

Differences in Perceptions of Agricultural Water Use between the General Public and Local Officials¹

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This EDIS document is the second in a series describing differences in perceptions of agricultural water use between the general public and local officials in Florida. This study can be used to assist Extension educators and the agricultural industry at large in the development of strategies that can be used to inform people about the realities of agricultural water use in Florida. The series includes the following EDIS documents:

1. Attitudes and Perceptions of Agricultural Water Use in Florida Expressed by the General Public and Local Officials, <http://edis.ifas.ufl.edu/wc248>
2. Differences in Perceptions of Agricultural Water Use Between the General Public and Local Officials, <http://edis.ifas.ufl.edu/wc249>
3. How the General Public and Local Officials Prefer to Learn about Agricultural Water Use in Florida, <http://edis.ifas.ufl.edu/wc247>

Introduction

Florida is bordered by water on three sides; however, freshwater shortages remain a constant challenge (Barnett, 2007). In addition, water issues in Florida have recently

spurred legal action within the state and between other states in the southern part of the United States (Greenberg, 2009), leading to increased media attention, specifically in the area of agricultural water use. Due to the scarcity of water resources among states and the influx of people, balancing agriculture and public water needs has become a contentious issue (Schaible & Aillery, 2012; Young & Dhanda, 2013). Agricultural irrigation is expected to increase by 7.5% in Florida between 2010 and 2030 (Florida Department of Environmental Protection, 2013). Florida's population also continues to increase and with it, the public demand for water. Therefore, dialogue must take place to educate and inform the general public and local officials about the reality of agricultural water use.

Differences in Perceptions between the General Public and Local Officials

Research has demonstrated that there is an extensive public lack of knowledge regarding water quantity and quality (Lamm, Lamm, & Carter, 2015), and there continues to be many misconceptions surrounding the impact of agricultural water use among the public (USDA, 2006). These

1. This document is AEC587, one of a series of the Department of Agricultural Education and Communication, UF/IFAS Extension. Original publication date April 2016. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
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misconceptions may be credited to negative media coverage (Gaines, 2014; Lamm, Taylor, & Lamm, 2016; Whitaker & Dryer, 2000), which greatly influences public perception.

Previous research has also shown that knowledge gaps exist between the general public and local officials, especially around environmental issues and particularly agricultural water use. These gaps can be attributed to local officials' advanced levels of behavioral involvement with water due to their (political campaign involvement, social communication, and attending lectures) higher social status, higher level of education, and unique access to information needed to make decisions within their communities (Kwak, 1999). Despite these differences, it is expected that local officials are making decisions, including those that impact agricultural water use through permits and regulations, based on what their constituents believe and want for their communities. What remains unknown, however, is whether local officials' perceptions of agricultural water use match those of the public they serve.

Differences in Agricultural Water Use Perceptions

To determine if significant differences existed between the general public and local officials, a survey was developed asking about participants' perceptions of agricultural water use. The general public and local officials were given the same survey. The survey instrument was created using the 2012 RBC Canadian Water Attitudes Study (Patterson,

2012) as a basis and then adjusted to address Florida issues. An online survey was used to measure attitudes and perceptions towards agricultural water use of both the general public and local county commissioners, county clerks, and county managers in Florida.

Respondents were given a series of phrases such as "When it comes to protecting water in Florida, farmers are . . ." and the respondent was asked to select between two different terms that best expressed their views such as good/bad. Next, a score was assigned based on numerical value with one representing a negative attitude and five representing a positive attitude.

To gain a better understanding of how respondents perceive agricultural water use, they were also asked to indicate their level of agreement or disagreement on the following: trust in water and protection, use of resources, relationship with the natural environment. Responses were selected on a five-point scale (ranging from 1—*Strongly Disagree* to 5—*Strongly Agree*). To determine trust in agricultural water use, statements such as "farmers can be relied upon to keep their promises when it comes to water use" were placed in the scale. The four statements were then combined to create a scale and later examined to be trustworthy.

