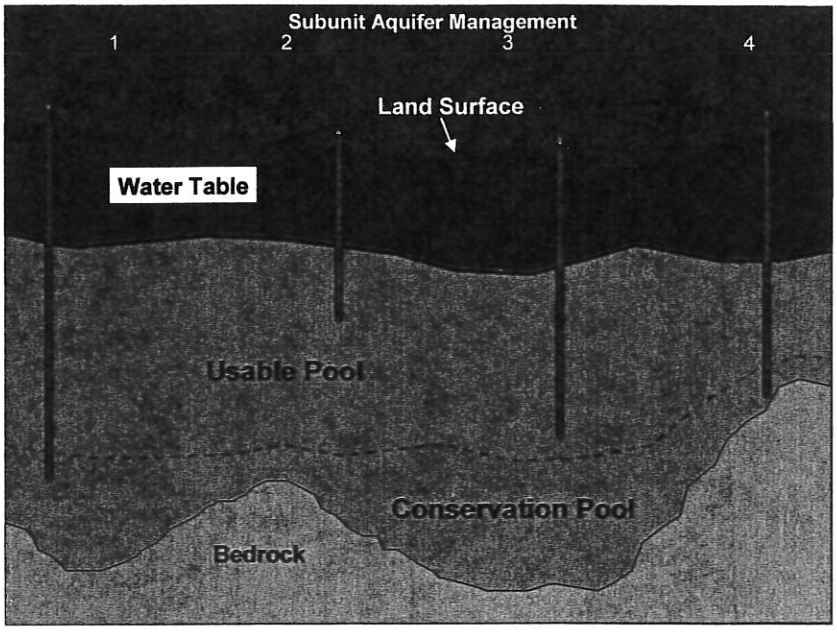
The two-pool idea could make the inevitable transition to reduced water consumption a successful one.

The two-pool idea is based on the premise that the remaining water supply in the Ogallala can be divided into two separate volumes of water. One volume, the conservation pool, would be based on the recharge rate, plus any additional volume necessary for the water to sustain communitites and the environment. The annual recharge is that portion of the annual precipitation that seeps down through the soil into the ground water. This small pool of water renewed each year by recharge is a supply that could sustain healthy communities for all time if annual pumpage remained less than the annual recharge minus the stream outflows. The other much larger pool of water, the usable pool, is the remaining quantity that will be depleted over time. It is stored in the aquifer and will eventually be used up within some period of time depending on the level of use.

In most areas of the Ogallala, existing pumping uses ground water in excess of the amount replenished by recharge minus stream outflows. If the two pools concept is adopted, water use must decrease as the level of aquifer depletion approaches the volume in the conservation pool.

Is this a good idea for western Kansas?

The distinction between the conservation pool and the usable pool could facilitate the management, transition, and planning for reduced, sustainable regional water use. Ultimately, to sustain healthy communities, water usage must be limited to an amount that will not deplete the conservation pool. Also, the length of time it takes to deplete the usable pool provides an opportunity to prepare for this decrease in water use.



Kansas Water Office, 2000

Communities must decide how to manage water use.

Communities share common interest in the ground water resource and in the management approach. Therefore they should provide some input to assumptions made by scientists that involve water management risks when technical data is uncertain. This is particularly important in helping determine how to control the rate of depletion, protect the conservation pool, and define the line that separates the volume in the conservation pool and the usable pool. They must also help decide the water management options for a healthy community and the time frame in which the usable pool will be depleted. Various local organizations, such as groundwater management districts, watershed and conservation districts, and basin advisory committees, that typically represent communities are essential participants in these matters.

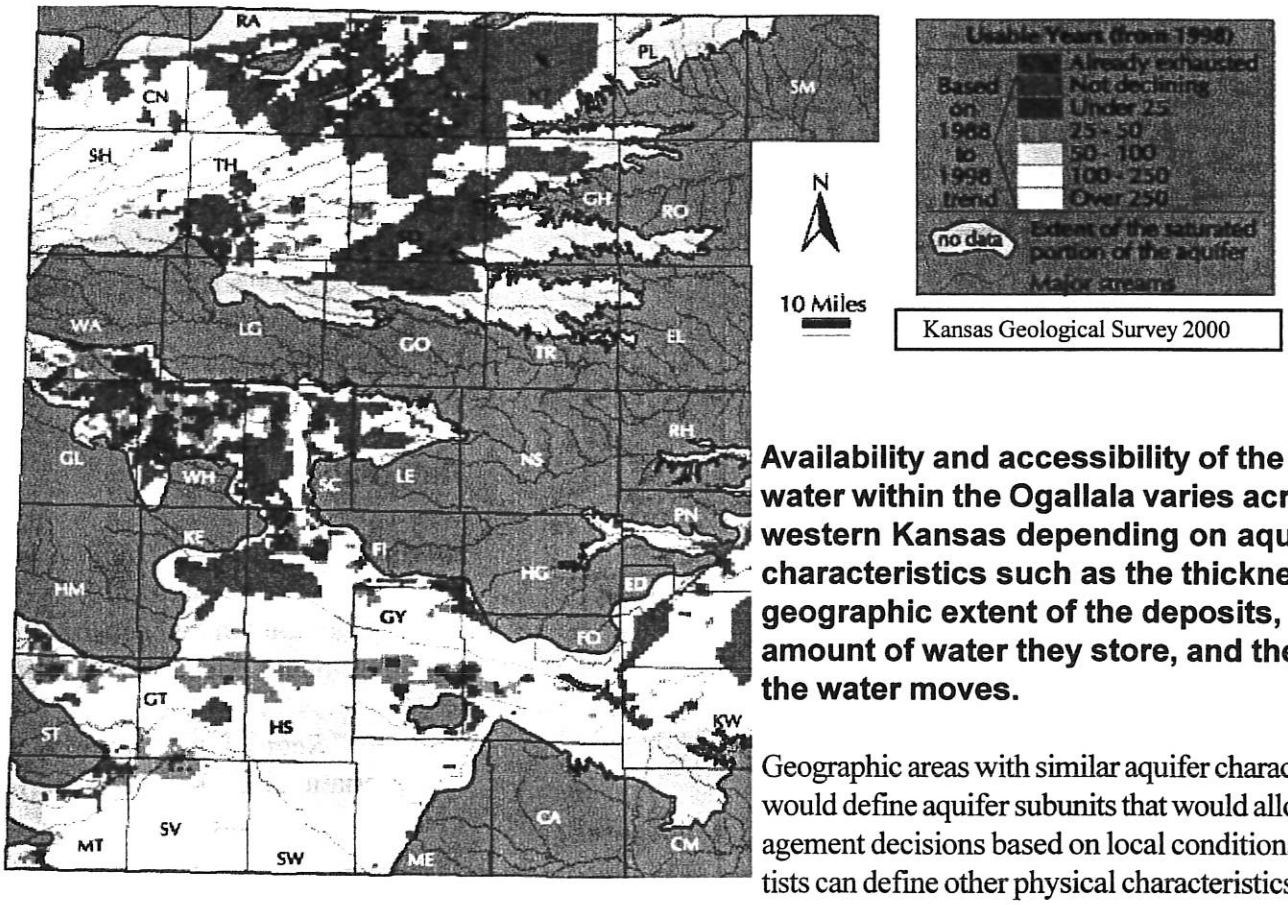
Communities include those who use water in western Kansas:

