

Arkansas Surface Water Irrigation

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Arkansas is relatively rich in water resources with annual precipitation of 50 to 57 inches per year, which makes irrigation using surface water a plausible option for agricultural producers. However, according to USDA 2013 Farm and Ranch Irrigation Survey, less than 15 percent of water applied to Arkansas crops comes from the surface. Western states such as California and Idaho apply about 50 percent of irrigation water from the surface. The purpose of this fact sheet is to provide background about the use of on-farm impounded surface water for irrigation.

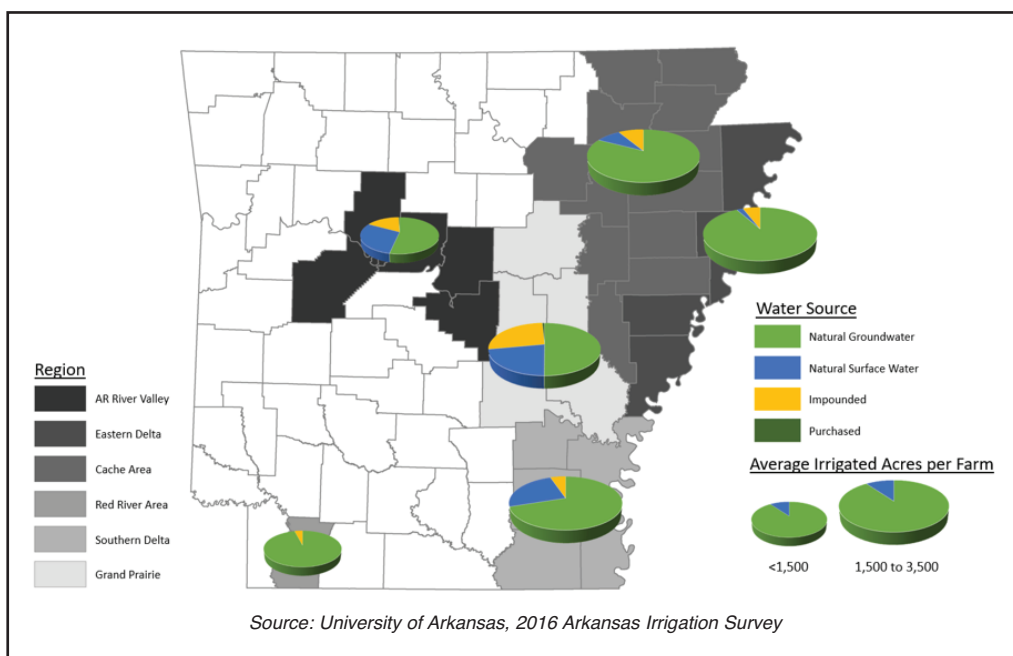
Quantity and Source of Irrigation Water Applied by Region

The Grand Prairie Region has the largest percentage of impounded water used for irrigation at over 27 percent.

The Arkansas River Valley has the highest percentage of irrigation water coming from natural surface water, at over 29 percent.

Over 82 percent of the irrigation water used in the Eastern Delta, the Cache Area and the Red River Area comes from natural groundwater.

Figure 1. Percent of irrigation water applied by source.



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Of all irrigation water applied from on-farm reservoirs, 45 percent is withdrawn from natural surface water and stored in a reservoir with a tailwater recovery system.

Two-thirds of on-farm storage reservoirs draw their water from an outside source.

A higher percentage of Arkansas producers use tailwater recovery than storage reservoirs.

Lonoke and Arkansas counties are where tailwater recovery is most common. Over 80 percent of respondents from those counties use tailwater recovery. The frequency of tailwater recovery and storage reservoirs tends to decrease the closer the farms are to the Mississippi River.

Figure 2. Irrigation water applied from impounded water sources.

