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Enhancing Understanding and Education for Residential Fertilizer Usage in Hernando County

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UF IFAS UNIVERSITY of FLORIDA
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June 2024

Background

A case study in Hernando County, Florida, was conducted to develop a deeper understanding of residents' lawn fertilizer usage behaviors and attitudes towards current expanded fertilizer ordinance. Data was collected through an online survey as well as in-person focus groups. By gaining insights into current fertilizer practices and perceptions, researchers and educators aim to develop effective educational materials that promote responsible fertilizer use, while addressing concerns or misconceptions associated with fertilizer ordinance.

Findings

Researchers concluded the following findings based on survey data and focus groups:

- Most respondents fertilize their lawns themselves.
- Approximately half of respondents reside on one-fourth to one-half acre of land.
- Respondents typically fertilized their lawns in April, May, and October.
- Respondents typically purchase two to four 40 lbs. bags of fertilizer per year and often use one half to a full bag per application.
- A large majority of respondents do not perform soil tests on their lawns.
- Respondents are knowledgeable on the meaning of “N-P-K” but lack knowledge on best practices for fertilizer application and irrigation.
- Most respondents could not identify the correct timeframes or procedures for applying fertilizer in Hernando County.
- Respondents identified mowing regularly, irrigating properly, and fertilizing properly as the most important lawncare practices.
- Focus group participants indicated using online resources for lawn management guidance.
- Most focus group participants lacked knowledge about the local fertilizer ordinance, confusing residential turf fertilizer ordinance with agricultural rules.
- Focus group participants were unaware of the prohibited application period and the specific distance restrictions for applying fertilizer near surface water bodies.
- Focus group participants showed strong support for the ordinance’s environmental goals. Concerns were raised about enforcement clarity, consistency, and whether violators receive education before penalties.
- Focus group participants expressed a desire for more accessible information on the ordinance, favoring emails, social media, and increased outreach at community events to bridge the current knowledge gap and improve compliance.

Recommendations

The following recommendations for research and practice are suggested:

- Extension professionals should develop and deliver fertilizer application education programs to better aid Hernando County residents in understanding their residential fertilizer ordinance.
- These Extension programs should emphasize the soil testing importance and process and how test results impact fertilizer application amount and frequency.
- These findings should be compared with other counties or a statewide average.

Introduction

Located on the west coast of Florida, Hernando County is situated in the Tampa Bay Area. It covers an area of approximately 473 square miles (1,225 square kilometers) and is bordered by Pasco County to the south, Citrus County to the north, Sumter County to the northeast, and the Gulf of Mexico to the west. Hernando County has experienced significant population growth over the years. According to the U.S. Census Bureau's estimates, the population of Hernando County was approximately 198,000 residents as of 2020 (U.S. Census Bureau, 2020). The socio-demographics of Hernando County reflect a diverse community. The population consists of various racial and ethnic groups, with a mix of age demographics ranging from young families to retirees. The median household income in Hernando County was $46,509, according to the U.S. Census Bureau's data from 2015-2019 (U.S. Census Bureau, 2019).

Hernando County is renowned for its springs, which are vital components of its natural ecosystem. These springs provide not only recreational opportunities but also serve as important sources of freshwater for local communities and support diverse aquatic life. Weeki Wachee Springs, an Outstanding Florida Spring (OFS), is currently impaired by excessive nitrates, with nitrate levels steadily increasing over the years. To address this issue, the State enacted the Springs and Aquifer Protection Act in 2016, setting goals for restoring the OFS within 20 years. In 2018, the Florida Department of Environmental Protection established a Basin Management Action Plan (BMAP) to tackle the rising nitrate levels and identify major sources of nitrogen contributing to the spring. According to the BMAP, urban turf fertilizers account for 22% of the nitrogen affecting the spring.

In light of these developments, in June of 2023 the Hernando County Board of County Commissioners passed the following amendments to the existing fertilizer ordinance.

- Expanded seasonal restrictions: Prohibition of urban turf fertilizers containing nitrogen from December 15 to March 15 and from June 1 to September 30.
- Removal of exemption for commercial applicators: Previously, commercial applicators were exempt from certain provisions of the fertilizer ordinance. This exemption has been removed.
- Increased distance for fertilizer use adjacent to wetlands and surface waters: The updated amendments increased the distance from wetlands and surface waters where fertilizers can be applied, from the previous 10 feet to 25 feet.
- Requirement for posting county-provided signage: Businesses that sell fertilizers during the restriction period would be obligated to display signage provided by the County, stating the seasonal restrictions. This provision intends to raise awareness among the public and promotes compliance with the revised fertilizer ordinance.

Objectives

The objective of this study is to understand Hernando County residents' fertilizer usage behaviors and attitudes towards current fertilizer ordinance. By delving into the intricacies of current fertilizer practices and perceptions, the study aims to provide guidelines for developing educational resources geared towards fostering responsible fertilizer applications.

Specific objectives include:

- Assessment of fertilizer usage behaviors: To investigate and analyze the prevalent fertilizer usage behaviors among residents of Hernando County, including frequency, quantity, and methods of application.
- Exploration of individual attitudes towards expanded fertilizer ordinance: To examine residents' knowledge and perceptions regarding the existing fertilizer ordinances, including awareness, fertilizer use blackout period, and perceived efficacy.
- Identification of concerns and misconceptions: To identify any prevalent concerns or misconceptions held by residents regarding fertilizer usage practices and the blackout period.

Methodology

Online Survey Instrument

Survey Questions

The survey instrument encompassed five domains: knowledge of lawn care practices, awareness of county fertilizer ordinance, current landscape condition, lawn care practices, and fertilizer use practices. To ensure participant engagement and survey adherence, a strategic flow was established, with high-attention questions positioned at the beginning of the survey. Two attention check questions were strategically incorporated in the survey to verify respondent attentiveness and comprehension of survey instructions, serving as quality control measure to uphold data integrity.