- o Irrigators, other producers
- o Businesses
- o Cities/towns
- o Industries
- o Individuals who rely on water in western Kansas

The Ogallala Aquifer is not uniform across Western Kansas

The aquifer consists of stored ground water that is moving slowly through deposits of sand, gravel, silt and clay.

Estimated usable lifetime for large volume pumping from the High Plains Aquifer, assuming current water-level trends continue and the aquifer is exhausted when saturated thickness is 30 feet or less



Availability and accessibility of the ground water within the Ogallala varies across western Kansas depending on aquifer characteristics such as the thickness and geographic extent of the deposits, the amount of water they store, and the rate the water moves.

Geographic areas with similar aquifer characteristics would define aquifer subunits that would allow management decisions based on local conditions. Scientists can define other physical characteristics of the subunits that would affect the amount and availability of water such as:

- Water table level
- Recharge rate
- Ground water outflows to streams
- Aquifer decline rate trends

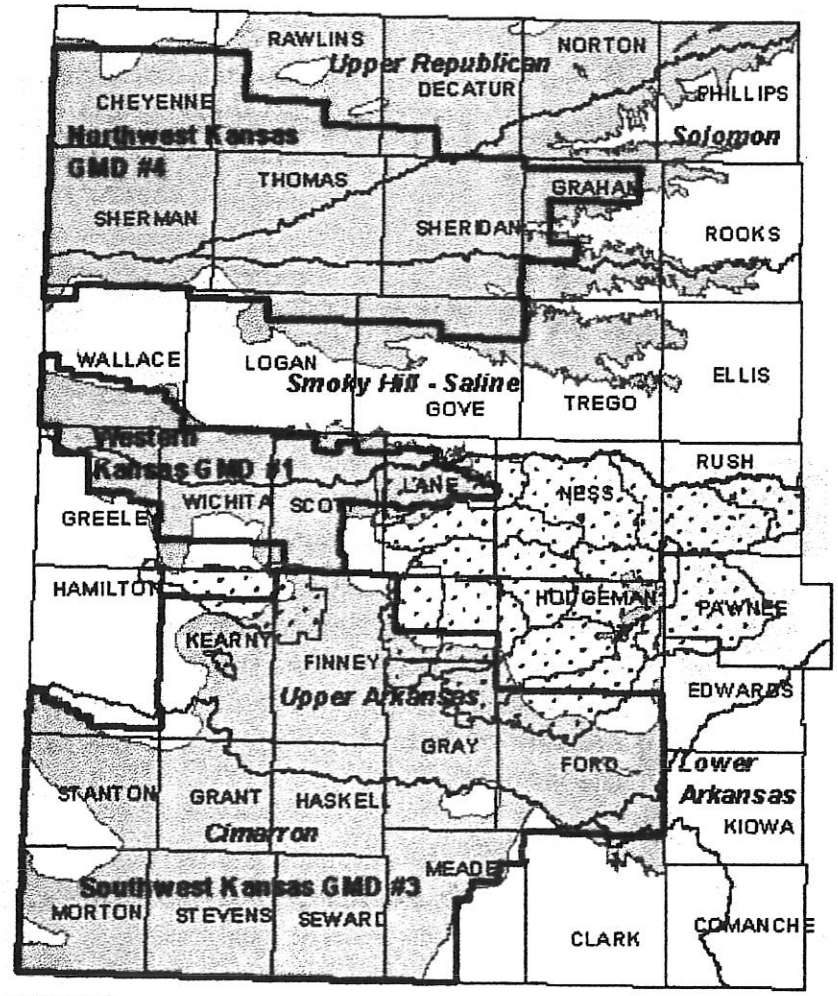
Many technical issues must be worked out to make this concept work. The volume of water contained in the conservation pool is determined by the annual recharge and the water level that must be maintained in the aquifer to make it available for use. The rate water is pumped will determine the time remaining to deplete the usable pool. Scientific analysis within each subunit will determine its geographic extent, estimated volumes in the two pools, and a refined time to deplete the usable pool based on given water use throughout the Ogallala.

