*Ornamental, Garden & Landscape Section*

*Proc. Fla. State Hort. Soc.* 128:249–250. 2015.

# Soil pH and Fertility Test Interpretation on Homeowner Landscape Practices

Nicole Pinson*

*University of Florida, IFAS Hillsborough County Extension, 5339 County Road 579, Seffner, FL 33584*

**Additional index words.** soil pH surveys, landscapes

**County extension agents interpret soil pH and fertility tests to clientele on a routine basis. These interpretations require tailoring the information to the clients' landscape, needs, or situation. In many cases, clients submit soil samples to solve a problem or plan a landscape. Yet agents typically count these consultations only as client contacts. However, information obtained from soil pH and fertility tests can be used to select appropriate plants, correct nutrient deficiencies, and apply fertilizers or soil amendments. To learn how homeowners use the information provided to them through soil tests and extension agents, we created and distributed a survey tool to measure potential outcomes of this information. Results show that more than 90% of survey respondents are satisfied with the quality of service, 80% replied they know more about soil pH, and 50% responded they changed their fertilizer practices, applied lime or sulfur responsibly, and stated the pH information will help them choose appropriate plants. More than 60% of survey respondents reported the soil test information saved them money and time. Results of this survey demonstrate that extension agents can use survey tools to quantify homeowners' use of soil pH and fertility test interpretation on their landscape practices. The potential outcomes from appropriate plant selection, responsible use of soil amendments, and time or money savings can be useful to extension agents quantifying their programmatic efforts.**

County extension agents interpret soil test reports for clients from either soil pH tests performed in the local county extension office, or from soil pH and/or fertility tests conducted by a laboratory, for example, the University of Florida, IFAS (UF/IFAS) Extension Soil Testing Laboratory (ESTL). Extension agents interpret and provide recommendations for clients, tailoring the recommendations to the client's needs, problems or landscape. Generally, these consultations count as a single client contact. A survey tool was created to measure how residents use their soil test information. This survey intended to find out if residents were satisfied with the services they received, and if they used the information to change a behavior or landscape practice. In addition, the survey tool enabled extension faculty to follow up with clients after they submitted a soil sample. In essence, the purpose of the survey is to identify if and how residents use soil test information, and to obtain both quantitative and qualitative data that goes beyond a client contact.

## Materials and Methods

In Florida, some county extension offices provide soil pH testing services. Also in Florida, independent laboratories and the UF/IFAS Extension Soil Testing Laboratory (ESTL) provide a range of soil test options. These options include pH and lime requirement (if needed), soil fertility (including phosphorous, potassium, magnesium, and calcium), and micronutrients (copper, manganese, and zinc). Using soil pH information, extension agents and residential clients can discuss adding lime or sulfur as soil amendments, refraining from applying lime, sulfur or phosphorous based on soil pH or no phosphorous deficiency, selecting appropriate plants, and choosing fertilizers that meet the needs of the plants. For example, some residents take and submit soil samples prior to selecting turfgrass, installing a vegetable garden, growing specific fruits such as blueberries, or when purchasing bulk soil to use in home gardens.

To gauge how residents use their soil test information, a Qualtrics survey was created. This survey included Likert scale responses Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, and Strongly Disagree, or Very Satisfied, Satisfied, Neither Satisfied nor Dissatisfied, Dissatisfied, and Very Dissatisfied. To measure behavior change, response options included Yes, No, and No, but I intend to. Survey participants were also asked open-ended questions and were provided options for comments and suggestions.

Via email, an invitation and survey link was sent to 120 Hillsborough County residents six months after they submitted and obtained soil pH test results from the county extension office. Of the 120 residents invited to participate, 23 completed the survey, providing a 19% response rate. Eighty-seven percent of survey respondents (n = 20) strongly agreed or agreed they know more about soil pH after receiving their soil pH results. Sixty-five percent (n = 15) strongly agree or agree their soil pH results will help them choose the right plants for their landscape. Sixty-five percent (n = 15) stated their soil pH results will help save them money, and 70% (n = 16) replied their soil pH test results will save them time.