The majority of survey questions were framed as multiple choices, facilitating structured responses and simplifying data processing. Additionally, a subset of questions was formulated as Likert scale items, offering respondents a graded scale of responses.

Temporal framing was a key consideration in question construction, particularly concerning fertilizing the lawn and fertilizer purchases. Questions in these domains were framed in reference to the past 12 months, enhancing participant recall ability and focus. This temporal specificity aimed to minimize recall bias and facilitate accurate reporting of fertilizer usage behaviors within the designated timeframe.

Central to the survey's objectives was the estimation of fertilizer application rates, requiring respondents to provide four key pieces of information: the number of fertilizer bags applied, bag size, types of fertilizers purchased, and the fertilized area. These questions were integrated into the survey flow, ensuring comprehensive data capture essential for subsequent analysis.

Pre-testing

The survey instrument underwent peer-review and pre-testing procedures to ensure its efficacy and clarity. Peer-review involved comprehensive evaluations by officials from the Hernando County Government, as well as research and Extension faculty at the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS). These stakeholders provided invaluable insights and feedback on the survey's content, structure, and relevance to the study objectives.

Subsequently, the pre-testing phase primarily engaged eight UF/IFAS Extension Master Gardener volunteers, who volunteered to participate in the evaluation process. These volunteers were selected based on their familiarity with local environmental issues and their willingness to provide constructive feedback.

During the pre-testing phase, volunteers were directed to complete the online version of the survey, simulating the conditions under which the survey would be administered to the broader resident population. This process aimed to identify any ambiguities, inconsistencies, or areas of confusion within the survey instrument.

Feedback from peer-review and pre-test participants was collected and analyzed to inform adjustments to the survey instrument. Specifically, attention was paid to enhancing the clarity, specificity, and inclusivity of survey questions and response options.

Survey Distribution

The survey was administered online via the Qualtrics survey software platform, providing a user-friendly interface for respondents to access and complete the questionnaire at their convenience. The survey distribution was executed through a multi-faceted approach, leveraging digital platforms and targeted mailing lists.

The primary dissemination channel utilized was the UF/IFAS Extension Hernando County mailing list, comprising individuals who have either participated in Extension educational programs or expressed interest in receiving educational materials from the Extension office.

Complementing the mailing list outreach strategy, social media platforms served as dynamic avenues for engaging a broader local audience and fostering community participation. Through survey invitation posts and targeted outreach efforts, residents were encouraged to contribute their insights and perspectives to inform local policies and initiatives.

To incentivize participation and enhance response rates, a randomized drawing of $100 gift cards for 10 participants was offered as an incentive. This incentive scheme aimed to incentivize engagement and motivate residents to complete the survey, thereby increasing the likelihood of obtaining a representative sample and relevant data.

In addition to these digital platforms, customized survey invitations were mailed to residents via the Hernando County Utilities mailing list. This list consists of Hernando County Utilities customer homeowners with in-ground irrigation systems.

The survey was open for participation from December 20, 2023 to February 29, 2024, allowing respondents an adequate timeframe to access and respond to the questionnaire.

Target population and sampling techniques

The target population for this survey encompassed residents of Hernando County, spanning from 18 to 80 years olds. Screening questions were incorporated to verify that all respondents were current residents of Hernando County and were the main decision makers in their households regarding lawn and landscape management.

Focus Group Meetings

Selection of Participants

Invitations to participate in the focus group meetings were extended to survey respondents who left contact information. No additional screening questions were administered beyond the initial survey responses. By inviting respondents directly from the survey pool, the aim was to ensure that participants were representative of the target population and possessed relevant knowledge pertaining to this project.

Facilitation of Focus Group Discussions

Two focus group meetings were convened to facilitate in-depth discussions on the survey findings and explore perspectives among participants. Participants were given the flexibility to choose the session that best suited their scheduling preferences, either the in-person session held at the Hernando County Extension Office in the morning or the virtual session conducted via Zoom in the evening.

To ensure the impartiality and neutrality of the discussions, a trained facilitator who was not involved in the survey instrument design or data analysis was enlisted to moderate the focus group sessions. The facilitator's role was to guide the discussions, encourage participation from all attendees, and maintain a balanced dialogue while minimizing the risk of unintentional bias. By employing an independent facilitator, the aim was to foster an open and inclusive atmosphere conducive to candid exchanges of ideas and perspectives among participants.

Topics covered in focus group meetings

During the meeting, several key topics were discussed, including: 1. Who oversees the lawn care and ensures regular maintenance. 2. Current fertilizer application practices, such as how choices are made regarding the types and application schedules of fertilizers. 3. A review of the current expanded fertilizer ordinance, where participants share their understanding and concerns about its implications.

Findings

Quantitative Results

A total of 740 responses were collected, with 383 valid after considering the screening questions, achieving a 95% confidence level. Based on these valid responses, the majority of respondents were white, female, and college educated. Most respondents work full-time and reside in urban or suburban areas.