The market for land and water rights within the context of the Water Appropriation Act and the related rules and regulations will serve to protect water users and to support transitions to decreased water use.

Water in the conservation pool would be administered according to prior appropriation, not on type of use; that is, first in time is first in right. A water right is a real property right that can be bought, sold, or leased. Communities can project when the usable pool might be exhausted, and plan for buying, if needed, senior water rights that would allow them to withdraw from the conservation pool. Availability of water in sufficient quantities for priority uses will determine the value of water rights as time passes. The existing Water Appropriation Act would continue to protect existing water rights as the usable pool is depleted.

s idea, if implemente(would be consistent with th Kansas Water Plan)

Objective: By 2010, reduce water level declines within the Ogallala Aquifer and implement enhanced water management in targeted areas.



LEGEND

- Kansas Water Office Basin Boundaries
- Groundwater Management District Boundaries
- Watershed Districts
- Ogallala

Index Map

Ogallala boundary taken from KGS and USGS investigations.

The water planning process will work through local community organizations

Public education and consensus on a plan will be addressed through a series of public information meetings. Water users in the communities within the Ogallala Aquifer area will have an opportunity to learn about the idea of two pools. They also will be given an opportunity to be involved in management decisions concerning the future of their water supply.

References

An Atlas of the Kansas High Plains Aquifer, Kansas Geological Survey, 2000. Available on the website: www.kgs.ukans.edu/HighPlains/atlas

Rules and Regulations, Kansas Water Appropriation Act, Kansas Department of Agriculture, Division of Water Resources, Sept. 22, 2000.

Kansas Water Appropriation Act, K.S.A. 82a-730

Kansas Water Plan, Fiscal Year 2002, Kansas Water Authority, July, 2001. Available on the website: www.kwo.org

For current schedules and further information contact:

The Kansas Water Office
1-888-KAN-WATER or 785-296-3185
www.kwo.org

The Kansas Department of Agriculture/Division of Water Resources
785-296-3710

KWO & KDA/DWR
Public Information Sheet 1/2001

K-STATE
Kansas State University

WHAT THE FUTURE HOLDS
FIVE-YEAR WORK PLAN

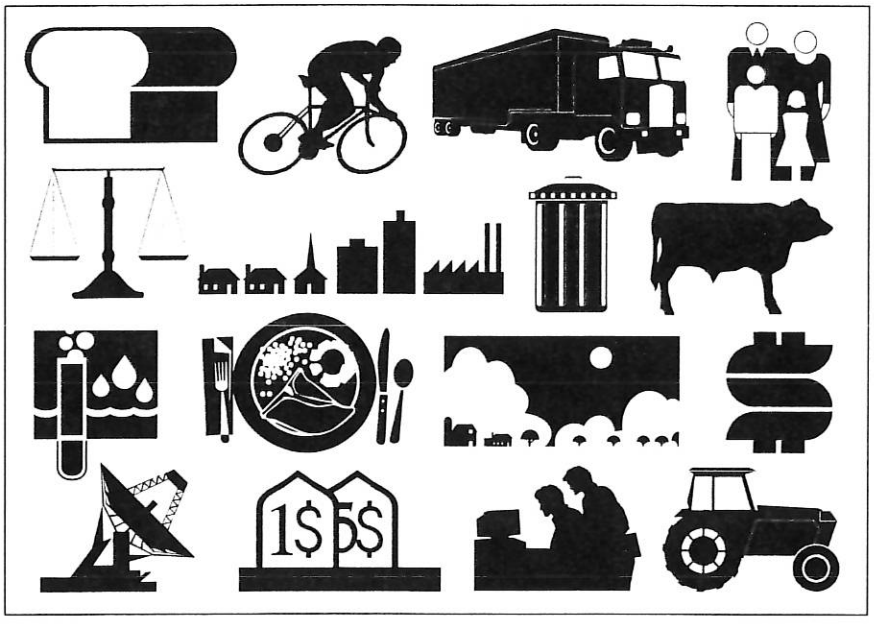
on

YOUTH, FAMILY, AND COMMUNITY DEVELOPMENT

FOOD, NUTRITION, HEALTH, AND SAFETY

NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT

AGRICULTURAL INDUSTRY COMPETITIVENESS



AN INFORMAL REPORT TO THE KANSAS LEGISLATURE *by the* KANSAS STATE UNIVERSITY
Agricultural Experiment Station *and* Cooperative Extension Service

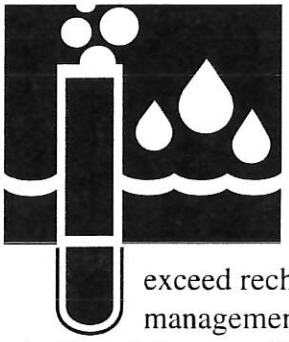
January 1998

NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT

Ensure Quality and Conservation of Surface Water and Groundwater

SITUATION:

Water is an important economic and natural resource for Kansas. The state's water resources exist in surface water systems (lakes, streams, and rivers), groundwater systems (aquifers), and alternative water sources (agricultural, municipal, and industrial wastewaters). Surface water systems exist throughout the state and are recharged by rainfall, thus they are the predominant water supply within the eastern half of the state. Groundwater resources exist primarily within south central and western Kansas and are the predominant water resource within those areas of the state.