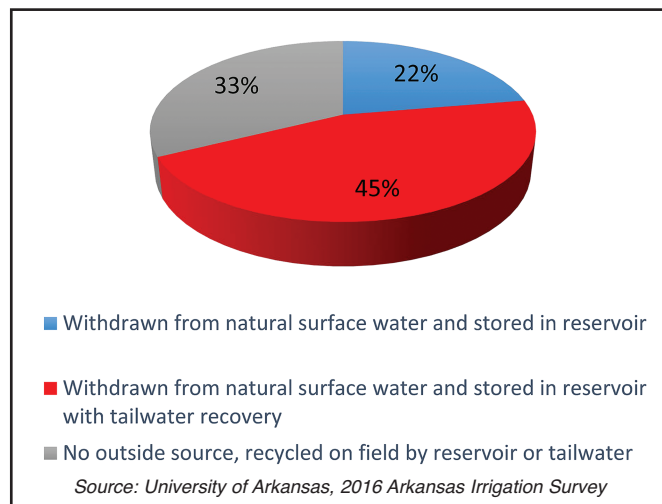
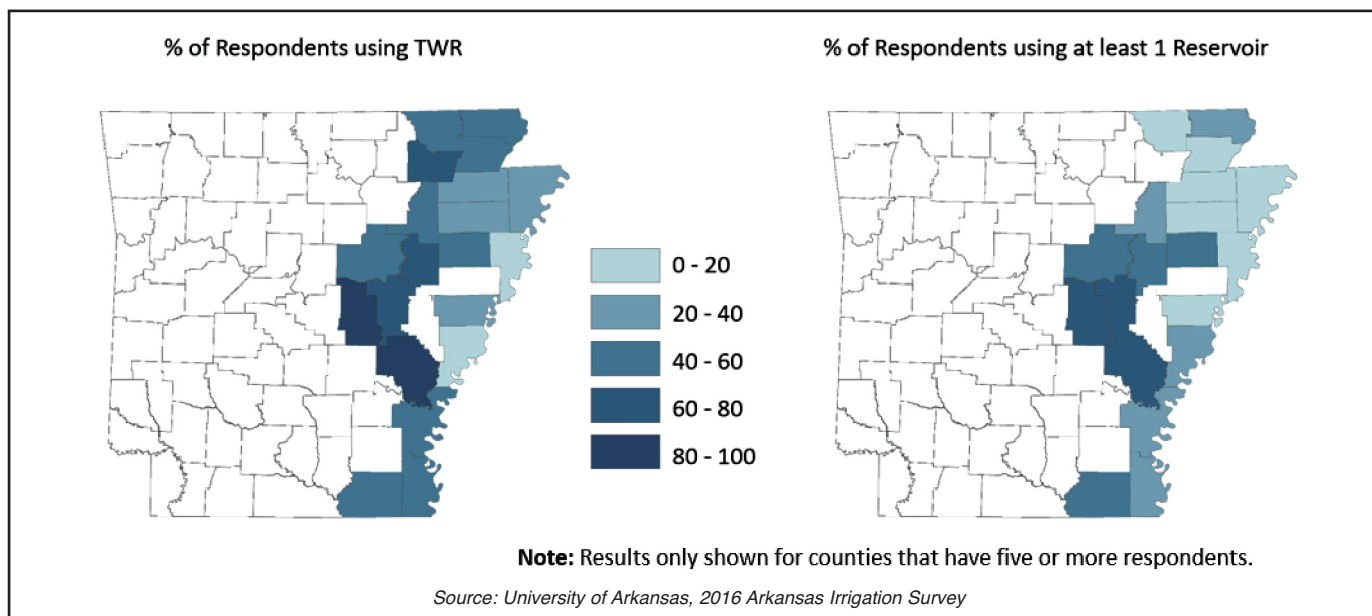


Figure 3. Percentage of producers using impounded water sources by county.



On-Farm Use of Impounded Water Systems

Corn has the highest percentage of irrigation water drawn from a reservoir at 54 out of 133 corn producers. Cotton has the lowest percentage of irrigation water drawn from a reservoir at 8 out of 41 cotton producers.

Producers who grow soybeans, rice or corn have more storage reservoirs than producers who grow sorghum, peanuts or cotton.

Corn is the only commodity of the six surveyed for which the average producer has more than one storage reservoir.

Rice/corn and soybean growers are the most likely to use tailwater recovery systems on their farms. This is probably because these crops are the most irrigation intensive.

Cotton producers are less likely to use tailwater recovery systems than the producers of any other crop.

Figure 4. Producer use of on-farm storage reservoirs by crop grown.

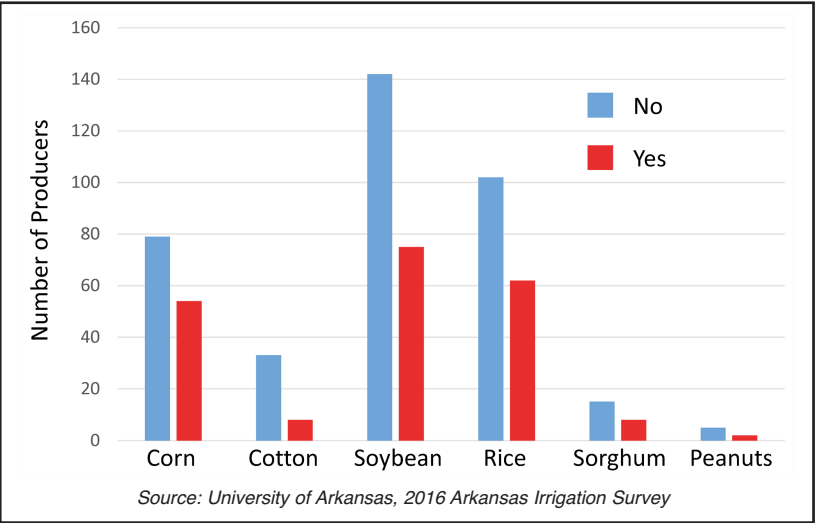


Figure 5. Average number of storage reservoirs per producer by crop grown.