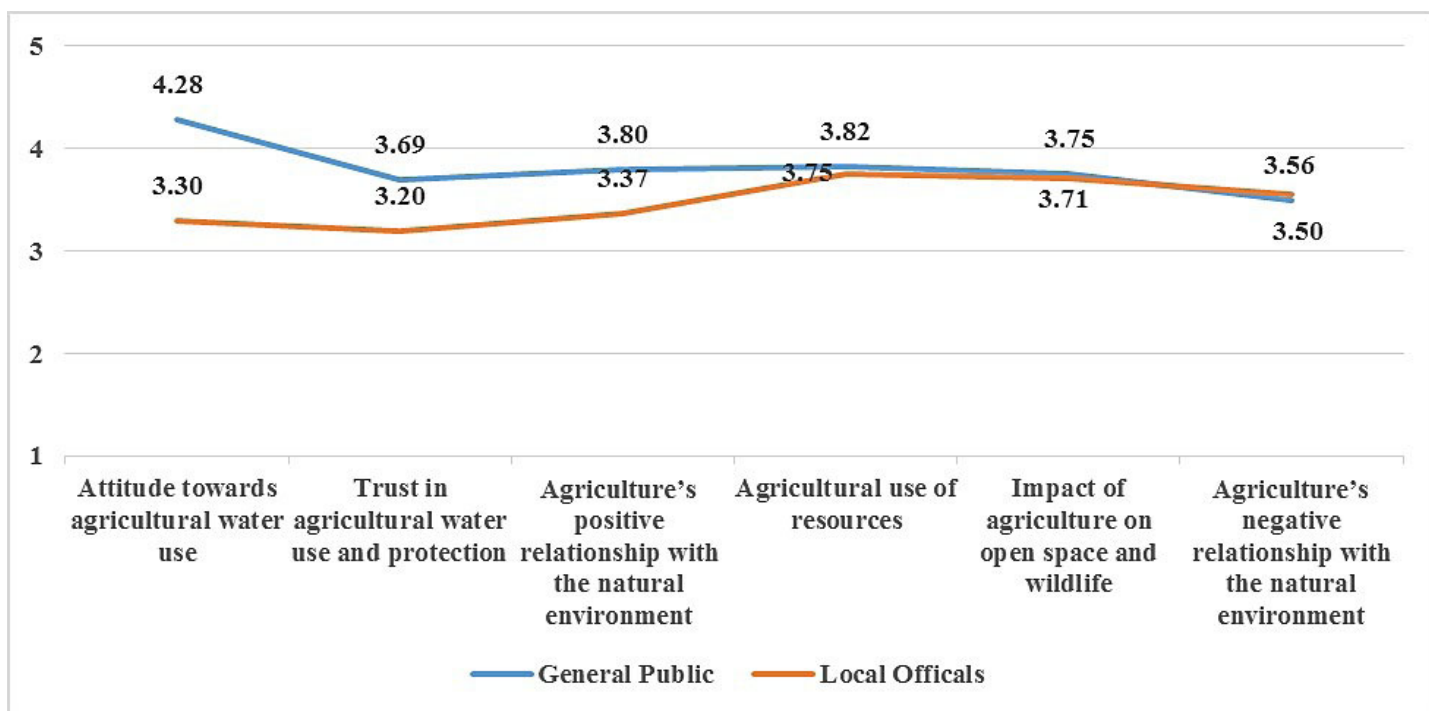


Figure 1. General Public and Local Officials' Perceptions of Agricultural Water Use. Note. 1= Negative and 5= Positive

Comparing Responses from the General Public and Local Officials

The two groups were compared to see if there were differences in attitudes, trust, and relationships. The results indicated that there were significant differences (Figure 1). The general public reported a more positive attitude than local officials about agricultural water use. There were also significant differences in trust in the agricultural industry when it comes to water use and protection, with the public exhibiting a higher level of trust than the local officials. Lastly, the general public also had a significantly higher level of agreement with statements indicating that agriculture has a positive relationship with the natural environment. Lastly, the general public also had a significantly higher level of agreement with statements indicating that agriculture has a positive relationship with the natural environment.

Results/Implications for Practice

These results can be used to create effective and strategic educational content for empowering the general public and local officials. It is recommended that Extension educators and communicators use targeted interventions to improve both groups' understanding of agricultural water use (Hahn, Greene, & Waterman, 1994). Using social media, blogs, and public radio announcements, Extension educators can further explain agricultural water use to local officials and the general public.