While aquifers also are recharged by rainfall, deep aquifers like the Ogallala in western Kansas typically recharge very slowly, and withdrawals often exceed recharge. Therefore, management will help to extend the life of those aquifers. Some shallow aquifers such as in central Kansas are recharged by rivers and streams and can be sustainable systems through proper management. Wastewaters are a viable resource for irrigation but require careful management for irrigation system operations and to maintain favorable soil and surface water quality.

Kansas surface waters have multiple uses that include drinking, recreation, and irrigation. The 12 major river basins in Kansas have contaminants that create water quality concerns, according to a Kansas Department of Health and Environment (KDHE) report (January 12, 1995). The report identifies frequent contaminants as pesticides, fecal coliform, atrazine, nitrogen, suspended solids, chloride, and sulfate. In addition, surveys of private water wells show that a high percentage, perhaps 80%, of farmstead wells have deficiencies in location and construction that contribute to poor water quality and potential health risks. Roughly one-third of the private wells in Kansas contain E. coli and/or high nitrate and pose a significant health risk. About 60% of private wells do not meet safe drinking water standards for public water.

The Clean Water Act of 1972 and Safe Drinking Water Act of 1974 are the major Federal statutes that establish the water quality programs for the United States. The Clean Water Act establishes water quality and water pollution goals for the nation. Two of its major provisions require that states adopt water quality standards and implement nonpoint source pollution control programs. The principal objective of the Safe Drinking Water Act is to assure that water distributed by public water supplies is safe. Beyond the regulatory component is the fact that it is in the best interest of production agriculture—

as a major user of water—to conserve and ensure the quality of Kansas water resources.

VISION STATEMENT:

K-State Research and Extension is committed to developing and promoting technology and management systems that will ensure water quality and efficient use of Kansas water resources.

ANTICIPATED OUTCOMES OF EFFORTS BY K-STATE RESEARCH AND EXTENSION:

1. Surface water and groundwater resources will approach sustainable levels.

2. Crop producers will adopt dryland and irrigated crop production schemes (crops, hybrids, tillage, irrigation systems, and cultural practices) that will use available water resources more effectively (e.g., reduce risk of surface runoff and leaching of nutrients, pesticides, and sediments from cropland).

3. Rangeland and livestock managers will use appropriate range and grazing management practices, improved feed formulations, facilities design, and waste management systems to reduce the impacts on water quality.

4. Current irrigation system technology and management practices will be understood and adopted in order to use and allocate water more efficiently.

5. Reuse of waste water resources will increase without long-term soil quality, surface water quality, or irrigation system degradation problems.

6. Community leaders and private landowners will assess urban public and private lands for potential risks of current practices for causing water quality degradation and develop action plans to minimize such risks.

POTENTIAL TEAM PROJECTS AND ACTION PLANS THAT MAY BE DEVELOPED TO ACCOMPLISH THE ANTICIPATED OUTCOMES:

1. Develop a mechanism to assist crop and livestock producers, community leaders, and public policy developers with environmental planning.

2. Develop integrated cropping and grazing systems for environmental and resource management. (See NREM 2, NREM 3, AIC 1, and AIC 2)

3. Design and implement livestock systems for efficient production management, efficient waste management, and protection of natural resources. (See NREM 3, FNHS 1, and AIC 2)

4. Develop irrigation designs, system technology, and water management practices for efficient water application and use. (See AIC 1)

5. Design and implement strategies for application and management of wastewater resources.

6. Assist communities in assessing potential for environmental impacts from public and private land use.

Kansas State Research and Extension

WATER CONSERVATION AND MANAGEMENT FOR KANSAS IRRIGATED CROP PRODUCTION SYSTEMS

Presented to the House Agricultural Committee
January 29, 2001

Water is only ours to borrow – Use it Wisely

Problems related to water use and conservation in irrigated agriculture:

- For the past 20 years, most funding efforts have focused on water quality – not quantity
- Kansas has "limited" water resources in the major irrigated crop production areas.
- Energy has previously been a relatively low cost item.
- Deficit irrigation can result in reduced yield and water has been inexpensive.
- Excess irrigation may reduce yield (some) and may leach crop nutrients
- Intensive irrigation management takes time and a willingness to change

What programs exist to emphasize and address water conservation?

K-State Research and Extension has a Water Conservation and Management in Crop Systems Team (see attached sheet)

What programs or technology can be used to help producers be "more efficient" with water?

Current programs, activities, and accomplishments (successes):

South Central Kansas Irrigation Management Project (SCKIMP) & Western Kansas Irrigation Management Project

- KANSCHED & IRRSCHED Developed and in use (irrigation scheduling spreadsheets)
- IrriGages developed and field tested (non-evaporating irrigation/rainfall gauges)
- On-farm, Field-based data
- Measurement and Assessment of center pivot sprinkler performance and uniformity

Subsurface Drip Irrigation (SDI)

- 10+ years of SDI research in NW & SW Kansas
- Use of SDI with feedlot lagoon wastewater (3 yrs in SW KS; initiating work in MHK)
- Educational programs and workshops conducted on economics, design, and management

Other irrigation systems and water conservation related projects

- Yield and water use studies on irrigated corn based on time of planting, hybrid maturity, and crop cultivation
- Simulation of deficit irrigation allocations on corn yield
- Measurement, analysis and simulation water application uniformity from various center pivot sprinkler package designs
- Effects of non-uniform center pivot irrigation applications on yield of corn (St. John, Colby, Garden City, on-farm sites)
- Web-based, real-time irrigation scheduling and water management program

