

National Fish and Wildlife Foundation
 LI Sound Futures Fund 2013 - Education and Mini-Grants - Submit Final Programmatic Report (New Metrics)
 Grantee Organization: Northeast Organic Farming Association of Connecticut, Incorporated
 Project Title: Organic Lawn Care Certificate Program (CT) - II

Easygrants ID: 39526
 NFWF Project ID: 1401.13.039526

Project Period 6/15/2013 - 8/15/2014
Project Location Waterbury, CT and a second as yet undetermined location.
Description (from Proposal)
Project Summary (from Proposal) Offer two certificate courses about alternative, non-chemical lawn care aimed at reducing fertilizer pollutants into Long Island Sound to 59 lawn care providers.
Summary of Accomplishments CT NOFA held 2 organic lawn care certificate courses, one at Naugatuck Valley Community College and the other at Connecticut College, with 100 students in attendance. The information collected from the student surveys provided us with rich data used to write a formal report called, "Identifying the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices," which can be used in the future to create education focused upon removing the barriers. In addition, the survey data convinced us that all lawn care professionals need to learn more about properly measuring and quantifying their fertilizer applications, so we created the Organic Fertilizer Fact Sheet. We distributed the report in hard copy to all attendees of the four lawn care courses, a total of 159 students over 2 grant periods. We also have this resource available online and have a link to the report in our monthly newsletter which reaches 1500 individuals who have taken our 30 hour Accreditation Course in Organic Land Care. Our final accomplishment is in progress - we are leveraging the investment of Long Island Sound Future Fund in our one-day course, and we are now partnering with Three Rivers Community College to bring this course online at a low price. Thus students in the future will be able to learn about organic lawn care at their leisure and from their home computer, enabling hundreds of people to become trained in organic lawn care practices.

Lessons Learned CT NOFA learned a great deal by analyzing the survey results from the first three cohorts of students.
 Highlights of the survey analysis include:

1. 69% to 73% of the respondents feel confident that they can reduce synthetic nitrogen, phosphorus, and herbicides while maintaining turf health with organic products
2. 62% of respondents agree that they were able to apply the knowledge they learned from the "Organic Lawn Care Certificate Program"
3. Students reported an 186% increase in organic fertility service demand and a 122 % increase in organic control service demand
4. In more than 48% of the cases, respondents believe that estimating labor costs, estimating profitable organic job quotes, selling competitive services and marketing services to organic resistant customers are the greatest challenges affecting the success of their business
5. Respondents believe they need marketing training that centers on website development, Facebook use, email promotion and press use
6. More than 60% of respondents believe they need skill training in products, best practices, soil testing, calibration rates, site assessment and organic weed and pest control programs

The early finding that students could not easily or accurately report how much nitrogen or phosphorus which they annually apply on properties led us to create an informative 4 page brochure describing the process for reading fertilizer bag labels and spreading the accurate

amount of fertilizer after a soil test.

Activities and Outcomes

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # gov't entities participating

Description: Enter the number of municipalities or local governments participating in the project

Required: Recommended

gov't entities participating - Current: 1.00

gov't entities participating - Grant Completion: 1.00

Notes: Judy Preston works for the Long Island Sound Study, and her participation in our program is provided by the Long Island Sound Study. The EPA, New York, and Connecticut formed the Long Island Sound Study (LISS) in 1985, a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to restoring and protecting the Sound. We are thrilled to work with Judy again, as she brings knowledge to the students and her position helps our project to develop partnerships.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # of edu signs installed

Description: Enter the number of educational signs installed by project

Required: Recommended

of edu signs installed - Current: 200.00

of edu signs installed - Grant Completion: 500.00

Notes: We gave out 200 lawn signs, and this metric assumes that each of the signs will be placed on a property where organic lawn care is being practiced by one of our students. We plan to give out the remaining 300 signs to the 60 new students, by offering 5 signs each. They are also available for purchase from our office, if the lawn care provider would like to continue the outreach and marketing.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # of schools participating

Description: Enter the number of elementary, middle, and high schools participating in the project

Required: Recommended

of schools participating - Current: 2.00

of schools participating - Grant Completion: 4.00

Notes: Last year, we partnered with Manchester Community College and Three Rivers Community College to hold our lawn care courses. For LISFF 2013, we will partner with Naugatuck Valley Community College and we are in the process of locating our next partner school. We plan on doing outreach with Gateway Community College and Connecticut College, and would like to hold the course at one of those two locations. In addition, we will ask Marcia Jehnings from Manchester Community College to send email blasts to her contact list of fellow Sustainability Coordinators for all Connecticut community colleges, as she did last year, in order to engage their participation.

It is our intent to build capacity with strategic alliance with continuing education & green job training programs in the State's community college certificate programs. Outreach to landscaper and broader local and regional communities with the assistance of host campus. Incentives-Sharing OLC mission and curriculum with host partners and educators in green jobs training, sustainability and student and community initiatives.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # people reached

Description: Enter the number of people reached by outreach, training, or technical assistance activities

Required: Recommended

people reached - Current: 59.00

people reached - Grant Completion: 158.00

Notes: It is our intent to drive 60 new students in total from the landscape professional pool throughout the region. Additionally, we intend to reach green professionals who may have an interest in this kind of green jobs green infrastructure training.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # people targeted

Description: Enter the number of people targeted by outreach, training, or technical assistance activities

Required: Recommended

people targeted - Current: 1000.00

people targeted - Grant Completion: 5000.00

Notes: It is our intent to target the thousands of traditional landscape professional community throughout this region as well as municipal, institutional green industry professionals. Student and broader community and other green industry trainers and professionals are hoped to attend, too. The incentive for hosts and participants will be the expand their green workforce training to the landscape sphere and create connections between the green build movement with further emphasis on the green built landscape

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # people with changed behavior

Description: Enter the number of individuals demonstrating a minimum threshold of behavior change

Required: Recommended

people with changed behavior - Current: 59.00

people with changed behavior - Grant Completion: 159.00

Notes: It is our intent to change the behavior of 60 landscape professionals. Through qualitative and quantitative pre and post survey data when attendees come to the course and follow up 1-on-1 coaching sessions featuring an additional pre and post survey coupled with a new section of the course on Social Sustainable Marketing we hope to empower this group of professionals with the ability to message greener services to clients more effectively and gain enough support to have confidence in what the new green services they're providing. The latter SSM and individual mentoring 1-on-1 will be the added incentive