Since different perspectives existed between the public and local officials, educational workshops bringing members of the public and local officials together to discuss water issues are recommended. These workshops could be facilitated by Extension educators in their communities and would provide a forum for the discussion of perspectives and beliefs within a fact-based environment. In addition, providing fact sheets and other materials related to the knowledge gap surrounding agricultural water use would be useful.

Summary

Extension educators should invite the general public and public officials to participate in farm demonstrations, during which Extension educators could organize the two groups into breakout sections that address concerns related to agriculture water use. By incorporating a hands-on approach during the farm demonstrations, the general public and the public officials could develop a broader understanding of agricultural water use and the best

management practices being used so that they are informed when making decisions.

References

- Barnett, C. (2007). *Mirage: Florida and the vanishing water of the eastern U.S.* Ann Arbor: University of Michigan Press.
- Bruening, T., & Martin, R. A. (1992). Farmer perceptions of soil and water conservation issues: Implications to agricultural and extension education. *Journal of Agricultural Education*, 33(4), 48–54. doi:10.5032/jae.1992.04048
- Cox, D., Lawver, D. E., Baker, M., & Doerfert, D. (2004). Critical water related curriculum needs as perceived by agricultural science teachers in programs located within the boundaries of the Ogallala aquifer. *Journal of Agricultural Education*, 45(4), 22–33. doi:10.5032/jae.2004.04022
- Florida Department of Environmental Protection. (2013). *Annual status report on regional water supply planning*. Florida: Florida Department of Environmental Protection.
- Gaines, E. (2014). Media representations of science, and implications for neuroscience and semiotics. *Semiotica*, 200, 103–117. doi:10.1515/sem-2014-0011
- Gaziano, C. (1983). The knowledge gap: An analytical review of media effects. *Communication Research: An International Quarterly*, 10(4), 447.
- Greenberg, M. R. (2009). Water, conflict, and hope. *American Journal of Public Health*, 99(11), 1928–1930. doi:10.2105/AJPH.2009.159863
- Hahn, A. J., Greene, J. C., & Waterman, C. (1994). *Educating about public issues. Lessons from eleven innovative public policy education projects*. Ithaca, NY: Cornell University.
- Kwak, N. (1999). Revisiting the knowledge gap hypothesis: Education, motivation, and media use. *Communication Research*, 26(4), 385–413. doi:10.1177/009365099026004002
- Lamm, A. J., Taylor, M. R., & Lamm, K. W. (2016). Discerning gaps between public and local official views of agricultural water use to inform practice. Paper submitted for presentation at the 2016 Southern Region American Association for Agricultural Education Conference, San Antonio, TX.
- Lamm, K. W., Lamm, A. J., & Carter, H. S. (2015). Bridging water issue knowledge gaps between the general public and

opinion leaders. *Journal of Agricultural Education*, 56(3), 146–161. doi 10.5032/jae.2015.03146

Lee, H., & Yang, J. (2014). Political knowledge gaps among news consumers with different news media repertoires across multiple platforms. *International Journal of Communication*, 8, 597–617.

Patterson, L. (2012). *2012 RBC Canadian water attitudes study*. RBC Blue Water Project. Retrieved from <http://www.rbc.com/community-sustainability/environment/rbc-blue-water/index.html>

Schaible, G., & Aillery, M. (2012). Water conservation in irrigated agriculture: Trends and challenges in the face of emerging demands, EIB-99, U.S. Department of Agriculture, Economic Research Service. Retrieved from <http://www.ers.usda.gov/media/884158/eib99.pdf>

United States Department of Agriculture Natural Resources Conservation Service (2006). *Water management*. Retrieved from http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_023284.pdf

Whitaker, B. K., & Dyer, J. E. (2000). Identifying sources of bias in agricultural news reporting. *Journal of Agricultural Education*, 41(4), 125-133. doi:10.5032/jae.2000.04125

Young, S. T., & Dhanda, K. K. (2013). *Sustainability; essentials for business*. Thousand Oaks, CA: Ringgold Inc.