HortScience 60(10):1833–1835. 2025. https://doi.org/10.21273/HORTSCI18802-25

Exploring Drivers and Barriers to Florida Homeowners' Intentions to Adopt Florida-Friendly Landscaping

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Keywords. adoption barriers, awareness, environmentally friendly, lawns, preference

Abstract. **Florida Friendly Landscapes (FFLs) support sustainable landscaping by reducing irrigation, fertilizer, and pesticide use, yet adoption remains limited among Florida homeowners. This study analyzes survey data from 683 residents using a binary logit model, where the dependent variable indicates high self-reported likelihood of FFL adoption. Results show that knowledge and FFL awareness are positively associated with adoption intentions, while environmental concern and financial incentives are not statistically significant. Younger homeowners, those with slightly larger yards, and recent movers are more likely to adopt. Findings support outreach targeting newer homeowners and emphasizing ease of maintenance and aesthetic appeal.**

Residential landscapes in the United States are often maintained based on habit and social norms, with widespread use of irrigation, fertilizers, and pesticides (Beard and Green 1994; King et al. 2007). In response to environmental concerns, sustainable landscaping programs such as Florida-Friendly Landscaping (FFL) and Florida WaterStar have emerged to encourage practices that reduce chemical inputs, conserve water, and support biodiversity through native plants (Gobster et al. 2007). Despite the ecological benefits these programs offer, homeowner participation remains limited.

Homeowners' landscaping choices are often shaped by multiple, sometimes conflicting, preferences. Decisions are frequently guided by aesthetics, ease of maintenance (Khachatryan et al. 2020; Zhang and Khachatryan 2021a), cost, and neighborhood norms and expectations (Zhang and Khachatryan 2021b). For instance, many homeowners select plants for visual appeal, favoring colorful blooms and lush foliage, rather than ecological function (Uren et al. 2015). Even environmentally conscious individuals may avoid sustainable options if they conflict with prevailing lawn norms or appear more difficult to maintain (Byrne 2005).

Prior studies show that consumers are willing to pay more for low-maintenance turf and landscaping options (Zhang and Khachatryan 2022) and that residential landscapes provide cultural benefits such as recreation and mental well-being (Abraham et al. 2010). However, little is known about the specific drivers and barriers that influence the adoption of FFL practices, particularly in the context of Florida's diverse homeowner population.

This study examines how homeowners' sustainable landscaping knowledge, yard management practices, and environmental concerns relate to FFL adoption, building on prior work suggesting that objective knowledge, hands-on yard care, and other factors beyond environmental concern also influence adoption behavior.

Materials and Methods

An online, 20-min survey was conducted in Nov 2016 with approval from the university's institutional review board. Although the dataset was collected in Nov 2016 and cleaned in 2017, we believe homeowners' landscape preferences and knowledge have remained stable despite economic changes. Traditional turfgrass lawns still dominate, while sustainable landscaping practices continue to evolve.

A total of 1219 participants were recruited via Qualtrics Panels, targeting Florida homeowners living in single-family homes. The survey questionnaire consisted of seven sections: landscape maintenance burden, environmental knowledge, landscape perceptions, motivators for FFL adoption, landscape attitudes, environmental concerns, and sociodemographics.

The question scales, demographic characteristics, and knowledge quiz items were recoded to combine into singular variables. For motivating factor items, respondents were asked how effective different factors would be in encouraging them to adopt FFL practices (Zhang et al. 2021), such as receiving practical or financial information or facing water-use ordinances. Environmental concerns scale items were adapted from Weigel and Weigel (1978), and the source of sales information questions were adapted from Rihn et al. (2018).

Respondents were asked whether they were aware of the FFL program (Yes/No), and rated their perceived knowledge of landscape care, landscape attitudes, and likelihood of FFL adoption using 7-point Likert-type scales (1 = Very Unlikely, 7 = Very Likely). The dependent variable is a binary measure of adoption likelihood. Respondents who selected a score of 5 to 7 on the adoption scale were coded as 1 (likely to adopt), while those selecting 1 to 3 were coded as 0 (unlikely to adopt). Respondents who selected the midpoint (4) were excluded, resulting in a final sample of 683 participants for the regression analysis. The binary classification of the dependent variable facilitated the analysis of the drivers and barriers associated with adoption among homeowners familiar with FFL.