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # websites, social media tools

Description: Enter the number of websites and other social media tools used to disseminate information about the project

Required: Recommended

websites, social media tools - Current: 4.00

websites, social media tools - Grant Completion: 6.00

Notes: NOFA OLC currently has a website, blog, facebook page and linkedin group. However, we have not spent adequate time developing these messaging formats due to lack of resources, expertise and an overall social marketing strategic plan. We will be able to ramp up this outreach with the guidance and vision of Bernadette Giblin and all contributing presenters. In addition, we plan to add twitter to bring in the younger generation.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # workshops, webinars, meetings

Description: Enter the number of workshops, webinars, and meetings held to address project activity

Required: Recommended

workshops, webinars, meetings - Current: 2.00

workshops, webinars, meetings - Grant Completion: 4.00

Notes: We will hold one workshop at Naugatuck Valley Community College and the other in eastern Connecticut. We have not solidified the partnership yet, but we have many options and colleagues who are assisting these efforts.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: LISFF - Outreach/ Education/ Technical Assistance - # people with knowledge

Description: Enter the number of people demonstrating a minimum level of knowledge, attitudes, or skills

Required: Recommended

people with knowledge - Current: 500.0

people with knowledge - Grant Completion: 1500.0

Notes: It is our intent to increase the knowledge of conventional landscape industry professionals in organic land care principles, procedures and practices throughout the LISFF Region. By partnering with learning institutions engaged in green job training and NGOs increasing green consciousness for the health of their community to municipal leaders and constituent stakeholders, we will engage in concentrated outreach with the parties deeply commitment to bring this to local community stakeholders to increase the spread of this knowledge. Distribution of the OLC materials will help spotlight the knowledge that measurable sustainability for our lands exists with the adoption of organic land care standards.

The following pages contain the uploaded documents, in the order shown below, as provided by the grantee:

Photos - Jpeg
Photos - Jpeg
Photos - Jpeg
Photos - Jpeg
Other Documents
Other Documents
Other Documents
Other Documents
Final Report Narrative - Standard

The following uploads do not have the same headers and footers as the previous sections of this document in order to preserve the integrity of the actual files uploaded.



Final Programmatic Report Narrative

Instructions: Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the on-line final programmatic report task as instructed.

1. Summary of Accomplishments

In four to five sentences, provide a brief summary of the project's key accomplishments and outcomes that were observed or measured.

CT NOFA held 2 organic lawn care certificate courses, one at Naugatuck Valley Community College and the other at Connecticut College, with 100 students in attendance. With information collected during the first grant cycle, students' surveys provided us with rich data used to write a formal report called, "Identifying the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices," which can be used in the future to create education focused upon removing these barriers to the adoption of organic lawn care practices. In addition, the survey data convinced us that all lawn care professionals need to learn more about properly measuring and quantifying their fertilizer applications, so we created the "Organic Fertilizer Fact Sheet." We distributed the report in hard copy to all attendees of the four lawn care courses, a total of 159 students. We also have this resource available online and have a link to the report in our monthly newsletter which reaches 1500 individuals, mostly landscapers. Our final accomplishment is in progress - we are leveraging the investment of Long Island Sound Future Fund in our one-day course, and we are now partnering with Three Rivers Community College to host the full 9 unit course online via Blackboard Learn from August 2014 to August 2015. Thus, an unlimited number of students will be able to learn about organic lawn care practices from their home computer, allowing for the broad dissemination of this information.

2. Project Activities & Outcomes

Activities

- Describe and quantify (using the approved metrics referenced in your grant agreement) the primary activities conducted during this grant.
- Briefly explain discrepancies between the activities conducted during the grant and the activities agreed upon in your grant agreement.

Activities

1. CT NOFA held 2 day-long courses, one at Naugatuck Valley Community College in July 2013 and the second at Connecticut College on March 27, 2014.
2. CT NOFA targeted 5000 people for outreach, training and technical assistance. This specific audience works in the landscaping or nursery industry and environmental education and sustainability fields. We contacted 200 individuals and firms representing lawn care companies, trade associations and colleges by direct mail and email with information about the course and always linking to our website where more information is available for free. Each one of these firms and associations provided outreach to hundreds of people when they advertised our course to their members, employees and students. In addition, CT NOFA tables at horticulture events such as Connecticut Nursery and Landscape Association's Winter Conference and UCONN Perennial Plant Conference where we can speak directly to approximately 500 attendees. We offered a contest for 6 months on our website, where 109 people interested in the course left their name and email address and filled out our survey for a chance to attend the Organic Lawn Care Certificate Course for free. Our Facebook page for NOFA Organic Land Care has 550 friends and we posted at least 50 posts related to organic lawn care and where to learn more information about it. The total Facebook audience represents 1000 unique individuals who read our posts due to sharing of posts among friends. In addition, we had a robust series of conference calls where our members and lawn care students could call in and hear information from experts on organic lawn and organic land care. All 159 students were contacted and targeted for these conference calls, in addition to opening the calls to our current 500 Accredited Organic Land Care Providers

who are members. Our monthly e-newsletter reaches 1500 people per month and features highlights about the course over many months and issues.

