

**Communicating about the Agriculture Best Management Program through Extension:
Ensuring the Sustainable Use of Water Resources**

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Introduction

The agriculture industry often contributes inadvertently to water pollution through pesticide, nutrient, and sediment runoff (Ongley, 1996). The Florida Department of Agriculture and Consumer Services (FDACS) and University of Florida Institute of Food and Agricultural Sciences (Blinded) developed guides for agricultural producers that depict best management practices (BMPs) specific to their operation specialization to ensure the agriculture industry is protecting water resources (This Farm Cares, n.d.). The guides were developed using research, field-testing, and expert reviews to ensure the suggested practices were effective (FDACS). A BMP program was developed to increase producers' awareness of runoff issues and to decrease the amount of pesticides, nutrients, and sediment that is being released back into the water supply (FDACS, 2014). Florida's BMP program was a voluntary effort that was incentivized by the Florida Farm Bureau Federation through the County Alliance for Responsible Environmental Stewardship (CARES) program since 2001 (Florida Farm Bureau Federation, 2014). With the passage of the 2016 Florida Water Bill all agricultural operations in Florida were mandated to enroll in the BMP program (Lusk, 2016). Since the implementation of this bill, farmers and ranchers across the state have experienced successes and have also encounter barriers through their time in the program (Putnum, n.d.). Florida Extension has delivered a number of educational programs around agriculture BMPs since 2013 (UF/IFAS, 2017). This study was conducted to examine the impact of BMP programs on Florida residents' perceptions of agricultural BMPs and farmers who employ BMPs. This study can be supported under Research Priority 6 of National AAAE research agenda which aims to understand how Extension programs are affecting local communities (Graham, Arnold, & Jayaratne, 2016).

Theoretical Framework

The framework used to guide this study is Rogers' (2003) diffusion of innovations theory. The diffusion of innovations theory states that in order for members of a community to recognize and adopt an innovation, the innovation must be communicated to the people composing this community (Rogers, 2003). In reference to this study, the innovation is agriculture BMPs that should decrease the amount of water pollution from pesticide, nutrient, and sediment runoff. Some communities in [State] have been exposed to education about agriculture BMPs and some communities have not.

Methodology

The population of interest was Florida residents who lived in counties where BMP educational programs have been implemented. An online questionnaire was used as the instrument in this study to collect the same data in years 2014 and 2017. Face validity was established by an expert panel of faculty and staff with collective proficiencies in agricultural management practices and instrument development. *Post hoc* reliability estimates were calculated using Cronbach's alpha, for which all scales demonstrated exemplary internal reliability consistency of $\alpha = .95$ or higher. The questionnaire was distributed to Florida residents via a third-party public opinion survey research company, Qualtrics. Non-probability opt-in sampling techniques are commonly used in public opinion survey research (Baker et al., 2013) and were employed for this study. In 2014, 699 responses were obtained from [State] residents in selected counties. In 2017, 524 responses were obtained from [State] residents in these same counties. Quotas were set *a priori* to ensure the

residence of respondents represented the targeted [State] counties. Descriptive statistics were used (e.g. means, standard deviations, frequencies, percentages). Chi-square analysis and independent *t*-tests were employed to determine if there were statistical differences between groups. A statistical significance level of .01 was set.