House Agriculture Committee
January 29, 2001
Attachment 5

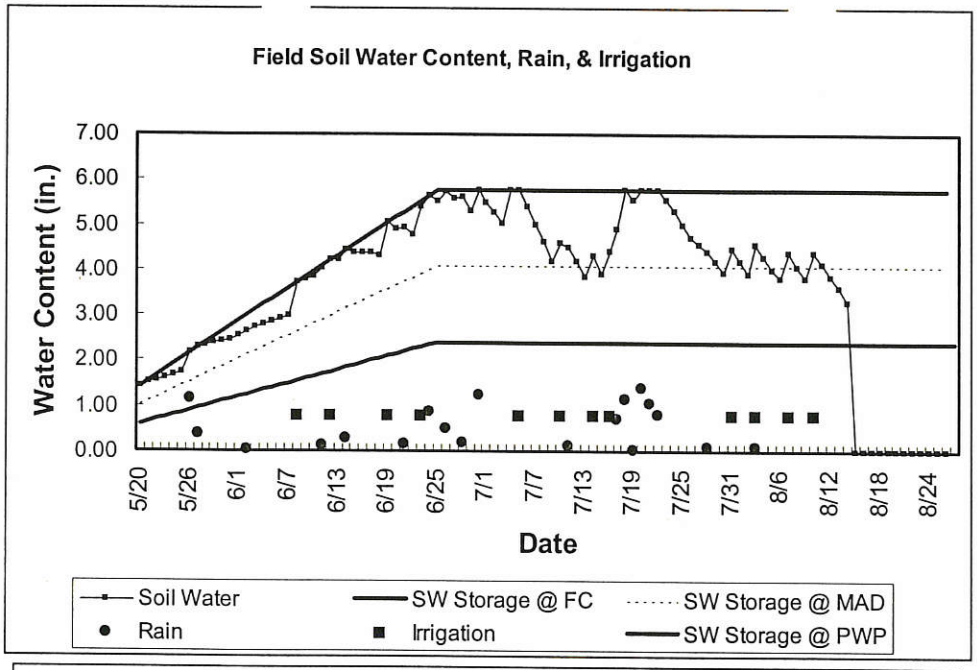
Future research and educational programs planned to address water conservation in irrigated production systems

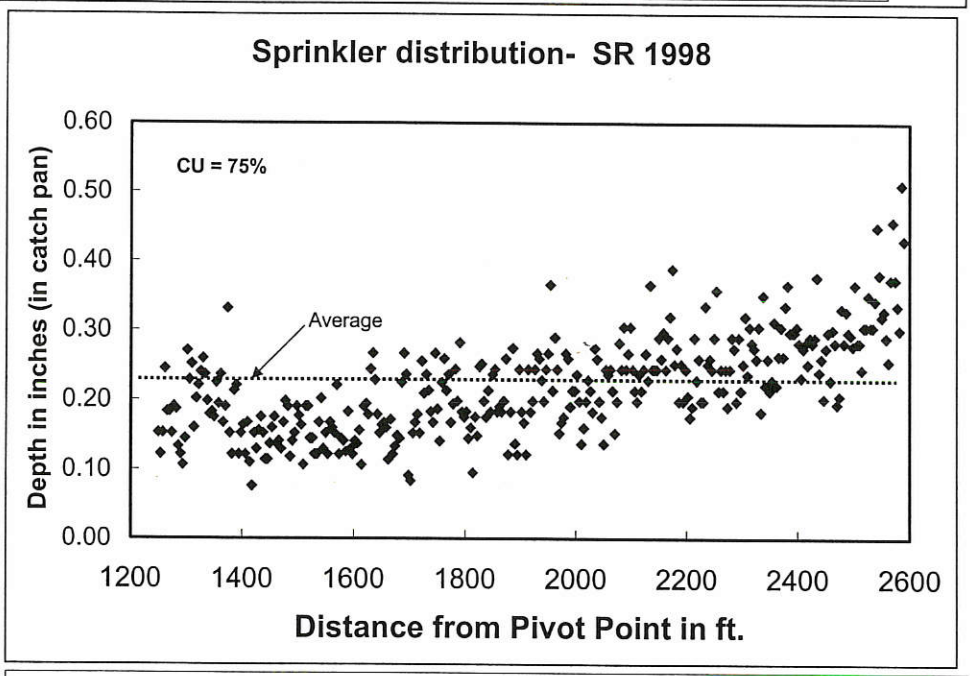
- Multiple year water allocations/cropping schemes (Irrigated & Dryland; water use and economic returns)
- SDI system designs, management, and crop system designs for "sandy" soils
- SDI with wastewater sources (design, operation, and management)
- Crop nutrient/nitrate management with irrigated production systems