3. We began by stating that our target number of schools participating in the organic lawn care course was 2 in our first 2012 grant period. We increased outreach and partnership to 4 schools by adding Naugatuck Valley Community College and Connecticut College as our partners and hosts for the courses in the 2013 grant year. We had hoped to bring the total to 5, but we did not generate interest among the other community colleges as we had hoped. We reached out to Gateway Community College, Central Connecticut State University, Quinebaug Valley Community College, and all the remaining of the 12 community colleges.
4. NOFA OLC Program began with 1 website, organiclandcare.net, in which we publicize our courses and offer information to the public. We also have a Facebook page, NOFA Organic Land Care Program, a blogger account and a LinkedIn group. We added a twitter account, @NOFAOLC in order to reach a new, younger audience. Between November and March, we tweeted about the organic lawn care course in order to reach this new audience. Also, our contractor Bernadette Giblin recorded many of the conference calls and made them podcasts which gave us another tool. Link to podcast is <http://safegroundlandcare.com/feed/>. These additional social media tools brought us from 4 to 6 websites/ social media tools, surpassing our goal of 5.
5. For both grant cycles, Judy Preston from Long Island Sound Study, a governmental entity consisting of a bi-state partnership between Connecticut and New York, has participated in creating the curriculum and teaching at the Organic Lawn Care Certificate Course. Thus, we have one governmental entity participating in our course.
6. NOFA OLC reached 59 students in our first grant cycle 2012 and we set our sights on an additional 60 students to bring us to a total of 119 students reached and served by this course. We surpassed our goal and had an additional 100 students at our 2 courses for 2013 funding cycle which brings us to 159 students reached in total.
7. In estimating the number of people with changed behavior, we look towards our survey data from 8 individuals (16% of total student population) who both filled out the "Day 1 Baseline Survey" and the "3 month follow-up survey" which we used to measure change. 63% of those students on average reported changes in increased knowledge about fertilization practices, using soil tests prior to fertilization and improving soil test and pH interpretation. Thus we will infer that out of 100 new students, 63 of them experienced change. We then add 63 to our 59 students who previously had experienced change to equal 122 students experiencing change.
8. 500 total educational signs were handed out to students of our course, an average of 4 to 5 signs per student. The signs were printed with funds from the 2012 grant cycle.
9. 1500 people have knowledge about organic lawn care practices, what they are and why they are important. It is impossible to describe these individuals without explaining that NOFA OLC Program partners with many groups in the Northeast region of the United States. NOFA also partners with many Connecticut-based conservation groups like Rivers Alliance, Project Greenlawn, Toxics Action Center, Connecticut Safe Grounds Coalition, Naugatuck Valley Community College, Three Rivers Community College and many more. NOFA OLC is a leader in providing these groups with information on organic land care and specifically lawn care best practices which are disseminated among the hundreds of members in these groups. In addition, 200 NOFA Organic Lawn Care Guide Books have been sold to people who attend NOFA courses or learn about our programs online.

Outcomes

- Describe and quantify progress towards achieving the project outcomes described in your grant agreement. (Quantify using the approved metrics referenced in your grant agreement or by using more relevant metrics not included in the application.)

CT NOFA and the NOFA Organic Land Care Program have been very happy with the results of this project, "Continuing the NOFA Organic Land Care Certificate." We surpassed our goal of 30 students per class with nearly 50 students per class. Our last course at Connecticut College was a packed room with many people who had never attended our courses before - meaning we reached a new crowd of landscapers as we had hoped. Although not as many colleges participated in our courses, both Connecticut College and Naugatuck Valley Community College were extremely engaged in the courses and offered help promoting and organizing the courses which demonstrated their commitment to the cause.

A more specific project goal was to train more Connecticut landscapers to provide organic lawn care services in the Long Island Sound Watershed area, thus leading to less non-point source pollution in the Sound. Out of 100 students: 71 students were from Connecticut, 15 were from Massachusetts, 5 were from

New York, 3 were from Pennsylvania, 1 was from Vermont, 2 from Rhode Island, 1 from New Jersey and 1 was from Ohio. 1 student even came from North Carolina! While our marketing targeted Connecticut residents, many folks learned about this course by doing a Google search for "organic lawn care" and were willing to drive from other states to gain this information.

Another goal of the program was to create a new section, "Marketing and Messaging," in order to provide lawn care providers with the knowledge to effectively communicate with customers about the environmental connection between lawn care practices and the health of the Long Island Sound. This section built upon Judy Preston's section "Surf and Turf" which details the environmental state of the Long Island Sound, yet offered additional advice for the lawn care service provider to position themselves and the environmentally-friendly option for lawn care in their community. The course offered students the following learning objectives:

1. Demonstrate your knowledge of the 5 Ps of a Marketing Plan
2. Identify yourself as an expert in your niche market
3. Communicate the human and ecological health benefits to consumers
4. Develop a message in collaboration with organizations that share your mission
5. Use social marketing platforms to reach more people

Lastly, we recorded this section online and released it on YouTube for free, allowing students to watch it again or new students to gather this information for free. This video can be found here:

<https://www.youtube.com/watch?v=GofNwsU9f7o>

Another important project goal was educating lawn care providers so they would reduce their applications of nitrogen and phosphorous. According to our survey data taken three months after students attended the course, 63% of the survey sample reported that they *strongly agreed* that they were confident with it comes to knowing how much nitrogen and phosphorus that which they apply on their clients properties, whereas the 63% of respondents had answered that they *somewhat agreed* they were confident on the morning of the lawn course. This is significant because our most important finding from our previous survey data analysis told us that lawn care providers did not know how much they were applying and had difficulties when calculating fertilizer applications, which could easily lead to over-application.

The last goal was to replicate this course so that more students in Connecticut and beyond could learn this valuable information which would lead to water quality improvements in the Long Island Sound, its tributaries and ground water as well. We are thrilled to see this course offered online so that anyone can participate from their home or office and study organic lawn care.

- Briefly explain discrepancies between what actually happened compared to what was anticipated to happen.
 1. Although we offered incentives for students to reply to our surveys, we still had a great deal of difficulty getting students to respond. We did not anticipate this difficulty.
 2. When we realized that students were not responding to our follow up emails sent prior to the survey requests, we changed our plan from offering students one-on-one coaching to opening up the phone lines and hosting conference calls, many of which were recorded and turned into podcasts which are available today. Each student from all four lawn courses was sent an email announcement with details of 12 conference calls being offered with different speakers and topics. There was always an opportunity to ask questions at the end of the call.
 3. When the opportunity arose to provide crucial information regarding nutrient analysis and reading fertilizer bags successfully, we used the funds for creating door-hanger advertisements to print 400 copies of the 4-page Organic Fertilizer Fact Sheet and to mail them to all 159 lawn care students.
- Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.

As we were compiling survey results for LISFF 2012, which involved three surveys per person over six month period of time, we were also in the middle of planning for our Connecticut College lawn course on March 27th. Data analysis showed us that students from past courses were consistently unable to report how much nitrogen and phosphorous they applied, so we were unable to assess a baseline amount of fertilizers being applied by the group. We would also be unable to determine an amount of change after the students received our education and follow up. This discovery led us to create the "Organic Fertilizer Fact Sheet" which is an excellent resource for lawn care providers everywhere to know what organic fertilizers are, how to determine how much to apply, and how to read the ingredients on the bag and determine the amount of

nitrogen and phosphorus contained in that quantity of fertilizer. Organic lawn care experts who were working on this project felt this was an excellent opportunity to gather and disseminate this information. The fact sheet is uploaded into the final report on easygrants.

