PHASE I

1. Identify most efficient system technologies for use by Kansas irrigators by working with irrigation system and water management technology manufacturers, Kansas State University (KSU), crop consultants, ground water management districts (GMDs) and others.

2. Ensure appropriate irrigation efficiency technology and irrigation management practices are eligible under the Environmental Quality Incentives Program (EQIP) by working with USDA Natural Resource Conservation Service (NRCS).

3. Ensure appropriate irrigation efficiency technology and irrigation management practices are eligible under the state’s Water Resources Cost-Share Program.

4. For emerging irrigation technologies, consider application for USDA’s Conservation Innovation Grant funding to accelerate technology transfer and adoption of promising technologies.

5. Determine optimum plant development stages for most efficient water application opportunities by collaborating with the seed industry, KSU, crop consultants and others.

6. Demonstrate various technologies at KSU Agricultural Experiment Stations.

PHASE II

1. Develop incentives and recognition programs for entrepreneurs based in Kansas who develop irrigation efficient technologies.
   - Work with local economic development and rural development experts to encourage local investment in irrigation technology.

2. Explore opportunity and feasibility of developing a state-led innovation grant program to encourage the advancement of next-generation irrigation technology and associated entrepreneurial enterprises.

3. Help farmers and ranchers understand and implement available technologies and production practices that reduce water consumption with minimal negative economic impacts or increased economic value.
OGALLALA-HIGH PLAINS AQUIFER ACTION ITEMS

PHASE I

1. Establish a Technology Outreach Taskforce to assist in the working model development and implementation of the field scale demonstrations

2. Showcase, on a field scale, the latest technologies in irrigation infrastructure, irrigation water management, soil moisture measurement, conservation tillage, automation, telemetry and other agronomic practices aimed at reducing irrigation water use

PHASE II

1. Develop Water Technology Farms at locations throughout the Ogallala-High Plains Region, targeting Local Enhanced Management Areas (LEMAS) by working in concert with irrigation technology manufacturers and the irrigation research community

   • Determine what risk on Water Technology Farms can be mitigated by Risk Management Agency (RMA) and consider other funding to cover any uninsured risk assumed by landowner/operator for participating in Water Technology Farms

   • Work with equipment manufacturers and dealers in a public-private partnership to provide the equipment to participating landowners/operators

INCREASE ADOPTION OF LESS WATER INTENSIVE CROP VARIETIES

STATEWIDE ACTION ITEMS

PHASE I

1. Form a collaborative stakeholder team to set sorghum research priorities and develop research and funding strategy and present strategy to potential funding partners, including the Kansas Legislature

2. Ensure crop insurance policies do not discourage use of alternative, specialty and cover crops

3. Collaborate with crop consultants and other agricultural advisors to support farmers interested in less water intensive alternative crop production

4. Encourage state universities to expand engagement in development of teaching, research and extension programs related to less water intensive crop varieties

5. Improve adoptability of feed wheat, along with other alternate crops, through marketing, commodity segregation, research and education

6. Encourage producers to consider all aspects of agronomic management systems when trying to make water efficient decisions

Vision for the Future of Water Supply in Kansas
PHASE II

1. Identify ways to create new and strengthen existing markets for less water intensive crops, including specialty and alternative crop varieties

2. Promote development of markets for alternative crops with a focus on value-added agriculture such as livestock feed and biofuels

3. Develop a strategy that supports research on the role of less water intensive forage and grasses such as triticale

4. Partner with and support public and private entities focused on development of drought resistant corn and related advancements

5. Provide needed research and education that leads to increased adoption of cover crops to reduce field soil loss while improving overall soil health

6. Implement sorghum research funding mechanism based on a public-private partnership (Perhaps similar to Wheat Genetics Resource Center (WGRC))
   - Address sorghum research needs such as yield, stalk strength, silage density, nutritional value to livestock, weed control and ability to be used for biofuels production
   - Consider pursuit of grant funds (National Science Foundation (NSF)) or multi-state partnerships for initial sorghum research start-up efforts

PHASE III

1. Implement research in order to increase select pesticide resistance for sorghum and cotton along with drought resistant corn production

OTHER REGIONS ACTION ITEMS

PHASE I

1. Address policy issues that limit the growth of cotton in Kansas
   - Identify potential statutory or regulatory changes
   - Encourage U.S. Department of Agriculture and U.S. Environmental Protection Agency regulatory approval of Enlist Duo™ Cotton for Kansas for the 2016 planting season
   - Support additional pesticide product and seed variety development that improves opportunities for cotton growth in Kansas
2. Evaluate profitability, prices and water use of alternative crops