Table 1: Demographic characteristics of respondents

Variable	*n* (%)
Gender	
Male	167 (44)
Female	210 (55)
Prefer not to disclose	6 (2)
Race	
White	339 (89)
Black or African American	8 (2)
Asian	3 (1)
American Indian or Alaska Native	7 (2)
Multi-racial	14 (4)
Unknown	10 (3)

Ethnicity	
Hispanic/Latino(a)/Chicano(a)	53 (14)
Not Hispanic/Latino(a)/Chicano(a)	321 (84)
Unknown	8 (2)
Highest level of education completed	
Some high school	1 (0)
High school/GED	29 (8)
Some college	64 (17)
2-year college degree	52 (14)
4-year college degree	128 (33)
Masters degree	88 (23)
Doctoral degree	9 (2)
Professional degree (JD, MD)	12 (3)
Employment status	
Employed full time	183 (48)
Employed part time	32 (8)
Self-employed	38 (10)
Unemployed	17 (4)
Student	2 (1)
Retired	107 (28)
None of the above	4 (1)
Household income	
Less than $19,999	15 (4)
$20,000 - $39,999	37 (10)
$40,000 - $59,999	56 (15)
$60,000 - $79,999	55 (14)
$80,000 - $99,999	57 (15)
$100,000 - $119,999	61 (16)
$120,000 - $139,999	25 (7)
$140,000 - $159,999	22 (6)
$160,000 - $179,000	16 (4)
$180,000 - $199,999	14 (4)
$200,000 - $299,999	13 (3)
More than $300,000	12 (3)
Location of residence	
Major town/city	52 (14)
Suburban area	178 (46)
Small town	76 (20)
Rural area	77 (20)
Type of residence	
Single-family house with irrigated landscape	226 (59)
Single-family house without irrigated landscape	136 (36)
Multi-family house	17 (4)
Other	4 (1)

Fertilizer Knowledge Assessment

Out of 383 respondents, 73% (n=278) fertilize their lawns themselves. Respondents often irrigate their landscapes weekly (24%) or twice per week (23%), with 27% reporting they never irrigate.

Table 2: Method of fertilizing and irrigation frequency

Variable	*n* (%)
Who primarily cares for/maintains lawn, garden(s) and/or landscape	
Myself	278 (73)
Another household resident (friend/family member/etc.)	50 (13)
A garden/lawn/landscape service company	42 (11)
Other	13 (3)
Frequency of lawn irrigation during growing season	
Daily	19 (5)
3-4 times a week	48 (13)
Twice per week	88 (23)
Weekly	91 (24)
Bi-weekly	13 (3)
Monthly	9 (2)
Bi-monthly	4 (1)
Do not irrigate	102 (27)
I don't know	9 (9)

Respondents had their knowledge on residential fertilizer use evaluated through several knowledge assessment questions. Correct answers with corresponding percentages and frequencies of responses are highlighted in the tables below.

Most respondents answered questions involving nitrogen, phosphorous, and potassium (N-P-K) amounts correctly. Respondents were less knowledgeable related to questions involving fertilizer application procedures and irrigation practices.

Table 3: Fertilizer knowledge questions

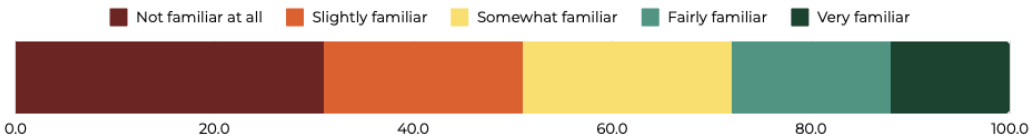
Prompt	*%*	*n*	
1. True or False: The three basic nutrients included in lawn fertilizers are nitrogen, phosphorous, and potassium.			
TRUE	86%	*331*	*CORRECT ANSWER*
FALSE	3%	*11*	
I don't know	11%	*41*	
2. True or False: The N-P-K ratio numbers are used to label relative contents of nitrogen (N), phosphorus (P), and potassium (K) in the fertilizers and are required to be shown on every fertilizer bag sold in stores.			
TRUE	87%	*333*	*CORRECT ANSWER*
FALSE	1%	*5*	
I don't know	12%	*45*	

3. In the N-P-K ratio of 20-8-4, the value of 20 means that:			
Nitrogen (N) component is by 20% more than phosphate (P) in the fertilizer.	23%	*88*	
The fertilizer contains 20% nitrogen (N) by weight.	77%	*295*	*CORRECT ANSWER*
4. True or False: Lawns should be fertilized during the dormant season to allow for nutrients to soak into the soil before active growth.			
TRUE	38%	*145*	
FALSE	46%	*178*	*CORRECT ANSWER*
I don't know	16%	*60*	
5. True or False: The lawn should be irrigated with 1/4" of water immediately after fertilization.			
TRUE	68%	*262*	*CORRECT ANSWER*
FALSE	15%	*59*	
I don't know	16%	*62*	
6. True or False: Each irrigation session should run until the point of runoff to supply an adequate amount of water to the turfgrass.			
TRUE	38%	*144*	
FALSE	49%	*188*	*CORRECT ANSWER*
I don't know	13%	*51*	
7. True or False: Lawns should be irrigated right before the hottest part of the day so the turfgrass is well hydrated before the heat.			
TRUE	35%	*135*	
FALSE	56%	*216*	*CORRECT ANSWER*
I don't know	8%	*32*	

County Ordinances

Approximately 29% (*n* = 109) of respondents reported they were “fairly familiar” or “very familiar” with Hernando County’s fertilizer ordinances, as displayed in Figure 1.

Figure 1: Familiarity with Hernando County fertilizer ordinances



Current Hernando County ordinance identifies December 15 – March 15 and June 1 – September 30 as prohibited timeframes for urban turf fertilizer application. The self-reported familiarity from Figure 1 slightly contrasts with actual knowledge of the ordinance, with approximately 28% to 30% of respondents selecting the correct timeframes for fertilizer application. Most respondents selected “I don’t know” as their answer, as shown in Table 4.

Most respondents were unable to answer further ordinance questions correctly. These questions outlined other policies within Hernando County's fertilizer ordinance, including commercial application and proximity of fertilizer application to water bodies.