We had another unexpected opportunity during this grant implementation; John Valente was willing to volunteer and use his statistical knowledge to write a full report on the survey data. John is Bernadette Giblin's husband and he became interested in the data as his wife was working as our main consultant on the project. The report, "Identifying the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices," has allowed us to look at the data with more depth and to come to greater conclusions about the effectiveness of our course and where we can improve on this educational experience.

3. Lessons Learned

Describe the key lessons learned from this project, such as the least and most effective conservation practices or notable aspects of the project's methods, monitoring, or results. How could other conservation organizations adapt their projects to build upon some of these key lessons about what worked best and what did not?

CT NOFA learned a great deal by analyzing the survey results from the first three cohorts of students.

Highlights of the survey analysis include:

1. 69% to 73% of the respondents feel confident that they can reduce synthetic nitrogen, phosphorus, and herbicides while maintaining turf health with organic products
2. 62% of respondents agree that they were able to apply the knowledge they learned from the "Organic Lawn Care Certificate Program"
3. Students reported an 186% increase in organic fertility service demand and a 122 % increase in organic control service demand
4. In more than 48% of the cases, respondents believe that estimating labor costs, estimating profitable organic job quotes, selling competitive services and marketing services to organic resistant customers are the greatest challenges affecting the success of their business
5. Respondents believe they need marketing training that centers on website development, Facebook use, email promotion and press use
6. More than 60% of respondents believe they need skill training in products, best practices, soil testing, calibration rates, site assessment and organic weed and pest control programs

The early finding that students could not easily or accurately report how much nitrogen or phosphorus which they annually apply on properties led us to create an informative 4 page brochure, "Organic Fertilizer Fact Sheet," describing the process for reading fertilizer bag labels and spreading the accurate amount of fertilizer after a soil test.

4. Dissemination

Briefly identify any dissemination of lessons learned or other project results to external audiences, such as the public or other conservation organizations.

1. We shared the full survey report with Vicki Wallace at UCONN Sustainable Turf Program, Miles S. Sax from the Urban Horticulture Institute at Cornell University and with Robert Burg from Long Island Sound Study. This information was also made available on our website.
2. The Organic Fertilizer Fact Sheet was sent to all 159 students electronically and in hard copy by mail as well. A link to the fact sheet was also added to our monthly newsletter and on our website.
3. Chip Osborne brought the fact sheet to Oregon for the Beyond Pesticides annual conference in 2014 and shared this information with the Oregon Tilth Organic Land Care Program.
4. Bernadette Giblin staffed a table at the Toxics Action Center's annual conference in Boston in early 2014, where hundreds of people from conservation organizations attended the event. She spread the word about organic lawn care, about the Long Island Sound Future Fund and this project, and handed out free materials like fact sheets to attendees.
5. Bernadette also recorded the conference calls and made them into podcasts which can be replayed. They can be found on her website safegroundlandcare.com. These are available for free anytime.

5. Project Documents

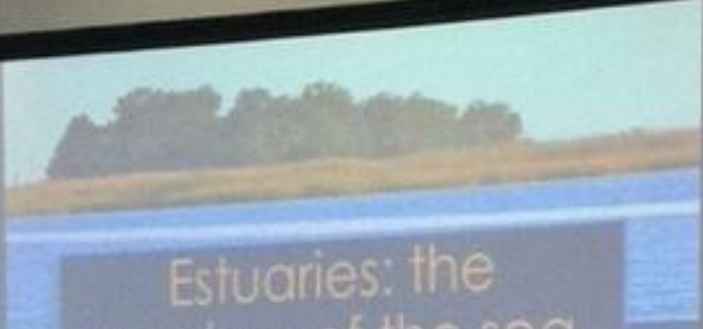
Include in your final programmatic report, via the Uploads section of this task, the following:

Legend for Photos and Documents - project LISFF 39526

Photo name	Who is in photo	description
Conn College Judy teaching	Judy Preston	Judy starts the training with "Surf and Turf" on March 27, 2014 at Connecticut College - New London
Conn College class full	Whole class	Seating filled with 51 people
Chip at Naugatuck	Chip Osborne	Chip is teaching his class at Naugatuck Valley Community College
NOFA Naugatuck	Whole class	July 2013 class -47 people
Documents	authors	
Organic Fertilizer Fact Sheet	Written by Chip Osborne and Bernadette Giblin	Compilation of information on how to read a fertilizer bag label, how to calculate fertilizer applications, and best practices
Survey Report	Written by John Valente, Bernadette Giblin, Jenna Messier	43 page report with analysis from first 3 organic lawn care courses' students

- 2-10 representative photos from the project. Photos need to have a minimum resolution of 300 dpi and must be accompanied with a legend or caption describing the file name and content of the photos;
- report publications, GIS data, brochures, videos, outreach tools, press releases, media coverage;
- any project deliverables per the terms of your grant agreement.

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as "PROTECTED" and provide an explanation and complete citation to the statutory or regulatory source for such protection.*



Estuaries: the gardens of the sea

- A partially enclosed area from which freshwater discharges into a large body of saltwater
- Home to a high concentration of wildlife: estuaries provide 75% of America's commercial fish catch, 80-90% of the recreational fish catch
- Provide valuable services: nurseries, filtration, natural storm buffer, commerce, recreation, nitrogen sink...









This all day course is for you!



CONNECTICUT
COLLEGE



Organic Lawn Care Certificate Course

March 27, 2014, 8:00am – 5:00pm

Connecticut College, Crozier-Williams College Center
270 Mohegan Ave, New London, CT 06320

**Are your clients asking for safe, organic lawn care?
GET CONFIDENT! You CAN grow grass organically!**

As consumer demand increases for organic lawn care, now is the time to improve your skills and reduce toxins in the environment! This one-day course will cover how pesticide and fertilizer runoff harms water quality, how to grow a beautiful lawn organically, and how to market organic services.

Course Curriculum

Connecting Landscaping and Long Island Sound
Soil Basics for Lawn Care
Introduction to Organic Land Care
Fertility and Turfgrass Nutrition
Cultural Practices
Dealing with Pests in Turf
Profits with Organic Lawn Care
Marketing and Messaging

The NOFA Organic Land Care Program is a program of *ctnofa*
*NOFA: the Northeast Organic Farming Association Local and Organic Since 1982

According to the National Gardening Association

- The number of U.S. households using all-natural fertilizers, weed and household insect controls jumped from 5 million in 2004 to 12 million in 2008!
- 17 million additional households said they “definitely will start using all-natural methods in the future.”