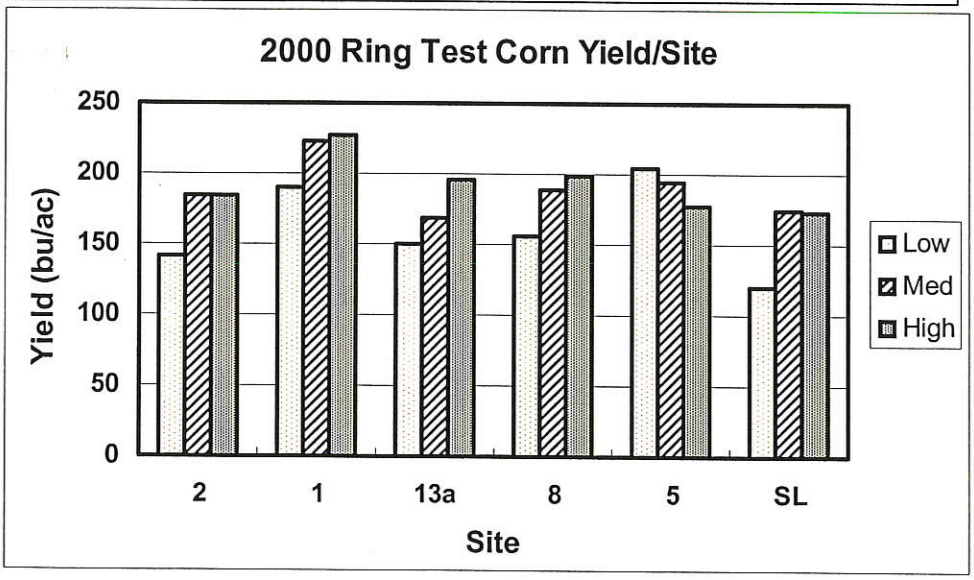
- **K-SWAT Mobile Lab (Kansas State Water Assistance Team)**
  - Goal: To increase water conservation associated with Kansas irrigated crop production through technical assistance and hands-on educational programs.
  - Objectives:
    - Improve irrigation system water application efficiency
    - Provide economically productive irrigation and cropping management programs that remain within various water allocation constraints
    - Decrease total irrigation based energy consumption
  - Tasks:
    - Evaluate/Assess center pivot system operation and performance
    - Evaluate/Assess current cropping systems and water management program
    - Teach (one-on-one & small group) irrigation system and cropping systems based water management practices, and irrigation scheduling with real time weather data. (hands-on activities)
    - Target "over-pumpers" and irrigation system/technology cost-share recipients

Concerns:

- Technology alone cannot save water; Incentives are needed
- Education and willingness to change can save water -- changing attitudes takes time;
- Previous funding for water conservation programs has been fair, but not sufficient to adequately maintain existing equipment or to start new programs or projects.
- Consistent funding for equipment, supplies, facilities and people is needed for Water Conservation Programs
- We are not educating/developing/mentoring future water management professionals
- We need to look regionally –
-


Field Soil Water Content, Rain, & Irrigation
Water Content (in.)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
5/20
5/26
6/1
6/7
6/13
6/19
6/25
7/1
7/7
7/13
7/19
7/25
7/31
8/6
8/12
8/18
8/24
Date
Soil Water
Rain
SW Storage @ FC
Irrigation
SW Storage @ MAD
SW Storage @ PWP


Sprinkler distribution- SR 1998
Depth in inches (in catch pan)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
CU = 75%
Average
1200
1400
1600
1800
2000
2200
2400
2600
Distance from Pivot Point in ft.


2000 Ring Test Corn Yield/Site
Yield (bu/ac)
250
200
150
100
50
0
2
1
13a
8
5
SL
Site
Low
Med
High

5-3

Kansas State Research and Extension
Water Conservation and Management in Crop Systems Team

Team Members:	Gary Clark, Bio & Agricultural Engineering Danny Rogers, Bio & Agricultural Engineering Robert Stratton, Bio. and Ag. Engineering (Sandyland Exp Field) Dale Fjell, Agronomy Victor Martin, Sandyland Experiment Field Mahbub Alam, SW Res. Ext. Center Loyd R. Stone, Agronomy Alan Schlegel, SW Res. Ext. Center Richard Vanderlip, Agronomy Dennis Chandler, Thomas County Extension
Collaborators:	Freddie Lamm, NW Res. Ext. Center, Colby Barney Gordon, Agronomy, Scandia Irrig. Field Jeff Peterson, Agric. Economics
Team Coach:	Bill Hargrove (KCARE)

The overall objectives of the Water Conservation and Management in Crop Systems plan are:
(1) To develop and/or evaluate, cropping systems, and irrigation system components, configurations, and management technologies for improved water and chemical utilization with irrigation systems for sustainable and economic irrigated crop production; and
(2) To increase the level of understanding and adoption of improved cropping management practices, new irrigation system technologies, irrigation scheduling procedures, and water management practices by agricultural irrigators, system managers, and agricultural consultants in Kansas.

The goals of the Water Conservation and Management in Crop Systems plan are:
(1) Crop producers will be more aware of crop management strategies to optimize crop yields and improve water use efficiency; and
(2) Crop producers, agribusiness, and agency personnel will be more aware of current irrigation system technology for use with freshwater or wastewater resources that results in improved water use efficiency. These programs have resulted in improved cropping system practices, new irrigation system designs, more efficient use of water and energy resources, increased economic returns from irrigated agriculture, and currently include: (1) Ten years of field studies with subsurface drip irrigation (SDI) for corn production (the greatest level of experience in the High Plains); (2) Multi-year on-farm demonstration projects of various irrigation management and scheduling practices involving irrigated farms in 18 central and western Kansas counties; and (3) Irrigation research programs at six K-State Research and Extension facilities across Kansas. Potential future impacts include continued increases in efficiency of water use and application; increased and more uniform crop yields; improved on-farm water management programs; reduced leaching and surface runoff of applied agri-chemicals; reduced energy inputs (fuel and labor); and sustained or increased economic returns.

For more information contact: Gary Clark (785) 532-5580; gclark@bae.ksu.edu

Testimony before House Agriculture Committee
Dr. Kent A. McVay
State Soil and Water Conservation Specialist
Kansas State University
Jan 29, 2001, 3:30 p.m.