Table 4: Fertilizer ordinance knowledge questions

Prompt	%	n	
The use of urban turf fertilizers containing nitrogen is prohibited in Hernando County during the following timeframes. (Select all that apply.)			
December 15 - March 15	30%	*115*	*CORRECT ANSWER*
January 1 - March 30	8%	*30*	
January 15 - March 15	9%	*34*	
May 1 - August 30	8%	*32*	
May 15 - September 15	9%	*33*	
June 1 - September 30	28%	*106*	*CORRECT ANSWER*
I don't know	37%	*140*	
True or False: Commercial applicators in Hernando County are exempt from the prohibitions and time frames regarding applying urban turf fertilizers containing nitrogen.			
TRUE	25%	*95*	
FALSE	46%	*176*	*CORRECT ANSWER*
I don't know	29%	*112*	
Fertilizers cannot be applied within ____ of adjacent wetlands or surface waterbodies in Hernando County.			
0 foot (i.e., no restrictions)	3%	*11*	
10 feet	9%	*36*	
15 feet	12%	*47*	
20 feet	9%	*35*	
25 feet	33%	*127*	*CORRECT ANSWER*
I don't know	33%	*127*	
True or False: True or False: Homeowners and commercial applicators in Hernando County can apply compost products during the prohibited time frames.			
TRUE	50%	*193*	*CORRECT ANSWER*
FALSE	24%	*92*	
I don't know	26%	*98*	

Current Landscape Condition

About half of respondents reside on one-fourth to one-half acre of land. Respondents often irrigate their landscapes once a week (24%) and twice per week (23%), with 27% reporting they do not irrigate. Most respondents have either renovated their landscapes recently (2022-2023) (28%) or continually (21%), with the cost typically totaling between $1,000 to $5,000 (32% of respondents) This data is displayed through Table 5.

Table 5: Landscape condition

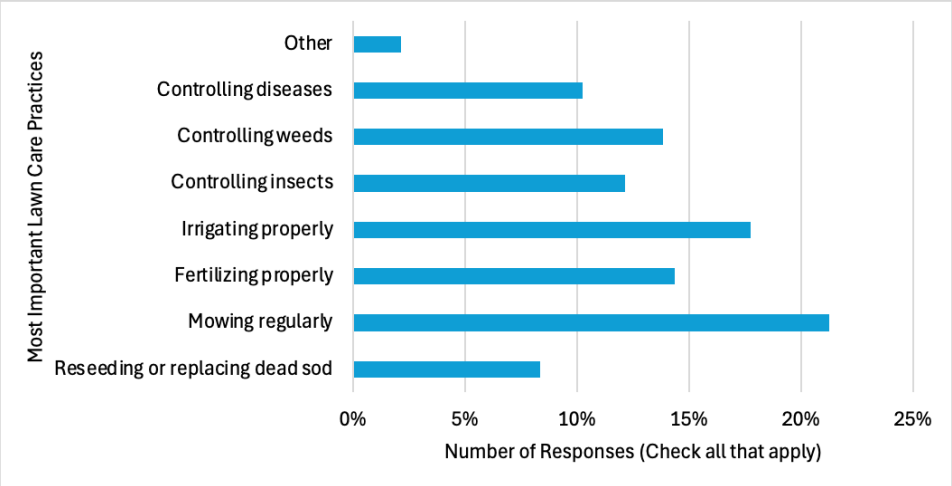
Variable	*n* (%)
Home lot size	
Less than 1/8 acre (less than 5,445 sq ft)	46 (12)
1/8 acre (5,445 sq ft)	79 (21)
1/4 acre (10,890 sq ft)	104 (27)
1/2 acre (21,780 sq ft)	66 (17)
1 acre or more (43,560 sq ft or more)	88 (23)
Frequency of lawn irrigation during growing season	
Daily	19 (5)
3-4 times a week	48 (13)
Twice per week	88 (23)
Weekly	91 (24)
Bi-weekly	13 (3)
Monthly	9 (2)
Bi-monthly	4 (1)
Do not irrigate	102 (27)
I don't know	9 (9)
When was the last time you installed/renovated the landscape in your current residence?	
Never	44 (11)
Before the pandemic (before 2020)	93 (24)
During the pandemic (2020 to 2021)	49 (13)
Recently (2022 to 2023)	109 (28)
Continually	82 (21)
Other	6 (2)
Cost to renovate landscape	
Less than $250	46 (14)
$251-500	50 (15)
$501-1,000	44 (13)
$1,001-2,000	55 (16)
$2,001-5,000	55 (16)
$5,001-7,500	22 (6)
$7,501-10,000	22 (6)
$10,001-15,000	17 (5)
$15,001-20,000	16 (5)
$20,001-25,000	6 (2)
$25,001-30,000	1 (0)
More than $30,000	1 (0)
Other	4 (1)

Respondents were asked to estimate the percent of their landscape that consisted of, turfgrass, annual/perennial plants, and naturalized/forest areas. An average amongst all respondents resulted in 52% turfgrass, 26% annual/perennial plants, and 22% naturalized/forest areas.

Lawncare Practices

Most respondents (57%, n = 220) had not laid new lawn within the last two years. When asked to identify grass types within their landscapes, St. Augustine grass and Bahia grass had the highest frequencies.
Respondents identified mowing regularly, irrigating properly, and fertilizing properly as the top 3 most important lawn care practices, displayed below in Figure 2.

Figure 2: Most important lawn care practices to keep lawn green and healthy



Respondents often check the condition of their lawn weekly (33%) when asked about their frequency of mowing during summer months, most respondents report mowing twice per month (26%). Respondents' lawns are typically mowed to a height of 2-3 inches. Most respondents report leaving lawn grass clippings on the lawn following mowing (51%). This data is displayed through Figures 3-6.