Low cost – \$80 per student!

(Textbook included)

Register at:

organiclandcare.net/lawncertificatecourse
email Stephanie@ctnofa.org or
call 203-308-2584

Organic lawns and gardens
keep our water clean!



Learn how to quantify nutrients in a fertilizer bag, decide how much to apply, and correctly spread the amount intended.

Organic Fertilizer Fact Sheet

Specific to granular applications

Why is this important? If fertilizers or pesticides are improperly applied, they can wash off a lawn or garden and directly reach lakes, rivers and the ocean where they can contaminate water. Excess nutrients create algae blooms that suck the oxygen out of the water which can kill wildlife, fish and plants. Excess pesticides can contaminate drinking water and produce negative health effects in humans and wildlife.

Best Practice - An initial Soil Test should precede a fertilizer application and then repeated at 3 year intervals thereafter, unless monitoring deficiencies. Only apply lime if **pH test** indicates it is necessary.

Nitrogen Sources – Fundamental Differences

It is here that we determine whether or not a fertilizer has an organic or synthetic source of nitrogen.

- Some common synthetic nitrogen sources are urea, potassium nitrate, ammonium nitrate.
- Some common organic sources of nitrogen are corn, soy, feather meal, alfalfa, compost, among others (grains or animal byproducts.)

Synthetic nitrogen sources are mostly water soluble and work quickly— on contact with soil moisture. There are some sources that have been reacted in such a way that they become less soluble.

- These water-soluble sources begin to work in 48 hours, most of the nitrogen release is 7 to 10 days after application, and most of the fertilizer is gone roughly 4 to 6 weeks after application.

Organic nitrogen is different. Plant material cannot use nitrogen in the organic form—only in the inorganic forms-nitrate (NO_3^-) or ammonium (NH_4^+). Moisture has little to do with the breakdown—bacterial organisms breakdown and convert the organic N to inorganic in the processes of mineralization and nitrification which require a healthy biomass. **This type of Nitrogen is referred to as Water Insoluble Nitrogen (WIN) This is a winning component of an organic program!**



Nitrogen (N) is used in the largest amount by turfgrass, followed by potassium (K) and then phosphorus (P.)

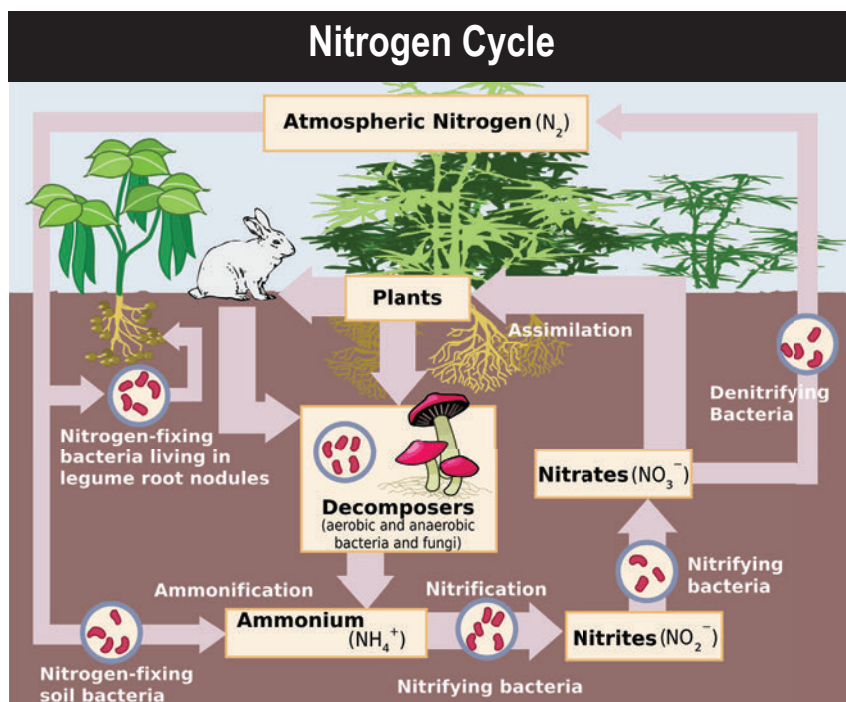
Some of the associations with nutrients and turf grass include:

N - blade growth, reproduction, chlorophyll

P - rooting

K - stress resistance

A soil test determines how much, if any, P or K are needed. It is the assumption that grass will use some nitrogen. **The rate of applied nitrogen will be determined more by expectations as opposed to a soil test.**



Credit: US EPA

Potassium will be available naturally in the soil and increased by adding fertilizer, if needed. **Unless deficient, established lawn and turf should be able to grow with no additional input of phosphorus.**

Reading a Fertilizer Label – Key components

A RATIO is the relative quantities of the nutrients present in the fertilizer. This provides little information about the amount of nutrients in the bag. It is a representation of the relationship between the amounts of N, P, & K.

AN ANALYSIS refers to the percentage by weight of the individual fertilizer nutrients.

EXAMPLE 8-2-6 ORGANIC GRANULAR FERTILIZER BLEND

RATIO: 4-1-3

Analysis:

8%	Nitrogen (N)	expressed on elemental basis
2%	Phosphorus (P)	expressed as P_2O_5 (phosphoric acid)
6%	Potassium (K)	expressed as K_2O (potash)

Step 1: To determine weight of nutrients in a 100 lb. bag, multiply x 100

Step 2: To determine weight of nutrients in a 50 lb. bag, divide answer from Step 1 by 2

Note: P_2O_5 contains 44% Phosphorus
 K_2O contains 83% Potassium

This means that:

For every 1% P (P_2O_5) on the label there is only .22 lbs actual P in the 50 lb. bag

For every 1% K (K_2O) on the label there is only .42 lbs actual K in the 50 lb. bag



Fertilizer Calculations

- It is important to do the right mathematics so that you know how much actual nitrogen and other nutrients are being applied to a given area during the growing season.
- Calculate, don't guess, the area of lawn!