Findings

Respondents were asked a series of questions pertaining to their (a) perceived importance of farmers' engagement in BMPs, (b) beliefs about the characteristics of farmers who use BMPs, (c) beliefs about whether Florida farmers are engaged in BMPs, and (d) trust in farmers who use BMPs. No statistically significant differences existed regarding respondents' perceived importance of farmers' engagement in BMPs. Respondents in both 2014 ($M = 4.09$; $SD = .75$) and 2017 ($M = 4.04$; $SD = .80$) perceived farmers' engagement in BMPs as very important. Regarding respondents' beliefs about the characteristics of farmers who use BMPs, Chi-square analysis revealed statistically significant differences between 2014 and 2017 respondents in three areas. More respondents in 2017 (84%) agreed or strongly agreed farmers practicing BMPs care about the environment than respondents in 2014 (75%). Further, more respondents in 2017 (76%) than 2014 (68%) agreed or strongly agreed they would rather purchase products from farmer who uses BMPs. Lastly, more respondents in 2017 (72%) than 2014 (64%) agreed or strongly agreed that they trust farmers practicing BMPs more than those who do not. Regarding farmers' engagement in BMPs, a statistically significant difference was observed between 2014 and 2017 respondents. Respondents in 2017 ($M = 3.75$; $SD = .70$) held a higher agreement that Florida farmers are engaged in BMPs than did respondents in 2014 ($M = 3.61$; $SD = .74$). Lastly, significant differences were observed between 2014 and 2017 respondents regarding their trust in farmers who use BMPs. Respondents in 2017 ($M = 3.98$; $SD = .70$) reported higher trust in farmers who use BMPs than did respondents in 2014 ($M = 4.09$; $SD = .70$)

Conclusions and Recommendations

Respondents in both 2014 and 2017 perceived BMPs as very important. This finding indicated public perceptions about BMPs is positive and county residents who have received education may be more likely to recognize the need for BMP innovations. Overall, respondents in 2017 had more positive perceptions of BMPs and farmers who use BMPs than did respondents in 2014. This may indicate that the BMP Extension programming may have influenced county residents positively over the past three years. As such, it could be beneficial for Florida Extension to expand BMP educational programs to other counties in the state. However, further research is needed to better identify how and to what extent BMP programs have influenced public opinion. Future research is also needed to explore other factors that may have influenced public perception of BMPs. Compared to respondents in 2014, respondents in 2017 were more likely to trust farmers who use BMPs, as well as were more likely to purchase products from a farmer who uses BMPs. Extension faculty should share this information with farmers in Florida to offer additional incentive to engage in BMPs and facilitate farmer adoption of BMP innovations.

References

- Baker, R., Brick, J. M., Bates, N. A., Battaglia, M., Couper, M. P., Dever, J. A., Gile, K. J., & Tourangeau, R. (2013). *Report of the AAPOR task force on non-probability sampling*. American Association for Public Opinion Research. Retrieved at <http://www.aapor.org/AM/Template.cfm?Section=Reports1&Template=/CM/ContentDisplay.cfm&ContentID=6055>
- Graham, D. L., Arnold, S., & Jayaratne, K. S. U. (2016). Research Priority 6: Vibrant, resilient communities. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education national research agenda: 2016-2020* (pp. 29–35). Gainesville, FL: Department of Agricultural Education and Communication
- Lusk, M. (2016, July 1). *6 things you need to know about the 2016 [State] Water Bill* [Web blog post]. Retrieved from <http://blogs.ifas.ufl.edu/extension/2016/07/01/6-things-need-know-2016-florida-water-bill/>
- Ongley, E. D. (1996). *Control of water pollution from agriculture* [Electronic document version]. Retrieved from <http://www.fao.org/docrep/w2598e/w2598e07.htm>
- Putnum, A. H. (n.d.). The time for bold water policy is now. *FloridAgricultre e-News*. Retrieved from <http://www.floridafarmbureau.org/the-time-for-bold-water-policy-is-now-2/>
- Rogers, E. M. (2003). *Diffusion of innovation*. New York, NY: Free Press.
- Florida Farm Bureau Federation. (2014, March 4). *New website spotlights farmers for protecting the environment* [Press release]. Retrieved from <http://www.thisfarmcares.org/wp-content/uploads/2014/03/CaresWebsitepressrelease.pdf>
- Florida Department of Agriculture and Consumer Services (FDACS). (2014). *Water quality/quantity best management practices for [State] nurseries*. Retrieved from <https://www.freshfromflorida.com/content/download/37570/848371/nurseryBMP-iores.pdf>
- This Farm Cares. (n.d.). *Best management practices (BMPs)*. Retrieved from <http://www.thisfarmcares.org/best-management-practices-bmps/>
- UF/IFAS. (2017). *BMP events*. Retrieved from <http://bmp.ifas.ufl.edu/resources/events.php>