Changes in acreage of crops grown in the state over the past decade reflect the success of dryland no-till cropping systems in Kansas. Growing summer crops is a good fit to the precipitation patterns of Kansas (see Figure 1). Although precipitation ranges from 17 inches annually on the western border to more than 40 inches on the east, the pattern for rainfall is similar across the state. Nearly 70% of the total precipitation is received in the months of May, June, and July. The best use of this summer rainfall pattern is to grow a summer crop.

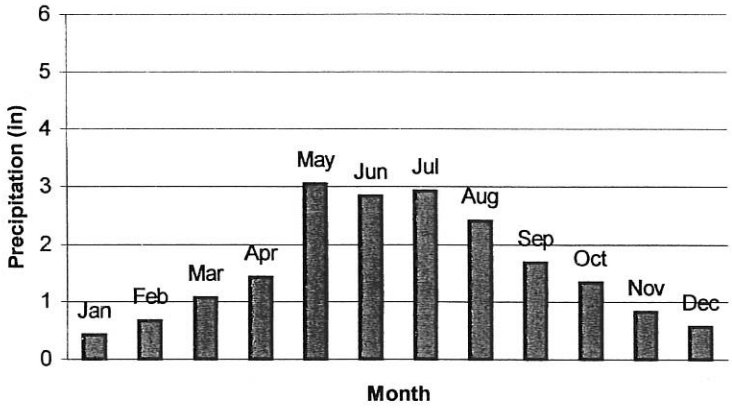


Figure 1. Long-term average precipitation patterns for Liberal, KS. (Data from NOAA, 1931-1997)

That has been the trend in production over the past decade in Kansas. Figure 2 shows harvested acreage for summer crops across the state since 1960. Grain sorghum acreage is quite variable, as it is a good alternative in years when wheat yield potentials look poor in the spring. Soybeans on the other hand show a strong growth trend throughout the period. In addition, the nearly two million acre increase of corn during the 1990's is a reflection of the dramatic increase in dryland corn acreage in this state. Increases in acreages of corn were greater in the western third, but have been seen in most counties of the state. This increase is due in part to better management practices including no-tillage cropping systems that maintain high levels of

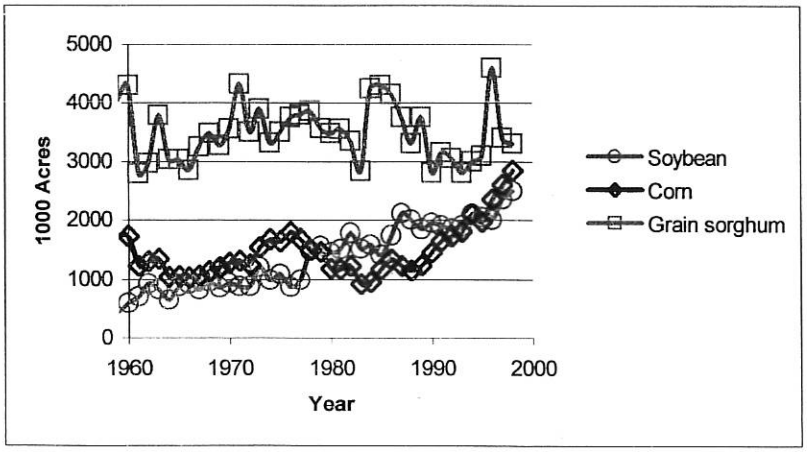


Figure 2. Harvested acres of summer crops in Kansas. (http://www.nass.usda.gov/ks/state/state.htm)

residue on the soil surface throughout the year. Most dryland crop producers prefer to plant corn following wheat using no-till, because they have discovered that the yield potential is best in the thick residue mat of wheat straw. This residue mat ensures low evaporative losses, higher infiltration rates, and cooler soil temperatures. When a producer can't depend on irrigation to supplement the water needs of a crop, then water conservation practices become much more important.

In addition to better timing for moisture conservation, changes in infiltration rates can occur as you reduce tillage intensity. Research at Tribune (Table 1) on some long-term tillage plots show greater steady-state infiltration rates in no-till soils, than in soils that are tilled. No-tillage systems not only capture more precipitation with higher infiltration rates, but with the residue mulch, evaporative demand is reduced as well, so it is a two fold savings in moisture.

Table 1. Steady-state infiltration rates after eight years in a wheat-sorghum-fallow rotation, Tribune, KS.

NT	RT	CT
---------- in/hour ----------		
1.1	0.6	0.4

There are many reasons to believe that much of the success of dryland agriculture could be adopted by irrigated producers. Conservation tillage systems not only make better use of precipitation, but at the same time, they reduce soil erosion potential from both water and wind. In conventional till systems, crop rotations are not as important, because residues are removed either by tillage or burning, and so the insect and disease organisms that are harbored by the residue are managed. In no-till systems, crop rotations are needed to manage these organisms since the residue becomes an important component of the system.

When you factor in pumping costs for irrigation water, then dryland cropping systems compete fairly well with irrigated land. In 2000, approximately 80 bushels of corn/acre were needed to pay for pumping costs in many locations in western Kansas. Comparing that to typical dryland corn yields of 120 bushel/acre shows the potential for expanded use of dryland production systems. If only supplemental irrigation water was used, and dryland production techniques were implemented on irrigated acres, large reductions in the need for irrigation water could be realized. In order for long-term no-tillage systems to be successful on irrigated ground, crop rotations would be necessary, and yield goals would need to be adjusted to sustainable levels.