Using the 8-2-6 example: Desired application rate $\frac{3}{4}$ lb N/ 1000 ft.²

A. 8% N = .08

$$.08 \times 100 = 8$$

C. $50/4 = 12.5$ lbs fertilizer to deliver 1 lb N/ 1000 ft.²

$$12.5 \text{ lbs} \times .75 = 9.4 \text{ lbs fertilizer to deliver } \frac{3}{4} \text{ lb N/ 1000 ft.}^2$$

B. 8 lbs N in 100 lbs fertilizer

4 lbs N in 50 lb bag

D. If the lawn is 7,500 ft.² and we want to apply $\frac{3}{4}$ lb N/ 1000 ft.²

$$7.5 \times 9.4 = 70.5 \text{ lbs fertilizer needed}$$

Spreader Calibration (As important as calculations)

Self-calibration of delivery equipment (spreaders) is usually necessary with most organic fertilizers. As opposed to conventional fertilizers, organic fertilizers are made up of a variety of particle sizes that do not lend themselves to the uniformity of spreader settings.

Follow this process for Self-calibration:

1. Measure out 1000 ft.²
2. Calculate the weight of fertilizer necessary to deliver the desired nitrogen/1000 ft.²
3. Put that amount of fertilizer in the spreader
4. Set the spreader setting in the middle
5. Walk the designated area

If there is no fertilizer left in the spreader, you have the right setting.

If you finished and still have fertilizer left in the spreader, you need to open it up wider.

If you delivered all of the fertilizer before covering the area, you need to close the spreader.

Turf Expectations

The quality of grass which you are growing, determined by the use of the turf and the desire of the client. As applied nitrogen levels increase through the application of fertilizers, turf quality and density improve. There is a direct relationship between applied nitrogen and the quality and density of the turf system.



Low level of expectations is met by low nitrogen input and low cost

High level of expectations is met by higher levels of applied nitrogen, and thus higher cost which in turn translates to meeting the higher expectations

Low level of expectations is not bad and high level of expectations is not necessarily good. It is the right expectation for any individual situation. Many times grass is not the appropriate plant or a high level of management might not be appropriate. Realistic expectations should be set based not only on the desired quality of the turf grass system but on environmental concerns as well.

Recommendation Levels	Nitrogen Application	Anticipated Outcomes
Low level	0-1 lb/ 1000 ft. ² /year	Lawn with part of the system inclusive of other species (weeds) or sensitive environments
Moderate level	2/lb/ 1000 ft. ² /year	Lawn managed to 10%-15% weed threshold, yet still aesthetically pleasing
High level	3 lb/ 1000 ft. ² /year	Lawns and turf managed to 5% or less weed threshold, including sports turf and other high profile areas

It should be anticipated that after a transition period, actual applied nitrogen can be reduced. The system will begin to pick up some of the load allowing for a reduction over time.

Recommended rates of application, timing, and procedure

Based on the use of a granular, natural and organic fertilizer

- Soil tests must be taken prior to application and repeated once every three years
- No fertilizer application within 15 feet of waterways
- No fertilizer application to frozen ground or impervious surfaces. Legally, if fertilizer is applied to an impervious surface by accident, it must be cleaned up and applied to the turf or returned to the labeled container
- No fertilizer applications between November 1 and April 1
- Maximum annual input of actual nitrogen should be no more than 3 lbs/ 1000 ft.²/year
- A single fertilizer application should not exceed .75 lbs N/ 1000 ft.²
- A minimum of 75% to 85% of the fertilizer should be WIN (water insoluble nitrogen)
- No fertilizer containing phosphorus can be applied unless a soil test indicates a deficiency
- When phosphorus is applied, a single application may not exceed .25 lbs P/1000 ft.² with an annual maximum input of .5lb/ 1000 ft.²

Co-authored by Chip Osborne and Bernadette Giblin. Edited by Jenna Messier.

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The NOFA Organic Land Care Program is a program of **ctnofa**
*NOFA: the Northeast Organic Farming Association Local and Organic Since 1982

Identifying the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices

A survey of 116 students who attended the one day NOFA Organic Lawn Care Certificate Course



Photo Credit: Todd Harrington



Grant Project: Establishing a NOFA Organic Lawn Care Certificate Program

Grant Funding Source: National Fish and Wildlife Foundation — LI Sound Futures Fund 2012 and 2013

Grant Administrator: Northeast Organic Farming Association of Connecticut — Organic Land Care Program

Grant Participant: Bernadette Giblin NOFA-AOLCP and Founder of Safeground Organic Landcare

Authored By: Bernadette Giblin NOFA-AOLCP and

John Valente, Survey Research and Predictive Analytics Consultant



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Thank you to many of our partners who helped to make the two grant projects so successful. Judy Preston provided inspiration to the development of these projects and taught at all of our courses. Chip Osborne, Diba Khan- Bureau, Frank Crandall, Bernadette Giblin and Tom Barry created content and curriculum for both the course and the NOFA Organic Lawn Care Guide and were excellent teachers. Thank you to John Valente for donating his time on survey design, analysis and technical writing. Three Rivers Community College, Greenwich Audubon, and Naugatuck Valley Community College hosted our events and were generous partners. Lastly, thank you to Long Island Sound Future Fund for supporting the development of these courses and the funding of this important social marketing and education program aimed at protecting the Long Island Sound, one lawn at a time.

Executive Summary

by Jenna Messier, Organic Land Care Program Director

In September of 2012, The Long Island Sound Future Fund (LISFF) selected our project "Establishing an Organic Lawn Care Certificate Course" for funding. The NOFA Organic Land Care Program (NOFA OLC) created a new, introductory one- day course and a textbook in order to provide education for landscapers and lawn care providers so they could offer organic lawn care services. We held three courses in 2013 which 116 students attended and earned a Certificate of Attendance. Each student filled out a survey before the course in order to collect baseline data. We sent out follow-up surveys at 3 and 6 months after their course. When our project "Continuing the NOFA Organic Lawn Care Certificate Course" was accepted by LISFF in 2013, NOFA OLC leveraged the opportunity to work with Bernadette Giblin of Safeground Organic Landcare to use her expertise in analyzing the resulting data, the sum of which is included in this report. John Valente donated his time on survey design, analysis and technical writing.