Figure 3: Frequency of checking lawn's condition (n = 383)

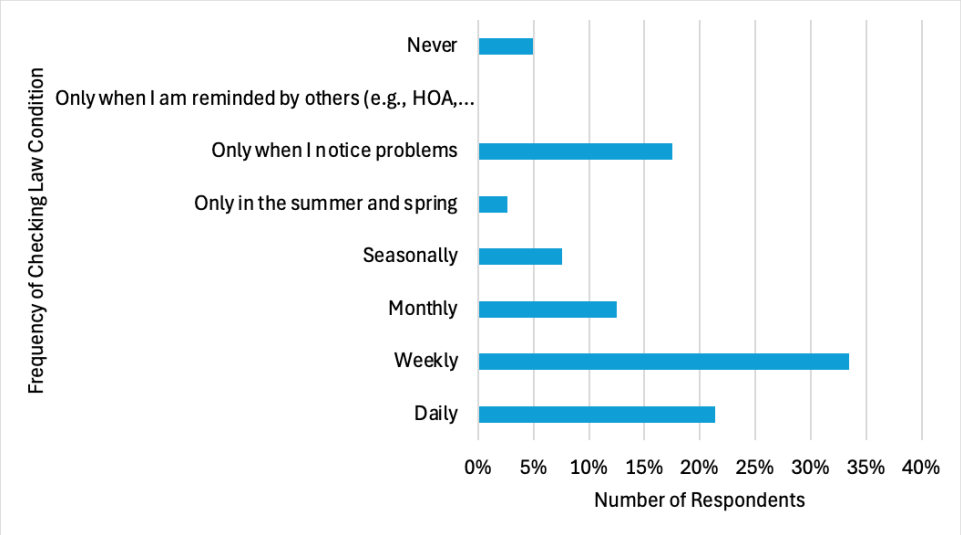


Figure 4: Frequency of mowing during summer months (May-September) (n = 278)

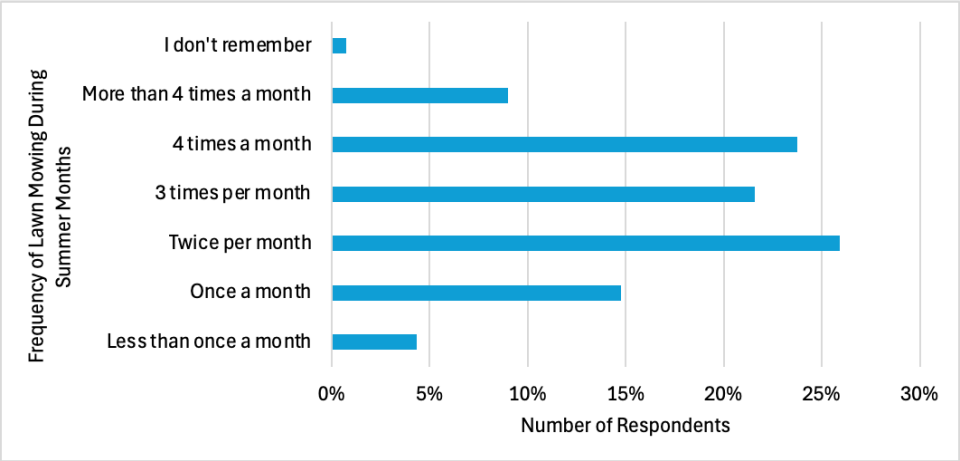


Figure 5: Height of lawn during summer months (May-September) (n = 278)

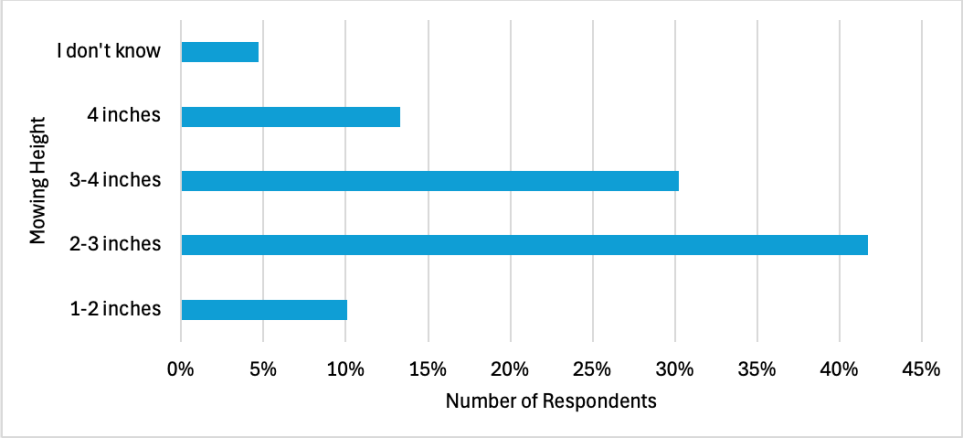
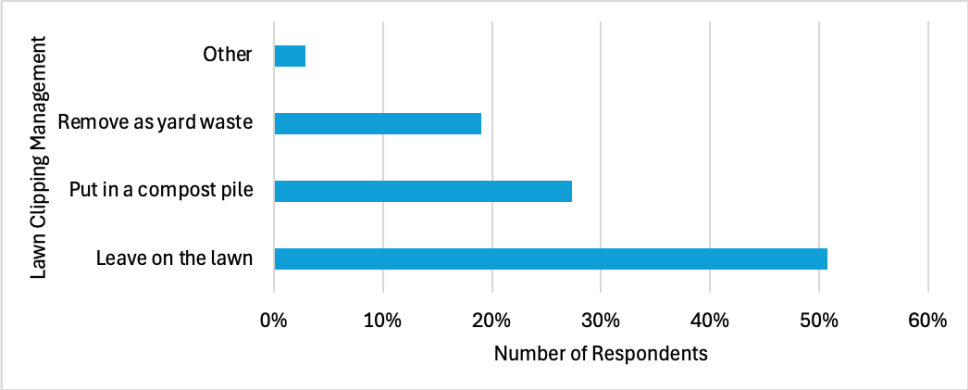