I would like to thank Dr. Laura Warner, Assistant Professor of Extension Education, in the Department of Agricultural Education and Communications at the University of Florida, for her assistance with the design and evaluation of this survey tool.

*Corresponding author. Phone: 813-744-5519; email: pinsonn@hillsboroughcounty.org

When clients were asked how satisfied or dissatisfied they are with the information received from the UF/IFAS Extension Hillsborough County, 100% (n = 23) stated they are very satisfied or satisfied. When asked, "After receiving my soil pH results, I applied lime or sulfur responsibly,"14 residents replied. Twenty-nine percent (n = 4) answered "Yes," 36% (n = 5) replied "No, but I intend to," and 36% (n = 5) replied "No." Seventeen residents answered a question to guage change in fertilizer practices. Thirty-five percent (n = 6) stated they changed their fertilizer practices after receiving soil pH results, 35% (n = 6) replied, "No, but I intend to," and 29% (n = 5) replied they did not change a fertilizer practice. Additionally, 22 residents answered that based on their soil pH test results, it was recommended to: change fertilizer practices, 9% (n = 2); apply lime or sulphur responsibly, 27% (n = 6); choose a different plant, 27% (n = 6); or select a different planting location 27% (n = 6). Nine percent (n = 2) answered "Not sure." Qualitative information and customer testimonies reflect that extension recommendations with regard to soil testing are helpful. One resident commented the soil test information "helped me to learn what to plant." Another resident offered, "I was going to resod my entire yard, and I needed to know the soil pH before the sod was put down, to make sure I was ordering a sod that worked well with the pH in my yard." In addition, one commercial client stated, "We are a chemical lawn care company. We use the soil pH testing service 1) when we suspect there is a pH issue based on site observations, or 2) when we do not get the response we expect from fertilizer applications."

## Results and Discussion

By sending a follow-up survey, we hoped to learn if residents are using the soil test information and practicing recommendations provided to them by extension faculty. In some cases, the soil test report indicated adding lime or phosphorous was unnecessary. This information can greatly affect the amount of lime or nutrients applied by a homeowner.

Interestingly, when residents were asked if they are a first time extension customer, 77% replied "Yes," indicating soil testing may be a valuable service provided by extension. Because many clients take a soil sample prior to making landscape decisions or when trying to solve a problem, these clients present opportunities for extension faculty to market extension and provide additional customer service. Other educational goals include discussing Florida-Friendly Landscaping™ principles, such as "right plant, right place." Selecting and installing plants based on the "right plant, right place" principle means choosing plants with regard to the site conditions such as drainage, light, and soil pH.

One assumption of this survey is that residents used soil pH information to change a landscape practice. However, some residents did not change their landscape practices after receiving their soil test information, e.g., applying lime or sulfur responsibly or changing fertilizer practices. Further research could investigate if the resident is already practicing Florida-Friendly Landscaping™, if lime or sulfur was not a factor, or if the resident needs information about something else. Although some residents did change a landscape practice and learned more about soil pH as a result of testing their soil, Extension agents should consider reasons for not changing a landscape practice, and determine if the client needs additional assistance.

Due to the small number of residents responding to this survey, the author is careful not to generalize results. As more residents are surveyed, these preliminary results may become more accurate and statistically significant. Moreover, this survey was sent to county clients that submitted soil samples to the county extension office for pH information. Additional surveys sent to clients that submitted soil samples to the UF/IFAS Extension Soil Testing Laboratory might provide additional results.

Results of this survey demonstrate extension agents can use survey tools to quantify homeowners' use of soil pH and fertility test interpretation on their landscape practices. Potential outcomes from soil test interpretation include appropriate plant selection, responsible use of soil amendments, and time or money savings, in addition to fostered client relationships, better customer service, and potential links to environmental impacts such as water quality.