Highlights of the survey analysis include:

- 69% to 73% of the respondents feel confident that they can reduce synthetic nitrogen, phosphorus, and herbicides while maintaining turf health with organic products
- 62% of respondents agree that they were able to apply the knowledge they learned from the "Organic Lawn Care Certificate Program"
- Students reported a 186% increase in organic fertility service demand and a 122% increase in organic control service demand
- In more than 48% of the cases, respondents believe that estimating labor costs, estimating profitable organic job quotes, selling competitive services and marketing services to organic resistant customers are the greatest challenges affecting the success of their business
- Respondents believe they need marketing training that centers on website development, Facebook use, email promotion and press use
- More than 60% of respondents believe they need skill training in products, best practices, soil testing, calibration rates, site assessment and organic weed and pest control programs

The survey data demonstrates that the Organic Lawn Care Certificate Program was successful in educating lawn care providers and changing their behavior towards reducing nitrogen and phosphorus applications and adopting other organic practices. In addition, customers' requests for organic lawn care services increased dramatically which shows substantial change in consumer behavior. In the end, the survey analysis showed the areas which the students feel they are lacking, thus mapping out future courses and curriculum for the NOFA OLC Program and other educators. With the majority of lawn care providers being small businesses grossing under \$100,000 per year, most of them are struggling with marketing their businesses in a digital world. The survey analysis also showed the areas of expertise the lawn care providers are lacking.

CT NOFA and its NOFA Organic Land Care Program are very proud of the training which we have provided and the change which has been witnessed and recorded by the students themselves, thus protecting the Long Island Sound and fresh water resources in the watershed.

Introduction

The goal of this survey is to gather information from students who attended the three NOFA Organic Lawn Care Certificate Courses which will identify the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices. In addition, this study will attempt to measure a 35% reduction in the use of synthetic nitrogen and phosphorus. This is the fourth and final survey conducted by the Northeast Organic Farming Association of Connecticut's (CT NOFA) NOFA Organic Land Care Program (NOFA OLC) of students who participated in the Long Island Sound Future Fund's project "Establishing an Organic Lawn Care Certificate Course." Survey results will be used to improve the effectiveness of organic land care education and this course in the future.

Survey Design

Population sampled: 116

Sample method: Email with automatic response using Survey Monkey

Response Rate: 28 respondents

Lawn Course Student Response (not Accredited Organic Land Care Professionals or AOLCP): 17

NOFA AOLCPs who also attended lawn course: 11

Stratification: With the exception of the demographic section, survey analysis and responses are for those respondents who participated in the NOFA Organic Lawn Certificate Course *only*, and did not include AOLCPs who also attended the lawn course

Random Response: There appears to be no pattern of respondent characteristics which would bias results

Sample Efficacy: 24% response exceeds 10% the standard for survey efficacy

Sample Limits: Although response rate provides statistical significance, the limited number of 28 respondents tends to make the data somewhat suggestive as opposed to conclusive.

Number of Questions: 22 questions providing a mixture of attitudinal, behavioral, knowledge and professional characteristic responses

Degree of survey completeness: 100% of survey participants responded to more than 90% of the questions

Survey design intent: To measure changes in attitudinal, behavioral, knowledge variables as a direct result of attending the one- day 2013 "Organic Lawn Care Certificate Program"

Survey Testing and Review: The survey was tested and reviewed for both completeness by Chip Osborne AOLCP, Bernadette Giblin AOLCP and Jenna Messier of NOFA OLC Program Director

Survey Measures: Response data indicated that the questions used reflected the accuracy, validity and reliability of the survey design

Summary of Findings

Cited below is a summary of findings as the result of this survey. All charts and pertinent data which support the analysis follow the summary of findings.

Sample Population Characteristics

- At least 48% of the respondents consider themselves as either self employed or a business owner
- 45% of the respondents have over 10 years of experience, yet 33% have either no experience or less than 5 years of experience
- More than 80% of the respondents learned on the job or were self taught
- 39% have earned NOFA Accreditation from NOFA OLC program prior to this lawn course
- Less than 24% have received any other kind of certification or training.
- 60% of the respondents have a small customer base of 1-50 clients, while 36% have 200 or less customers
- 60% of the respondents gross less than \$100,000/year
- 80% of the respondents make a 1-20% profit, while 15% experience a 1-20% financial loss.
- 67% of the respondents prefer to be contacted via email

Respondent Attitudes and Perspective

- 85% of all respondents believe that they do not have all the organic training they need to be successful
- Respondents were evenly split in their confidence about how much nitrogen and phosphorus to put down
- Roughly 54% of respondents are confident to go to organiclandcare.net when they are uncertain about products and/or methods
- 85% of respondents say they always use a soil test
- 88% of respondents strongly agree that an organic accreditation is important to their career
- 62% of respondents agree that they were able to apply the knowledge they learned from the one- day 2013 “Organic Lawn Care Certificate Program”
- 85% of respondents agree that they could teach others organic services
- 65% of respondents agree that they can now feel successful at organic lawn and landscaping
- 69% to 73% of the respondents feel confident that they can reduce synthetic nitrogen, phosphorus, and herbicides while maintaining turf health with organic products
- 38% of the respondents are unsure whether they can manage pests and weeds using organic controls
- 50% of the respondents believe they are effective competing with conventional lawn contractors

Change in degree of land care services and organic land care behaviors after the 2013 class

- 25% of existing respondent's customers switched from a synthetic to an organic program from 2012 to 2013
- 41% of new respondent's customers chose an organic versus synthetic program in 2013
- There was a 5-9.5% decline in mowing, garden work, tree care, and landscape design/construction activities declined from 2012 to 2013
- There was a 186% increase in organic fertility service demand and a 122% increase in organic control service demand.
- 83% reduction in the use of synthetic pesticides and fertilizers, 27% increase in the use of calcitic limestone and a 67% increase in nematodes use
- 81% of all respondents use organic fertility products and 39% of respondents use synthetic fertility products
- More than 54% of all respondents use compost tea or compost
- 58% used organic control products
- 50% of respondents direct their prospective clients to the NOFA OLC website and Facebook page
- 88% inform prospective customers about the health benefits of using organic fertility products
- 46% communicate to customers the benefit of organic lawn practices that are influential in the reduction of non-source pollution in Long Island Sound

Customer Attitudes

- Environmental concerns as well as human and pet health issues, rank as the most important factor which affected their decision to use an organic program
- Affordability, lawn beauty and water quality were evenly split as determining factors trailed behind environmental concerns and human and pet health

Respondent's perceived barriers

- In more than 48% of the cases, respondents believe that estimating labor costs, estimating profitable organic job quotes, selling competitive services and marketing services to organic resistant customers are the greatest challenges affecting the success of their business

Respondent's need for training

- Respondents believe they need marketing training that centers on website development, Facebook use, email promotion and press use
- More than 60% of respondents believe they need skill training in products, best practices, soil testing, calibration rates, site assessment and organic weed and pest control programs