If long-term goals for Kansas include reducing our use of ground water for agriculture, then we need to motivate our producers to utilize the precipitation that we annually receive. In most years, the majority of water needed for agricultural production is received as precipitation. Using irrigation to supplement crops that are efficiently using precipitation, should reduce the demand on the aquifer, and help maintain current ground water levels.

KANSAS LEGISLATIVE RESEARCH DEPARTMENT
45N–Statehouse, 300 SW 10th Av
Topeka, Kansas 66612-1504
(785) 296-3181 ◆ FAX (785) 296-3824
kslegres@klrd.state.ks.us
http://skyways.lib.ks.us/ksleg/KLRD/klrd.html

January 26, 2001

To: Representative Dan Thimesch **Office No.:** 278W

From: Raney Gilliland, Principal Analyst

Re: Meat Processing Facilities

You asked me to contact Mr. Kevin Elfering of the Minnesota Department of Agriculture regarding the number of meat processing facilities which the State of Minnesota currently is inspecting, the number of facilities which have been added recently, and the fiscal impact that the addition of the inspected facilities may have on the state's economy.

Mr. Elfering replied to my inquiry by indicating that the State of Minnesota currently has 34 plants under inspection. He indicated that this is more than double the number the state had last year at this time. He stated that he anticipated that 2001 would be another growth year but that the growth rate will most likely decline. He stated that the state did a projection on the impact of the initial implementation of the program, but that they have not done a fiscal impact since that time.

I hope this is helpful to you. If you have additional questions, please let me know. I have been able to contact Mr. Elfering at his e-mail address which is: Kevin.Elfering@state.mn.us.

RG/aem

House Agriculture Committee
January 29, 2001
Attachment 7

Down but not out

BY JOEL CREWS
jcrews@sosland.com

Frustrated from coping with the slow-grinding legislative process, advocates for allowing state inspected companies to ship product over state lines recently saw their hopes dashed as the gavel fell in a lawsuit brought against the U.S. Dept. of Agriculture by a faction of Ohio meat processors. But, according to plaintiff's representatives, while they might have lost the battle, the victor of the war remains to be seen.

The case, which was brought to the courts in 1997 by the director of the Ohio Dept. of Agriculture, was recently dismissed by U.S. District Judge George Smith, who ruled in favor of upholding current laws, which only allow for U.S.D.A.-inspected meat to be transported across state lines. State-inspected plants are prohibited from shipping products outside of the state where it is produced. Supporters of the effort to revamp the decades-old regulations in a courtroom rather than on Capitol Hill, included Blue Chip Meats, Gerber Poultry, Falter Packing Co., the Ohio Dept. of Agriculture and the American Association of Meat Processors, which represents hundreds of smaller, state-inspected processing operations throughout the country. Liberalizing regulations, say members of AAMP, would be a windfall for small processors that have, for years, been limited by a finite distribution area.

In the court's published opinion, there is a concern that "allowing state-inspected meat and poultry to enter interstate commerce may undermine the federal inspection program by creating competition between state and federal programs and between the state programs themselves. In his opinion, the judge quotes former Sen. Joseph Montoya, Dem.-N.M.,as saying, "Unscrupulous producers and processors would shop around for the states with the least rigid enforcement practices where they could establish plants free from federal inspection. The end result would be unwholesome and adulterated meat and poultry products flowing to every table in the country."

By the same token, the judge says, "Plaintiffs present affirmative evidence to the effect that the state inspection programs are, in fact, as good as or better than the federal program, and have been so for many years." However, he adds, "To rely on such evidence to overturn the federal laws would be to butcher the rational basis test."

To rely on such evidence to overturn the federal laws would be to butcher the rational basis test.

Proponents of allowing interstate shipment say the fact that the court acknowledges the validity of state inspection practices is an endorsement of their view and makes the dismissal ruling even more surprising.

"We had concerns about the validity of the decision," says Bernard Shire, director of legislative and regulatory affairs for AAMP. "The court really missed the boat on this thing."

AAMP officials contend a plant's geographic location has nothing to do with the safety of the food it produces if the products are held to the same inspection standards as U.S.D.A. "Is the meat more dangerous if the plant is located near state lines?" asks Shire.

Although mildly frustrated by the court's ruling, Shire and his troops are alternatively working to get regulations overhauled the old fashion way—by continuing to lobby their case to Congress.

Resistance to changing the laws, according to Shire, is rooted in protecting the interests of the big players in the meat and poultry industry. "The reason it has existed all these years is because the big plants, and they know who they are, have always opposed this," Shire says. Perceptions that opening up borders would infringe on the sales of the major plants are unfounded, he says. "This is not really competition when you consider how many of the smaller, state-inspected plants would buy from the big ones."

A bill introduced in 1999 (S-1988), served to revise interstate shipping laws to the liking of Shire's group, and as proposed, gained the support of consumers and U.S.D.A. But later, as part of the same bill, legislators incorporated controversial *Salmonella* inspection performance standards to the dismay of those hoping for a revolution. They contended that because the standards had no scientific basis, they could not back it. "We've supported (the)1988 (bill) but not with the *Salmonella* performance standards," says Shire. "That would give U.S.D.A. the authority to enforce an arbitrary way to shut down plants. That is a major sticking point."

The fight is far from over though, says Shire. When Congress reconvenes, the effort will continue to pass legislation that deals with interstate shipment as a lone issue, without being clouded by other initiatives. □

We would like to hear from you — your comments and questions about this article are welcome. E-mail the author at: jcrews@sosland.com.

House Agriculture Committee
January 29, 2001
Attachment 8