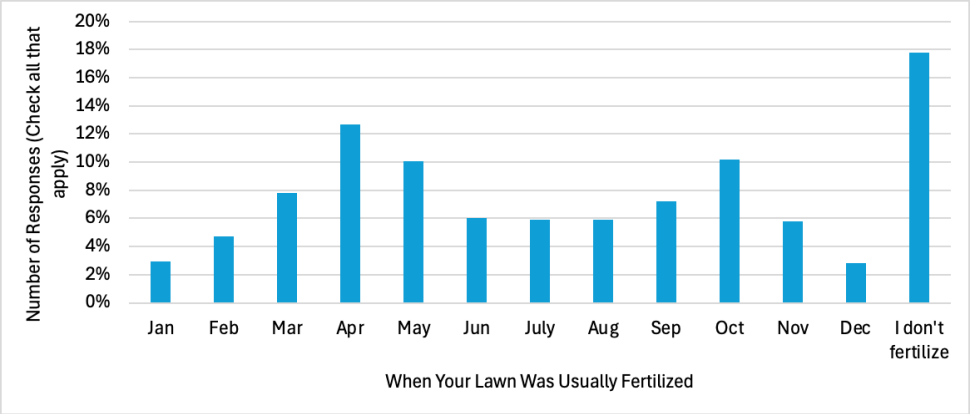
Figure 6: Lawn clippings (n = 278)



Fertilizer Use Behavior

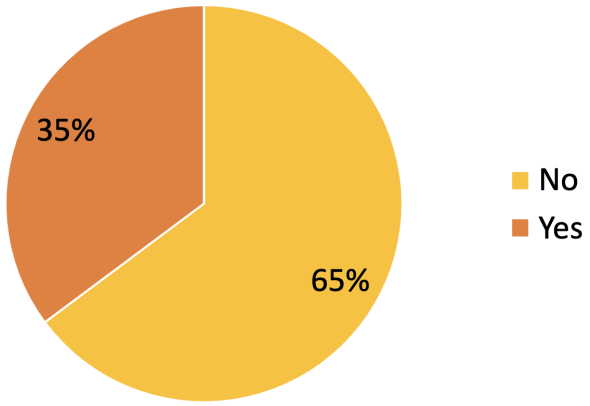
Respondents most often fertilize their lawns in April, May, and October. A significant number of respondents reported they do not fertilize (n = 150). Figure 7 displays the distribution of selections across a calendar year.

Figure 7: Fertilizer application timeframe



Most respondents (65%) had not tested their soil within the last 12 months, as displayed below in Figure 8.

Figure 8: Soil test performed within last 12 months



Most respondents reported they “often” or “always” read the fertilizer bag labels before fertilizer application (60%). Approximately 72% reported following the directions provided on the fertilizer bag “often” or “always.” These findings are displayed below in Figures 9 and 10.

Figure 9: Frequency of reading fertilizer bag labels (n = 177)

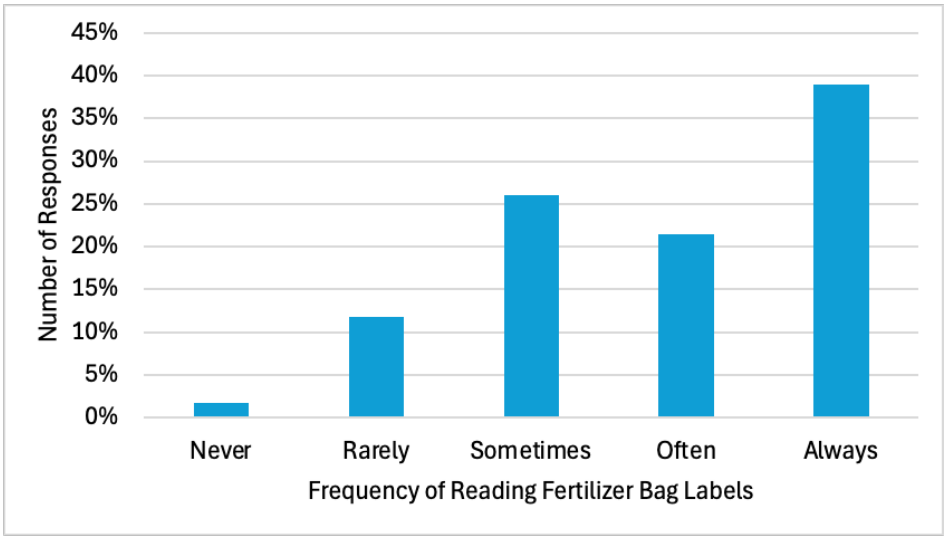
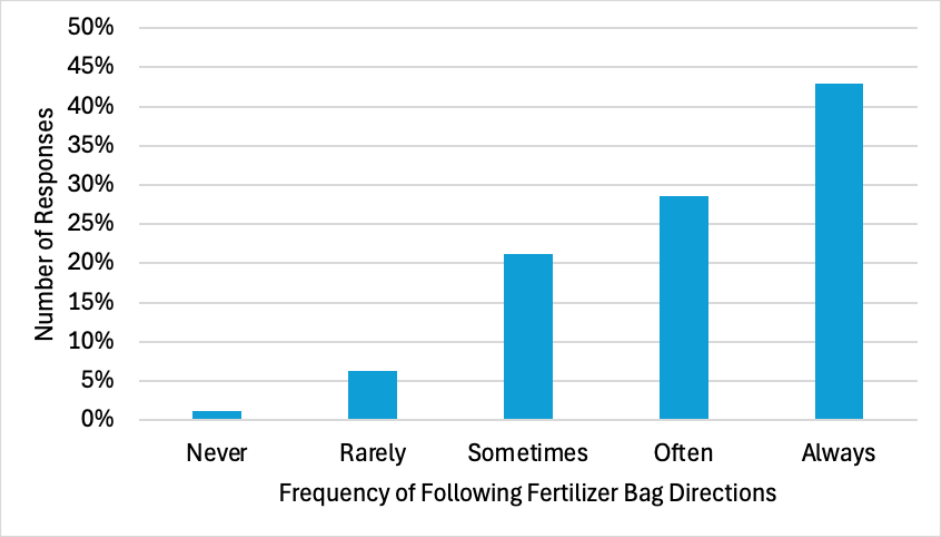
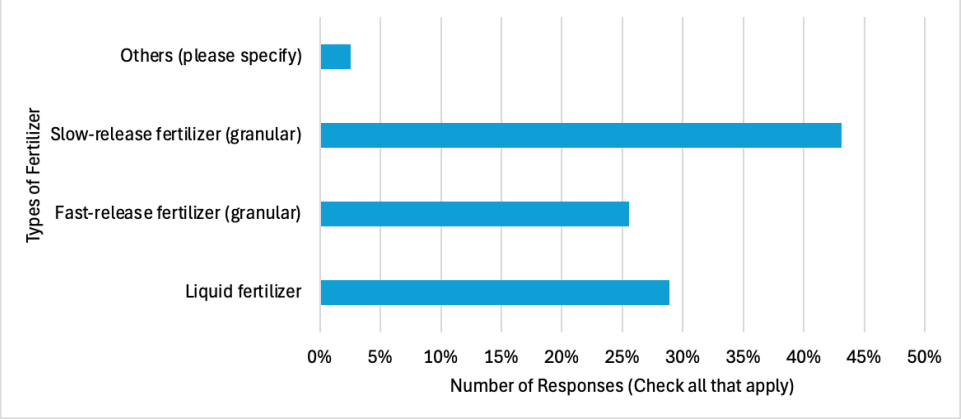