A binary logit model was estimated to examine how adoption likelihood was influenced by individual knowledge, motivators, attitudes toward FFL and conventional landscapes, environmental concerns, and demographic characteristics. *t* tests were conducted to explore perceptual differences between likely and unlikely adopters.

Results and Discussion

Among homeowners aware of FFL, greater landscape care knowledge resulted in a 6 percentage point increase in adoption likelihood (Table 1), supporting earlier findings that gardening interest often correlates with increased expertise (Behe et al. 2018). General awareness of FFL was linked to a 7 percentage point increase in adoption likelihood, indicating that broad program information is more influential than narrowly focused appeals based on environmental or financial incentives. Neither environmental concern nor financial appeal had an effect, suggesting adoption decisions are not primarily driven by ecological values or economic return, contradicting our initial hypothesis.

Received for publication 19 Jun 2025. Accepted for publication 13 Aug 2025.
Published online 16 Sep 2025.
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Table 1. Factors influencing the likelihood of Florida-Friendly Landscapes (FFLs) adoption among aware homeowners.

Independent variable	Coeff.	*SE*	Marginal effects	*SE*
Knowledge of landscapes	**0.332**	**0.084**	**0.06**	**0.01**
Encourage factors for adoption: information	**0.404**	**0.137**	**0.07**	**0.02**
Landscape attitude	−0.117	0.173	−0.02	0.03
Encourage factors for adoption: ordinance	0.039	0.082	0.01	0.01
Improved property value	0.308	0.220	0.05	0.04
Return on investment	0.005	0.004	0.00	0.00
Encourage factors for adoption: financial	0.001	0.133	0.00	0.02
Care for lawn: self	0.268	0.219	0.04	0.04
Preference for FFLs over conventional landscapes	**0.204**	**0.029**	**0.03**	**0.00**
Environmental concern	0.386	0.264	0.06	0.04
Age	**−0.026**	**0.010**	**0.00**	**0.00**
Male	−0.099	0.210	−0.02	0.03
White	−0.270	0.276	−0.04	0.05
Bachelor's degree or higher	0.086	0.199	0.01	0.03
Working full time	**0.759**	**0.254**	**0.13**	**0.04**
Retired from work	0.326	0.303	0.05	0.05
No. of adults in household	0.073	0.127	0.01	0.02
No. of children in household	0.169	0.105	0.03	0.02
Income	0.000	0.000	0.00	0.00
constant	**−6.877**	**1.794**	−0.02	0.03
N	683			
LR χ^2	262.66			
Prob > χ^2	0.0000			
Log likelihood	−342.0896			
Pseudo R^2	0.2774			

Coefficients (Coeff.) in bold are significant at the 99% level. Marginal effects (i.e., changes in probability) in bold are significant at the 99% level. LR χ^2 = likelihood ratio chi-square test (i.e., the fit of the data), Pseudo R^2 = measure of model fit for logistic or other maximum likelihood regressions that compares the likelihood of the fitted model to that of a null model. *SE* = standard error.

Contrary to expectations, landscape attitude did not affect adoption, despite the known cultural and social landscaping significance (Byrne 2005). This suggests that although homeowners value their yards, these sentiments do not necessarily translate into action. However, preference for FFL practices—such as "right plant, right place" principles and reduced watering—was associated with a 3 percentage point increase in adoption likelihood.

Several sociodemographic predictors emerged. Younger homeowners were more likely to adopt FFL, and full-time employment was associated with a 13 percentage point increase in adoption likelihood. In contrast, education level, household size, and geographic region had no effect.

Adoption was unaffected by whether homeowners managed their lawn themselves or hired a professional, expanding the potential audience for FFL outreach to include both do-it-yourself (DIY)-ers and those using landscape services. This creates opportunities to engage landscaping professionals as adoption influencers.

Table 2. Differences in landscape perceptions, yard types, maintenance views, and ownership duration between likely and unlikely Florida-Friendly Landscapes adopters.