3. Strengthen the use of Driftwatch™ by growers of sensitive crops and pesticide applicators

**PHASE II**

1. Develop recommendations based on research related to corn and cotton rotation

2. Incorporate supporting technology advancements for cotton production such as weed control systems

**IMPLEMENT RESEARCH-BASED TECHNOLOGY AIMED AT BETTER UNDERSTANDING OUR STATE’S WATER SUPPLY**

**STATEWIDE ACTION ITEMS**

**PHASE I**

1. Continue to further develop and disseminate information about the state’s water resources, including additional data, maps and reports and improve understanding of the Ogallala-High Plains Aquifer as an aid to water management in western Kansas

2. Expand adoption of on-line water use reporting system so customers are better served and information is readily available

3. Share research findings broadly with Kansas citizens to improve understanding of our state’s water resources

4. Annually coordinate with university researchers regarding the Vision for the Future of Water Supply in Kansas to ensure future collaborative research supports the successful implementation of the Vision

**PHASE II**

1. Build economic assessments into water management research wherever feasible

2. Develop a Ground and Surface Water Model Maintenance Team dedicated to continual maintenance of hydrogeologic computer models to ensure models are current, defensible and ready for use at all times

3. Maintain state-wide stream gaging network to continue to provide near real-time information about stream and river levels. Evaluate the pros and cons of a state maintained stream gaging network

4. Share research findings broadly with Kansas citizens to improve understanding of our state’s water resources
5. With local water management Districts, develop on-line water availability tool that could be used by individuals, organizations, local entities and consultants to evaluate potential water development or management projects

PHASE III

1. Encourage multi-disciplinary approaches (eg. agricultural sciences, economics, engineering, legal, public policy, etc.) to research-based technology to increase success of adoptable solutions

2. Establish “shovel ready” collaborative research proposals that implement the Vision towards which funding could be directed as grant and other funding opportunities arise

RESERVOIR ACTION ITEMS

PHASE II

1. Collect sediment cores at federal water supply reservoirs to document continuing rates of sediment deposition
   - Sediment core results would be compared with sonar derived water storage changes to develop the most accurate assessment of reservoir changes possible
   - Sediment core samples could also be used to identify past and present sources of sediment from watersheds to assess and improve the effectiveness of erosion control measures

2. Ensure digital data such as Geographical Information Systems (GIS) and the data repository at the Data Access and Support Center for water systems is available and maintained for all rural water districts, groundwater management districts and communities in Kansas

PHASE III

1. After a minimum of 10 years from the previous survey, collect and compare sediment cores at federal reservoirs to assess changes in rates of sedimentation and, where appropriate and necessary, repeat bathymetric surveys

2. Collect data through operation of water quality monitors and suspended sediment sampling at each Kansas federal water supply reservoir in two year rotations until each reservoir has been assessed
OGALLALA-HIGH PLAINS AQUIFER ACTION ITEMS

PHASE I

1. Expand observation well network in the High Plains Aquifer

PHASE II

1. Evaluate driller’s logs and require the submission of test well data to better characterize the Ogallala-High Plains Aquifer

2. Develop long-term research and business plans to allow farmers and local communities to prepare for successful transition to dryland farming

OTHER REGIONS ACTION ITEMS

PHASE II

1. Develop map for eastern Kansas, similar to the Estimated Usable Lifetime of the Ogallala Aquifer, that shows municipalities and other public water suppliers at greatest risk today, in the immediate future or in the long-term of having insufficient water supplies to serve area’s needs

DEVELOP CAREER AND TECHNICAL EDUCATION PROGRAMMING RELATED TO WATER RESOURCE MANAGEMENT AND TECHNOLOGY TO BUILD THE NEEDED WORKFORCE

STATEWIDE ACTION ITEMS

PHASE I

1. Utilize agricultural education and 4-H to encourage young people to develop agricultural programs using water efficient technologies and less water intensive crops or crop varieties through recognition and incentive programs

2. Develop models for the inclusion of water conservation into the agricultural education curriculum, including classroom, supervised agricultural experience and FFA activities

3. Encourage the development of community college, technical programs and university programs to prepare the future workforce to work in irrigation efficiency technologies and with necessary expertise in less water intensive crops and crop varieties
1. Consider further development and support of water related academic programs at the state universities, community colleges and technical schools, including majors, minors and certificates.

2. Integrate more education on less water intensive crops in university undergraduate and graduate programs for agronomists, animal scientists, grain scientists and agricultural economists.

3. Develop educational material and programs to be included with the community college and career and technical education systems.

4. Develop a career and technical education certificate to be offered in Kansas high schools.