Figure 10: Frequency of following fertilizer bag directions (n = 175)



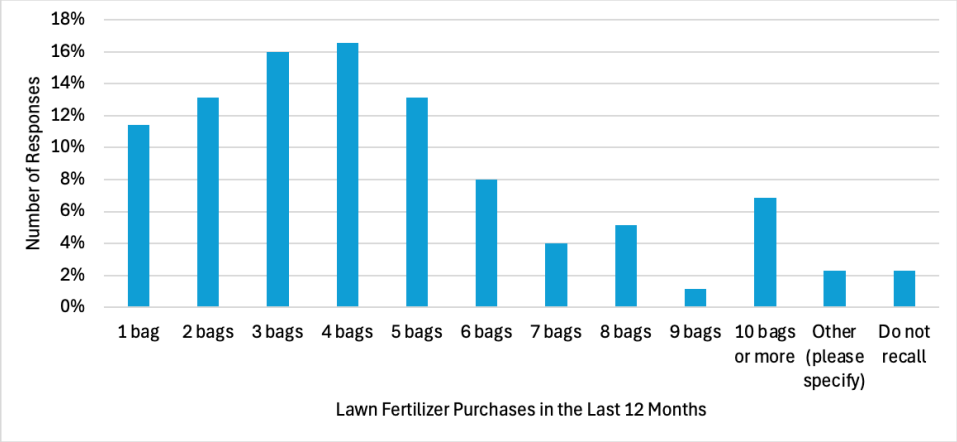
Slow-release fertilizer (granular) was the most selected fertilizer type (43%). Liquid fertilizer ranked second, with 29% of respondents making this selection.

Figure 11: Types of fertilizer utilized for application



Most respondents purchased two to five 40 lb. bags of fertilizer over the last 12 months, with the highest frequency being four bags (n = 29), as displayed in Figure 12. When asked how much fertilizer they used per application, 31% of respondents reported using a full 40 lb. bag, and 29% reported using half of a 40 lb. bag (out of 176 total responses).

Figure 12: Amount of fertilizer purchased in the last 12 months



Homeowners' Association Related

Out of 338 survey respondents, 139 were part of a homeowners' association (HOA). This group was further questioned on their HOA's involvement in residents' landscaping. When asked if their HOA has policies or requirements related to landscaping, 83% responded "yes." Despite the presence of policies, 46% of respondents reported their HOA "never" or "rarely" impose penalties related to landscaping, as displayed in Table 6.

Table 6: HOA Involvement

Variable	*n* (%)
Property is part of a HOA	
Yes	139 (36)
No	236 (62)
Not sure	8 (2)
HOA has any policies or requirements related to landscaping	
Yes	116 (83)
No	13 (9)
Not sure	10 (7)
HOA positively recognizes or rewards residents for the look of their landscapes	
Yes	90 (65)
No	39 (28)
Not sure	10 (7)
Frequency of HOA imposed penalties (e.g. warning letters, fines) for the appearance of landscapes	
Never	30 (22)
Rarely	34 (24)
Sometimes	42 (30)
Often	12 (9)
Always	13 (9)
I don't know	8 (6)

Qualitative Findings

Participant Information

Four residents attended the in-person meeting, and 12 residents attended the virtual meeting. The majority of the attendees reside in rural areas within Hernando County. Only one participant lives in a homeowner association community.

Lawn Management Practices

All participants at the meeting shared that they personally manage their lawns, handling tasks such as fertilizer application and irrigation themselves. They most rely on online resources as their primary source of information, using websites and digital guides to make decisions about lawn care. However, one attendee, a Master Gardener volunteer, brought a different perspective, having gained expertise through the Extension services. This participant's experience with Extension-based education highlighted the value of formal, science-backed knowledge, contrasting with the more self-guided learning approach of the other attendees. This mix of information sources underscored the potential for further outreach and education, particularly through trusted Extension programs, to enhance residents' lawn care practices.

