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Residents' Perceived Outcomes of Irrigation Restriction Compliance: A Guide for Florida's Water Conservation Professionals[1]

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Introduction

In the face of rapid urbanization and a need to reduce the use of natural resources like water, irrigation restrictions (also known as water restrictions) are considered one of the most common mandatory or regulated conservation tools (Dukes, 2022) and are a component of Extension's programming (UF/IFAS, 2021). Most of the state of Florida uses year-round restrictions that limit residential irrigation to specific days of the week and certain hours of the day to reduce water usage and loss. Both awareness of and compliance with these policies are concerningly low (Warner et al., 2023; Warner et al., 2024). People who educate residents about these policies need a better understanding of their audience's perceptions so they can deliver messages and education that lead to improved compliance (Warner et al., 2022). This publication is intended to provide information about Floridians' expected outcomes associated with complying with irrigation restrictions so educators and communicators (e.g., Extension professionals and conservation coordinators) can integrate this information into outreach.

What are expected outcomes?

People decide whether to engage in behavior such as complying with irrigation restrictions by considering whether they will "gain or lose as a consequence" (Fasbender, 2020, p. 3377). These perceived gains or losses are referred to as "expected outcomes" (i.e., outcome expectancies) — the consequences an individual anticipates will result from engaging in a behavior (Bandura, 1977; Reesor et al., 2017). Expected outcomes can be physical, social, or emotional (Fasbender, 2020). Research has demonstrated the power of outcome expectancy in influencing many behaviors, ranging from scientists' public engagement to college students' use of illegal online content (Choi & Suh, 2022; Peterson et al., 2017). Applied to compliance with irrigation restrictions, expected outcomes could include saving money (positive) or degrading the health of people's yards (negative). Integrating target audience members' motivations into education and communication results in more effective interventions (Reesor et al., 2017). People will generally engage in practices they expect to have positive outcomes (Peterson et al., 2017). For this reason, understanding a target audience's expected outcomes can help to both predict and support positive behavior change.

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Floridians' Expected Outcomes Associated with Irrigation Restriction Compliance

Data collected from Florida residents who are subject to and aware of irrigation restrictions revealed that the anticipated positive outcomes outweighed the anticipated negative outcomes of irrigation compliance, suggesting overall positive expectations. (The survey approach is described in the next section in detail). We would generally expect people, on average, to comply with restrictions as a result. However, expected outcomes are not necessarily equally influential on an individual. The assessment of such relationships goes beyond the scope of the present document since this work is descriptive in nature.

The most highly rated positive expected outcome was "reduce the amount of water people use," closely followed by "help solve freshwater availability issues," which indicates residents believe irrigation restrictions will result in large-scale water conservation as designed. Furthermore, "save people money" was also ranked highly, meaning residents expect to realize personal financial benefits if they comply with irrigation restrictions.

In terms of negative outcomes, "decrease the health of people's yards" and "make people's yards look worse" had a slight agreement, meaning that some residents have negative expectations associated with complying with irrigation restrictions regarding landscape quality. The negative expected outcomes "worsen freshwater availability issues" and "lose neighbors' respect" had the greatest level of disagreement, which further demonstrates residents' expectation for the positive outcomes associated with irrigation restriction compliance.

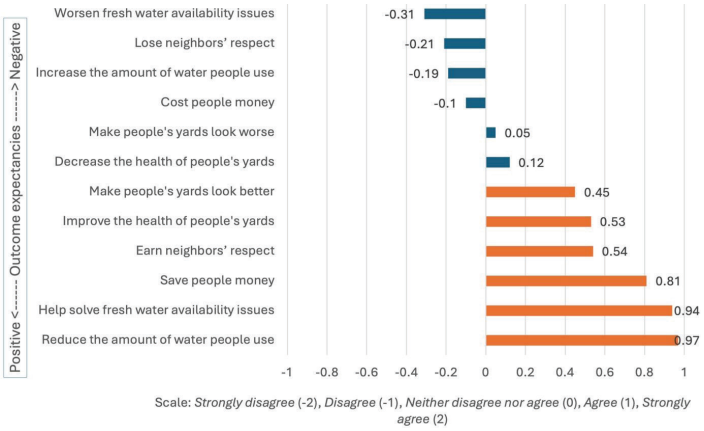

Figure 1. Perceived positive and negative outcome expectancies associated with irrigation restriction compliance.
Credits: Dharmendra Kalauni

The Approach

The information above was collected in the fall of 2023 using a quantitative statewide survey created with Qualtrics[XM]. We used quota sampling to ensure the sample represented Florida's population. A total of 3,337 individuals opted into the survey, and 2,615 provided complete responses. We were interested in evaluating data only from those who were subject to irrigation restrictions and therefore excluded respondents who indicated they were not aware of the irrigation restrictions that applied to them. We also removed those who did not use in-ground irrigation (n = 966), who used water sources other than municipal water (n = 433), or who resided in northwest Florida (the only part of the state where these restrictions are not in place; n = 220). We asked respondents to complete the phrase *Following irrigation restrictions when making decisions about watering their yards…* for 12 different outcomes. There were five response options, which ranged from *strongly disagree* to *strongly agree*.