Question	Heard/ willing	Heard/ unwilling	*t*-stat	$P > \|t\|$
Perception of required care (1 = least, 6 = most)				
Turfgrass/lawn	3.32	3.35	0.191	0.849
Ornamental Plants (annuals, perennials, shrubs, trees)	3.66	3.77	0.683	0.495
Florida-friendly plants	**2.68**	**3.08**	**2.566**	**0.011**
Water features	3.85	3.9	0.292	0.770
Naturalized/forest areas	2.99	2.75	−1.167	0.244
Food-producing plants (vegetables and fruits)	4.47	4.13	−1.896	0.059
% of yard				
Turf	**47.67**	**55.29**	**4.073**	**0.000**
Annual/perennial plants	31.93	29.96	−1.338	0.181
Naturalized/forest areas	**20.40**	**14.75**	**−3.706**	**0.000**
Perception of landscape care burden	4.13	4.08	−0.347	0.729
Perception of current landscape care maintenance	**5.31**	**4.75**	**−5.300**	**0.000**
Self-designed landscape	0.51	0.46	−1.492	0.136
Professionally designed landscape	0.29	0.24	−1.413	0.158
Do not know when landscape was established	**0.20**	**0.30**	**3.170**	**0.002**
Purchased home				
Size of yard, acres				
<0.5	**0.53**	**0.66**	**3.648**	**0.000**
0.5	**0.3**	**0.21**	**−2.751**	**0.006**
>0.5	0.17	0.13	−1.634	0.103
Ownership of home >5 years	**0.43**	**0.33**	**−2.557**	**0.011**
Age of homeowner	**46.86**	**53.93**	**6.337**	**0.000**

Coefficients in bold are significant at the 99% level.

Perceptual differences between adopters and non-adopters revealed that adopters viewed FFL plants as requiring less maintenance, though both groups held similar views regarding turf, ornamentals, and naturalized areas (Table 2). Adopters tended to have less turfgrass and more naturalized or forested yard space, which aligns with the ecological design principles of FFL. Despite reporting similar maintenance burdens, adopters found landscape care more enjoyable and meaningful, reinforcing previous research suggesting personal enjoyment can drive sustainable behavior (Knuth et al. 2019).

Yard size showed a nuanced effect: adoption was most likely among those with 0.5-acre lots. Properties with small yards (<0.5) demonstrated lower willingness to adopt, although no differences were observed among properties with larger yards (>0.5). Slightly above-average yard sizes may best balance space and ease for sustainable landscaping (Wasson 2024).

Homeowners residing more than 5 years were more likely to adopt, possibly due to landscape personalization. Interestingly, these homeowners were, on average, 7 years younger than nonadopters, underscoring the role of generational effects. This highlights the importance of targeting outreach to newer and younger homeowners.

Conclusions

Although not all hypotheses were supported, this study provides valuable insights into drivers of FFL adoption. Homeowners with greater landscape knowledge, care, and awareness of the FFL program were more likely to report adoption intentions, highlighting the value of education and broad marketing efforts.

Demographic patterns emerged. Younger and newer homeowners were the most likely adopters, regardless of whether they managed their own landscapes or hired professionals. These groups represent strategic targets for extension programming and promotional campaigns. Messages from home owner associations, cities, and garden centers may work best when highlighting visual appeal, ease of maintenance, and practical benefits.

Contrary to expectations, neither financial incentives (e.g., saving money, reimbursements, cash incentives) perceptions nor general environmental concerns (e.g., motivated to improve the environment, protecting and conserving attitudes) influenced adoption intentions. This finding suggests that monetary appeals may be less effective than the look of FFL's and experiential messaging. Visual tools, such as landscaping examples, customizable design templates, and before-and-after imagery, can help address concerns around appearance and usability perceptions. Retail garden centers and box stores present strategic opportunities to promote FFL to homeowners making incremental landscape changes.

Landscape attitude and maintenance responsibility had no effect on adoption likelihood. However, homeowners with moderate-sized yards and those who find yard work enjoyable were more inclined to adopt, suggesting that intrinsic enjoyment and satisfaction may support sustainable behavior. Extension educators and outreach professionals can create strategies that highlight manageable maintenance, personal engagement, and beauty that resonate with this group.