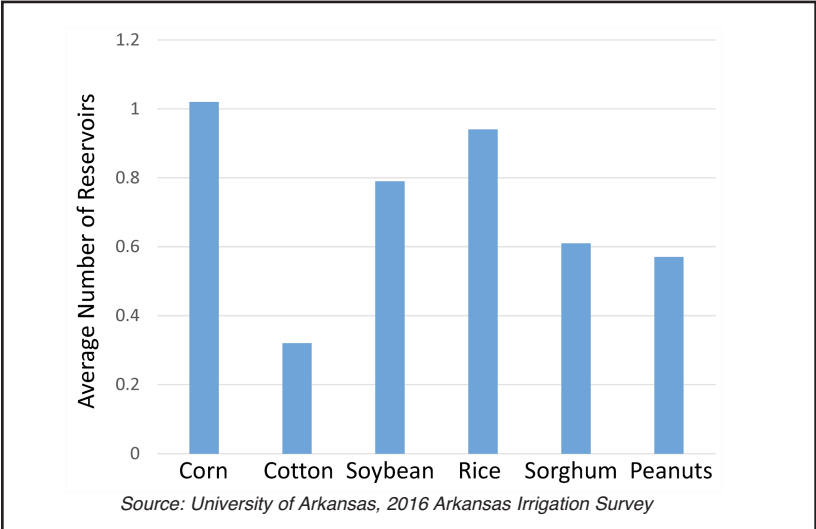
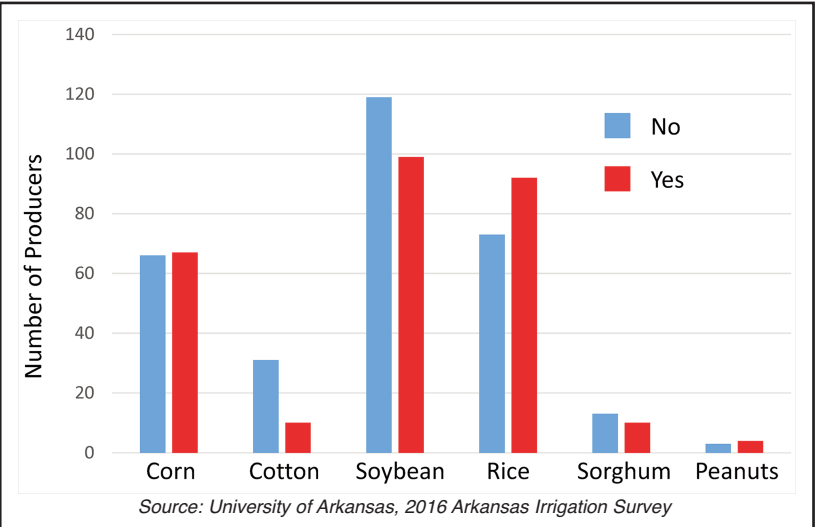


Figure 6. Producer use of tailwater recovery by crop grown.



Why Do Producers Use Impounded Water Systems?

Reducing irrigation costs is the most common reason for the use of reservoirs and tailwater recovery.

The expectation of future limitations in groundwater represents 25 percent of producers. Other common reasons include water conservation, higher water quality and lower water salinity.

More than 50 percent of producers indicate that reservoir or tailwater recovery construction receive a federal cost-share.

Thirty-two percent of respondents paid for their construction with cash. Only 7 percent obtained a loan to finance construction.

Figure 7. Producer reasons for using impounded water sources.