The target population was Florida residents aged 18 or older who were on irrigation restrictions at the time the study was conducted and also aware of these restrictions (n = 239). Nearly all respondents (n = 228; 95.4%) were full-time Florida residents. The average age was 47.76 years (*S.D.* = 17.73). Slightly more than half of the respondents identified as male (n = 136; 56.9%). Sixty (25.1%) indicated they were Hispanic/Latino(a)/Chicano(a), and 170 (71.1%) reported their race as white. The most common education levels were a 4-year college degree (n = 78; 32.6%) and some college (n = 44; 18.4%), and the most common 2022 household income range was $50,000 to $74,999 ($n$ = 60; 25.1%).

How to Use This Information

The following considerations may be helpful in applying the expected outcomes reported above:

- It is important to recognize that expected outcomes may vary from audience to audience. The expected outcomes shared here can be used as a guide, and it is recommended to evaluate the extent to which each target audience aligns with the characteristics of the population in our study. Extension professionals and other practitioners should ask individuals to actively consider the reasons for complying with irrigation restrictions and think about the likely outcomes to help clients weigh positive and negative outcomes.
- Since positive expected outcomes may act as incentives to comply with irrigation restrictions (Peterson et al.,

2017), it may be helpful to connect education to the key expectations of compliance and quantify the benefits as much as possible. For example, lesson plans and communication campaigns could be built around key messages aligned with these outcomes. Scenarios aligned with the outcomes could be shared that highlight water and utility bill savings for a yard that is initially watered more frequently than allowed and then watered in accordance with irrigation restrictions. Example educational themes include, "I follow irrigation restrictions to protect the Floridan Aquifer," or, "Following irrigation restrictions keeps my yard nice and my wallet full."

- Since outcome expectancies that are more likely to happen soon and are closer to an individual are generally more powerful in influencing behavior (Fasbender, 2020), the outcomes that directly benefit an individual and those that are expected to yield results quickly should be emphasized (e.g., saving money could be achieved in the first month).
- Extension professionals and other practitioners should review the expected outcomes (Reesor et al., 2017) of complying with irrigation restrictions with their clientele. This is an opportunity to bring in research-based best practices. For example, there is a slight agreement with irrigation restriction compliance (the desired behavior) leading to decreased yard health and aesthetics, suggesting that there exists an uncertainty among residents to comply with irrigation restrictions because of perceived negative consequences. It could be advantageous to highlight how overwatering (the undesired behavior) may lead to pests, diseases, and weed issues, which can cause an overall decline in lawn health.
- These motivations can be integrated into goal-setting with audience members (Reesor et al., 2017). For example, since reducing the amount of water used is the most agreed-upon expected outcome, an educational intervention might include a community goal for water savings measured by a specific number of gallons saved. Additionally, with "solving freshwater issues" as a clearly agreed-upon expected positive outcome, communications could highlight the importance of irrigation restriction compliance at an individual household level and its role in improved water availability at a broader scale (e.g., the number of residents complying needed to increase the depth of a local water source by a specific amount).

An individual's expected outcome of a behavior is a direct predictor of behavioral intention. Extension professionals and educators need to explore and intervene in how their clients think about irrigation restriction policies to influence compliance positively. Also, professionals should be mindful that intervention aimed to enhance positive expected outcomes enhances clients' ability to overcome perceived pressure or barriers to comply with irrigation restrictions.

Summary

The information shared here provides an overview of residents' expected outcomes associated with irrigation restriction compliance. Overall, residents perceive greater positive outcomes associated with compliance, such as reducing the amount of water people use. Educators and communicators (e.g., Extension professionals and conservation coordinators) can integrate this information into their outreach.

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Appendix

Table A1. Positive outcome expectancies.

Following irrigation restrictions when making decisions about watering their yards would…	Mean	Standard Deviation
Reduce the amount of water people use	.97	.93
Help solve freshwater availability issues	.94	.88
Save people money	.81	1.04
Earn neighbors' respect	.54	.98
Improve the health of people's yards	.53	1.09
Make people's yards look better	.45	1.14
n = 239; Range: -2 (*strongly disagree*) to +2 (*strongly agree*).		

Table A2. Negative outcome expectancies.

Following irrigation restrictions when making decisions about watering their yards would…	Mean	Standard Deviation
Make people's yards look worse	.45	1.14
Decrease the health of people's yards	.12	1.23
Cost people money	-.10	1.24
Increase the amount of water people use	-.19	1.30
Lose neighbors' respect	-.21	1.11
Worsen freshwater availability issues	-.31	1.27
n = 239; Range: -2 (*strongly disagree*) to +2 (*strongly agree*).		