Awareness and Understanding of Fertilizer Ordinance

The focus group meetings revealed a significant knowledge gap among participants regarding the specifics of the current fertilizer ordinance. Most were unaware of key details, including the distinction between residential and agricultural fertilizer regulations. Several participants mistakenly believed that the ordinance also restricted agricultural fertilizer use or assumed that commercial landscape professionals were exempt from the rules, when in fact, commercial applicators are also subject to the same regulations. Many attendees were unaware of the prohibited application periods or the distance restrictions for applying fertilizers near surface water bodies. One participant, residing in an HOA community, shared that while they understood the ordinance, their HOA neighbors prioritized lush lawns without considering environmental impacts. This participant also questioned the logic behind fixed-distance restrictions for fertilizer application, arguing that water movement and runoff make such guidelines seem arbitrary, as all runoff eventually reaches the waterbodies. This comment reflected a broader confusion about how the regulations effectively protect water quality.

Despite the initial lack of detailed knowledge, participants expressed strong support for the ordinance’s environmental goals, particularly its potential to reduce stormwater runoff and protect local ecosystems. They recognized the importance of promoting sustainable lawn care practices to safeguard water quality. However, this support was tempered by uncertainties about enforcement. Many were unclear on how local authorities monitor compliance and the specific actions taken against violators. Questions arose regarding the mechanisms for identifying violations, the consistency and fairness of enforcement, and whether there were provisions for educating violators before imposing penalties.

In terms of information sources, a few participants had learned about the ordinance through local newspapers and social media. However, most were unaware that the current ordinance was an expansion of a previous one. Participants expressed interest in receiving more detailed and accessible information on both the ordinance and best practices for fertilizer use. They favored regular updates via email and social media and suggested that hosting booths at community events could help bridge the knowledge gap. This hands-on approach, they believed, would improve compliance and foster a better understanding of the ordinance among residents.

Discussion

From Survey

Based on the findings of the survey, there are several informed recommendations to help industry professionals, educators, and policy makers bridge public knowledge gaps. The most notable finding was the lack of awareness surrounding residential fertilizer ordinances. Roughly 29% reported being familiar with current Hernando County's residential fertilizer ordinance, meaning a large majority of respondents' current fertilizer practices may not align with local policies. Local officials, educators, and industry professionals should approach this knowledge gap by implementing campaigns to raise awareness and provide learning opportunities. By increasing the visibility of residential fertilizer ordinance guidelines, the public will be better informed on fertilizer decision-making and adhering to local policy.

Most respondents in this study do not have their soil tested although soil testing is essential for understanding the soil composition and determining the appropriate amount and formulation of fertilizer needed. It is vital to educate residents about the importance of incorporating soil testing into their fertilizer application practices to avoid adding unnecessary nutrients (i.e., Phosphorus) into the local environment. Soil testing is available through the Hernando County Extension office, as well as through private companies and other entities across the state. Soil testing is accessible, yet the public is not utilizing this service, based on this study's findings. It is recommended that Extension professionals better promote this service and the benefits of connecting soil test results with fertilizer use practices.

Most respondents reported fertilizing during specific parts of the year, with a majority fertilizing in April, May, and October. These months align with Hernando County fertilizer ordinance, meaning most respondents are fertilizing during the allowed periods. However, a number of respondents selected months within the blackout periods (December 15 – March 15 and June 1 – September 30). Community leaders and educators should develop a plan for better informing the public on fertilizer application timeframes.

It is recommended that target audiences utilize the toolkit developed from this study to better inform the public on fertilizer policy and behaviors. Future application of this study would be beneficial to note changes in knowledge and behaviors over time or during a period of policy change.

From Focus Groups

The focus group discussions highlighted several key areas where improvements could be made to enhance public understanding of the expanded fertilizer ordinance. Educational opportunities emerged as a top priority, with a clear need for more targeted resources that clarify the differences between residential and agricultural regulations. Extension services and local authorities are well-positioned to develop and distribute accessible, detailed materials to help residents fully grasp the requirements and benefits of the ordinance.

Expanding communication efforts through various channels was also emphasized as a critical strategy. By utilizing social media, local newspapers, and community meetings, awareness and understanding of the ordinance can reach a broader audience. It was noted that special attention should be paid to rural communities and homeowner associations, where outreach has traditionally been less comprehensive.

Finally, improving clarity around enforcement was recognized as essential. Residents would benefit from clear, straightforward information on how the ordinance is enforced and the penalties for non-compliance. Greater transparency in enforcement strategies is expected to foster trust and encourage cooperation among the community, ultimately leading to better adherence to the ordinance and its goals.

Limitations and Recommendations

The composition of the focus group participants does not fully represent the diverse demographics of Hernando County. The majority of attendees live in rural areas, leading to a notable absence of perspectives from urban and suburban residents, whose experiences and concerns might differ significantly. Additionally, there was limited participation from individuals residing in homeowner association (HOA) communities, where landscaping practices and compliance with ordinances might be influenced by HOA regulations and collective decision-making processes.

Given these limitations, it is crucial to expand future engagement efforts to include a broader and more representative cross-section of Hernando County's population. This includes reaching out to residents in urban and suburban areas, as well as actively involving more participants from HOA communities. Their input is vital to ensure that the discussion around the fertilizer ordinance and best practices for lawn care encompasses the full spectrum of experiences and challenges faced by different segments of the community.

Continued engagement through additional focus groups and comprehensive surveys is essential to deepen the understanding of residents' knowledge, attitudes, and behaviors regarding the ordinance. These tools can help collect more diverse feedback on the effectiveness of current communication and enforcement efforts. They can also uncover specific needs and concerns that may vary across different community segments.

Conclusions

The results of this study indicate a lack of public awareness and understanding surrounding fertilizer ordinances and practices. Subject matter experts, policy makers, and community leaders have an opportunity to utilize these findings to better inform the public on fertilizer policy and recommendations.