Although dated, the dataset remains valuable for extension agents and researchers studying FFL or similar programs in other states. Future research should explore how targeted messaging and visual cues influence behavior change and investigate how homeownership duration and inherited landscapes relate to willingness to adopt FFLs. Employing experimental or longitudinal research designs in these studies would help establish causal relationships and strengthen the evidence base for effective interventions. Because this study focuses on Florida homeowners in 2016, caution is warranted when generalizing the findings to other regions of the United States or current contexts.

Continued investment in educational programming, marketing partnerships, and collaboration with industry stakeholders will help sustain the reach and effectiveness of the FFL and WaterStar programs across Florida.

References Cited

Abraham A, Sommerhalder K, Abel T. 2010. Landscape and well-being: A scoping study on the health-promoting impact of outdoor environments. Int J Public Health. 55(1):59–69. https://doi.org/10.1007/s00038-009-0069-z.

Beard JB, Green RL. 1994. The role of turfgrasses in environmental protection and their benefits to humans. J Env Quality. 23(3):452–460. https://doi.org/10.2134/jeq1994.00472425002300030007x.

Behe BK, Knuth M, Hall CR, Huddleston PT, Fernandez RT. 2018. Consumer involvement with and expertise in water conservation and plants affect landscape plant purchases, importance, and enjoyment. HortScience. 53(8):1164–1171. https://doi.org/10.21273/HORTSCI13119-18.

Byrne LB. 2005. Of looks, laws and lawns: How human aesthetic preferences influence landscape management, public policies and urban ecosystems, p 42–46. In: Laband D (ed). Emerging issues along urban/rural interfaces: Linking science and society, Auburn University, Auburn, GA, USA.

Gobster PH, Nassauer JI, Daniel TC, Fry G. 2007. The shared landscape: What does aesthetics have to do with ecology? Landscape Ecol. 22(7):959–972. https://doi.org/10.1007/s10980-007-9110-x.

Khachatryan H, Rihn A, Hansen G, Clem T. 2020. Landscape aesthetics and maintenance perceptions: Assessing the relationship between homeowners' visual attention and landscape care knowledge. Land Use Policy. 95:104645. https://doi.org/10.1016/j.landusepol.2020.104645.

King K, Balogh J, Hughes K, Harmel R. 2007. Nutrient Load Generated by Storm Event Runoff from a Golf Course Watershed. J Environ Qual. 36:1021–1030.

Knuth M, Behe BK, Hall CR, Huddleston PT, Fernandez RT. 2019. Sit back or dig in: The role of activity level in landscape market segmentation. HortScience. 54(10):1818–1823. https://doi.org/10.21273/HORTSCI14158-19.

Rihn A, Khachatryan H, Wei X. 2018. Assessing purchase patterns of price conscious consumers. Horticulturae. 4(3):13. https://doi.org/10.3390/horticulturae4030013.

Uren HV, Dzidic PL, Bishop BJ. 2015. Exploring social and cultural norms to promote ecologically sensitive residential garden design. Landscape Urban Planning. 137:76–84. https://doi.org/10.1016/j.landurbplan.2014.12.008.

Wasson S. 2024. The average yard size by state. Today's Homeowner. https://todayshomeowner.com/lawn-garden/guides/average-yard-size/.

Weigel R, Weigel J. 1978. Environmental concern: The development of a measure. Environ Behav. 10(1):3–15. https://doi.org/10.1177/0013916578101001.

Zhang X, Khachatryan H. 2022. Relating individual environmental concerns to preferences for low-input residential lawns in Florida, p 135. Proceedings of the Florida State Horticultural Society.

Zhang X, Khachatryan H. 2021a. Interactive effects of homeowners' environmental concerns and rebate incentives on preferences for low-input residential landscapes. Urban Forest Urban Greening. 65:127322. https://doi.org/10.1016/j.ufug.2021.127322.

Zhang X, Khachatryan H. 2021b. Effects of perceived economic contributions on individual preferences for environmentally friendly residential landscapes. Land Use Policy. 101:105125. https://doi.org/10.1016/j.landusepol.2020.105125.

Zhang X, Khachatryan H, Knuth M. 2021. Relating knowledge and perception of sustainable landscape practices to the adoption intention of environmentally friendly landscapes. Sustainability. 13(24):14070. https://doi.org/10.3390/su132414070.