

# How Do Floridians Perceive Their Role in Protecting Water Quality and Quantity Through Landscape Practices?<sup>1</sup>

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## Abstract

Florida is faced with challenges in protecting both water quality and quantity, and UF/IFAS promotes the use of science-based landscape management practices to protect water resources. People are more likely to adopt good irrigation and fertilization practices when they have positive attitudes, believe they have the ability to change, and have social support for their behaviors. This publication shares the results of a comparison between factors that influence Floridians' use of good irrigation practices with the factors that influence their use of good fertilization practices. Floridians have slightly more positive attitudes, social support, and perceived ability to adopt landscape water conservation practices (through irrigation) compared to landscape water quality protection practices (through fertilization). One role of Extension should be to help Floridians feel as comfortable protecting water quality as they are with saving water. Extension can focus on providing support for the irrigation and fertilizer best management practices Floridians already highly intend to adopt, and can work to increase the intent for practices where intent is low.

## Introduction

Florida is faced with challenges in protecting both water quality and quantity. Many factors, such as a growing

population and extreme weather events, put pressure on water resources. The state's incredible number of home landscapes (consisting of irrigated and fertilized turfgrass, trees, and ornamental plants) can positively or negatively impact water depending on how landscapes are managed. Florida residents each use about 134 gallons of water per day, and half of this is applied to the home landscape (South Florida Water Management District, 2008). Thus, one UF/IFAS Extension focus is on enhancing and protecting water quality, quantity, and supply (UF/IFAS, 2013). Specifically, UF/IFAS works to help residents use good irrigation and fertilization practices when managing their home landscapes. These good landscape practices include seasonally adjusting irrigation controllers to prevent water waste, modifying the home landscape so some portions use less water, cleaning up fertilizer spills to prevent runoff into water bodies, and using appropriate fertilizer products at the right time and in the right amount to maximize what plants can use.

As change agents in their communities, Extension professionals look for ways to go beyond providing information to clientele and identify innovative strategies to promote behavior change. To inform behavior change strategies, Extension professionals identify their audience's needs and make decisions about how to best use limited resources to

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achieve their goals (Seevers, Graham, Gamon, & Conklin, 1997).

One theory of behavior change explains that Extension clients are more likely to adopt irrigation best practices when they have positive attitudes about saving water in their landscape, have confidence concerning their ability to use practices that save water, and have people around them who support landscape water conservation (Ajzen, 1991; Kumar Chaudhary et al., 2017). Similarly, people who have positive attitudes about using landscape fertilizers properly, have social support for appropriate fertilizer use, and have confidence in their ability to apply fertilizer products correctly are most likely to do so. It is helpful for Extension professionals to understand the attitudes, perceived ability, and social support (or lack of these characteristics) surrounding landscape water protection behaviors, in order to create more effective Extension programs that lead to behavior change.

Floridians' perceptions about protecting water availability through good irrigation practices had not previously been compared to their perceptions about protecting water quality through good fertilization practices. For this reason, a needs assessment was necessary to guide possible programmatic objectives and priorities. A needs assessment helps Extension professionals identify the difference between the current situation and the desired conditions (Bolton, Kumaran, & Guion, 2005). The information presented below was collected to inform Extension programs that promote landscape best management practices.

## Understanding Differences in Floridians Perceptions for their Landscapes' Impact on Water Quality and Quantity

In 2016, we surveyed 2,100 Florida residents who had irrigated landscapes. This was done to accomplish four research goals:

- Compare their attitudes towards protecting water quality with their attitudes towards conserving water,
- Compare their perceived ability to adopt water conservation practices with their perceived ability to adopt water quality protection practices,
- Compare the social support they receive from people around them to engage in water conservation with the social support they receive to engage in water quality protection behaviors,

- Describe their intent to practice water conservation and water quality protection behaviors (Warner, Lamm, & Kumar Chaudhary, 2018).

We identified and compared perceptions of Floridians towards water quality and quantity (Warner et al., 2018). The factors that influenced adoption of good landscape irrigation and fertilization practices were all fairly high, meaning the likelihood of adopting is good. However, there are differences that favor the use of water conservation practices over water quality protection:

- Floridians had more positive attitudes toward using irrigation practices that conserve water in the home landscape compared to fertilization practices that protect water quality.
- Floridians reported their friends, peers, and family were more supportive of using irrigation practices that conserve water in the home landscape compared to fertilization practices that protect water quality.
- Floridians had more confidence that they could adopt landscape practices that conserve water compared to those that protect water quality.

We also looked at how likely or unlikely Floridian home irrigation users were to engage in water conservation behaviors. They reported they are:

- most likely to protect water quantity by only watering their lawn in the morning or evening, following watering restrictions, seasonally adjusting their irrigation times, calibrating their sprinklers, and using different irrigation zones/zone run times based on plants' irrigation needs;
- least likely to protect water quantity by using a rain barrel or cistern, eliminating irrigated areas in their landscape, or installing smart irrigation controls so irrigation will not turn on when it is not needed; and
- most unsure about installing smart irrigation controllers, converting turfgrass to landscaped beds, and eliminating irrigated areas in the landscape.

We also looked at how likely or unlikely Floridian home irrigation users were to engage in water quality protection behaviors. The respondents of the survey reported they are:

- most likely to protect water quality by reading the label on the fertilizer bag to make sure they apply the right amount, water-in fertilizer after application to move the fertilizer off the leaves and into the soil for uptake by plant roots, and clean up any fertilizer spilled on paved surfaces (while these were the good fertilizer practices most likely to be used, Floridians reported less certainty

about adopting them than the irrigation conservation practices); and

- least likely to protect water quality by applying fertilizers based on soil test results, testing their soil to determine what nutrients are needed before they fertilize, or asking landscaping professionals about their training in fertilizer application or GI-BMP certification.

## How to Use this Information

Now that the current situation is identified, Extension professionals can use the results of this statewide needs assessment to develop and refine impactful programs that promote water conservation and quality protection (the desired condition). Several recommendations can be made for Extension professionals.

- Recognize characteristics that support both good irrigation and fertilization are present and adoption of appropriate landscape practices is likely when Extension programs provide adequate support.
- Understand that Floridians are slightly less comfortable with their roles in protecting water quality. Extension professionals should work to clarify the connection between Florida's home landscapes and water quality while emphasizing the importance of taking action by using landscape practices that protect and improve the quality of the state's water bodies (springs, streams, rivers, and lakes).
- Help Extension clients understand how water quality and quantity are closely related and how landscape management influences natural systems.
- In the shorter term, build on Floridians' existing momentum and provide support to help clientele follow through on their intent to engage in specific irrigation and fertilization practices. In other words, Extension should help Floridians take the actions they already want to engage in to protect water resources.
- In the longer term, increase attitudes, social support, and perceived ability to practice specific irrigation and fertilization techniques where likelihood is currently low. Extension professionals can do this by emphasizing benefits of good irrigation and fertilizer practices in ways that are meaningful to Floridians, targeting audiences on the neighborhood and community scale, using members of a local social system to promote good practices, and removing perceived barriers to adoption of the specific practices.

## Conclusions

Florida home landscape irrigation users are more comfortable with their role in protecting the state's water quantity than they are in protecting water quality. Extension professionals should support Floridians' ownership of water resources protection while helping them adopt good landscape practices. More detail on this project is available in the full publication, noted below in the references (Warner et al., 2018).

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