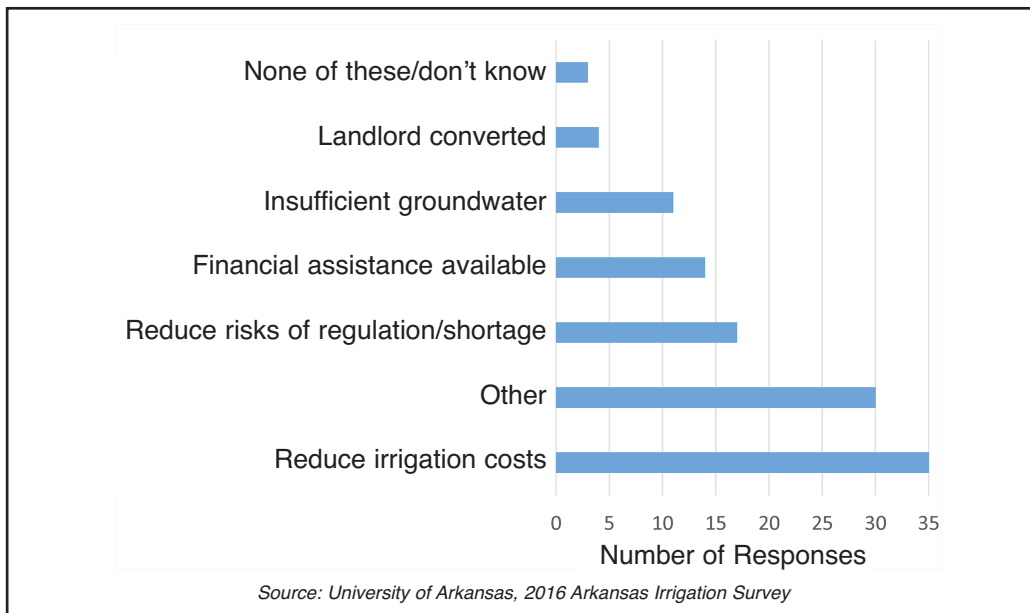
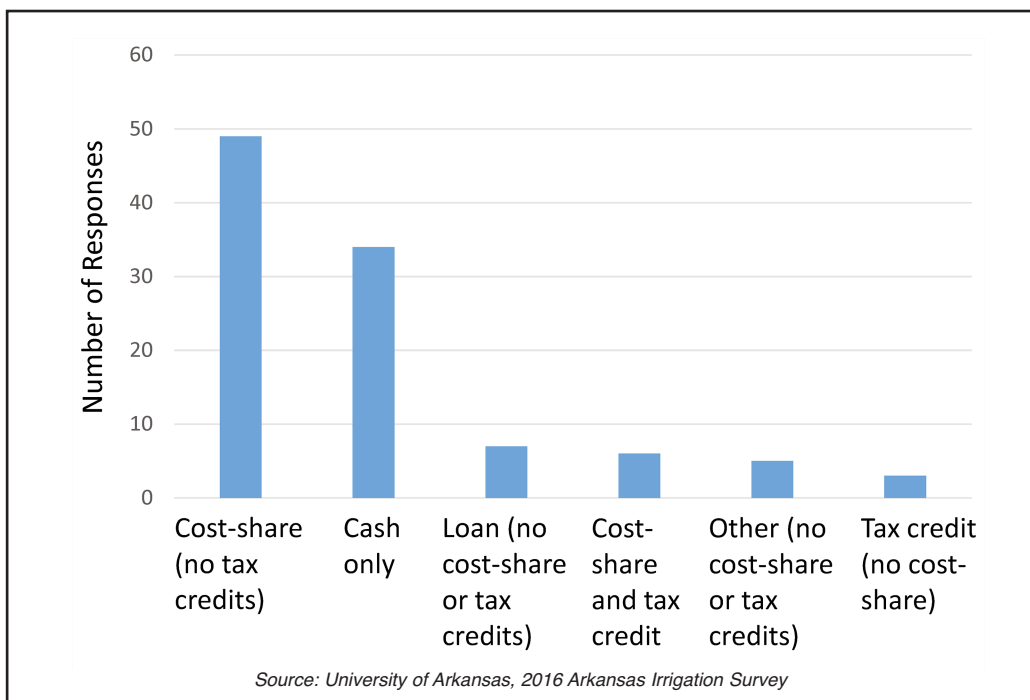


Figure 8. Financing for construction of impounded water systems.



Summary

- Impounded surface water is the most common in the Grand Prairie region, and more than half store water drawn from the surface rather than recycled water alone.
- Rice, soybean and corn producers are the most likely to use impounded water.
- The cost of construction and loss of productive land are deterrents to the use of impounded water, but half of producers receive federal cost-share to alleviate this burden.

References

For additional information see:

- Arkansas Natural Resources Commission at https://static.ark.org/eeuploads/anrc/Critical_area_Fact_Sheet_2015.pdf
- Lower Mississippi Gulf Water Science Center, USGS at <https://www.usgs.gov/centers/lmg-water/>
- U.S. Census of Agriculture at <https://www.agcensus.usda.gov/Publications/2012/> and https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Farm_and_Ranch_Irrigation_Survey/

Printed by University of Arkansas Cooperative Extension Service Printing Services.

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FSA52-PD-02-20N

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