Respondent's level of skill confidence and skill accuracy

Confidence

- More than 65% of all respondents are confident in the following skill areas: determining the amount of synthetic nitrogen, organic nitrogen and phosphorus they applied this past year.
- More than 77% of the respondents are also confident in the following skill areas: soil testing, interpretation of soil test results, and determine the best treatment using pH levels

Skill accuracy

- Generally respondents were split deciding the following knowledge/skills: compost top dressing, mowing height, national standards for compost quality, and the appropriate use of calcitic lime
- More than 95% of all respondents demonstrated accurate knowledge of the appropriate pH level for cool season grasses, the affect of soil acidity, and for use of phosphorus near a body of water

General comments:

Meeting the measurement goal prescribed by this study and grant

Clearly the survey strongly suggests that there has been a direct correlation of the impact of the NOFA Organic Lawn Care Certificate Course and changes in contractor behavior, attitudes, and knowledge. While imparting information of an organic lawn approach, students gained confidence in their abilities and affected a reduction of synthetic nitrogen and phosphorus. From 2012 to 2013, (or from before and after taking the one day NOFA class) there was a 41% increase in adoption of an organic approach among the respondent's new customers while 25% of the respondents' existing customers switched from synthetic nitrogen and phosphorus to organic applications. At the same time there was a significant increase in the frequency of organic fertility and control programs. All of these behaviors were coupled by a resounding shift in attitude demonstrated by the respondent's belief that they could be successful in business using an organic program. Earlier surveys attempted to measure the amount of reduced synthetic nitrogen and phosphorus. Since students were not entirely skilled in describing their application amounts, any sort of reduction measurements were specious. Given this lesson learned, this survey measured change in behavior over time of students who had a significant amount of existing and new customers adopt an organic lawn care approach. Although not a clear measurement of synthetic nitrogen and phosphorus reduction, it nonetheless strongly suggests a reduction. Furthermore, since the survey looked at pre and post NOFA class behaviors, the change in customer lawn care programs and services are highly correlated with the NOFA Organic Lawn Care Certificate Course.

Future education direction and suggestive conclusions

Respondent's clearly indicated that they need future education in estimating labor costs, estimating profitable organic job quotes, selling competitive services and marketing services to organic resistant customers. They also believe they need marketing training that centers on website development, Facebook use, email promotion and press use. In addition, respondents believe they continue to need skill training in organic products, best practices, soil testing, calibration rates, site assessment and organic weed and pest control programs. The study also indicates that they are uncertain in the areas of compost top dressing, mowing height, national standards for compost quality, and the use of calcitic lime. There are topics that the respondents seemingly had no knowledge of, such as, quick lime, and WIN products, which could have been lack of knowledge in product terminology. Finally, it's important to stress that respondents are not fully aware of, confident in and/or fully capable in application rates, metrics or measurements.

Contrary responses

It is not unusual for survey results to vary within a survey. Sometimes results maybe tainted by question interpretation, inconsistent logic or the desire of the respondent to pick the answer he/she thinks is right. Survey design often protects against these variations by asking similar questions in different places within the survey. For the most part these variations produce results that really do not alter the outcome of the survey. In the case of inconsistent logic a respondent will cite great confidence in a skill in one question while indicating a strong desire for training on that skill in another question.

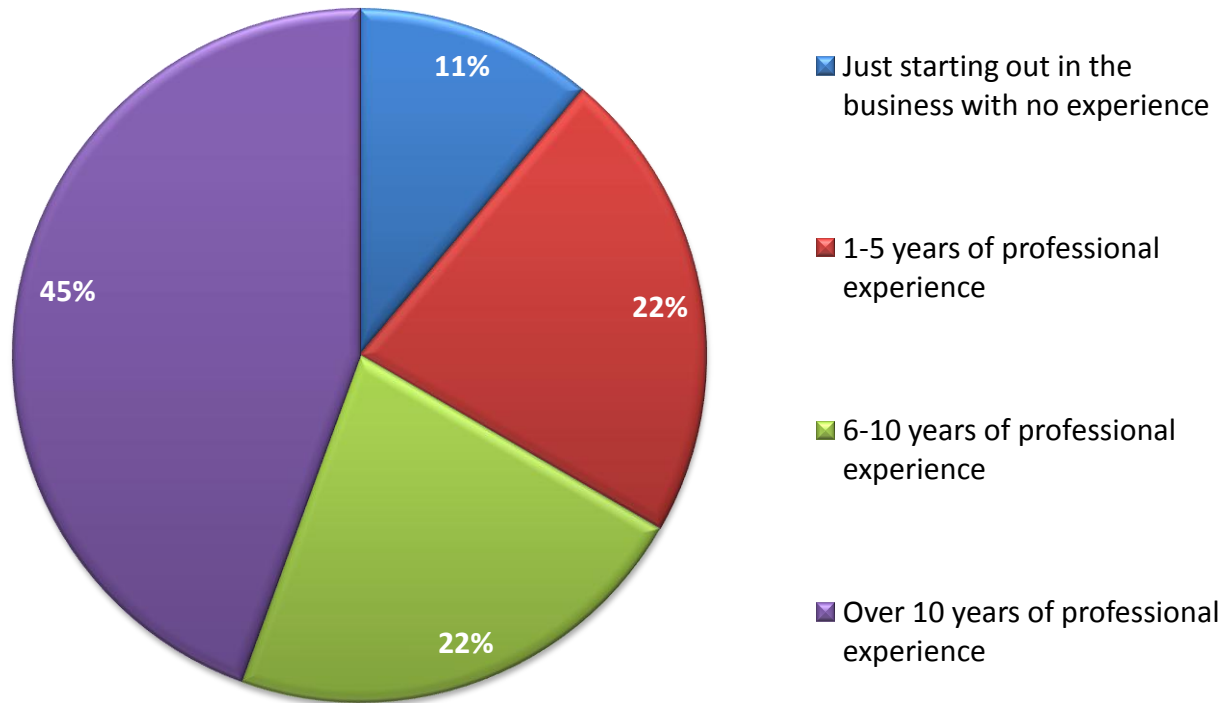
This survey had a few examples of contrary response by inconsistent logic that should be noted:

- While students professed that they need more skill training, response data also suggests they believe they could teach classes in these methods
- While students indicated that they all do soil testing and say they know how to read results, responses also show the desire for more training in soil testing
- While students indicated that they are confident in organic applications, they say they are uncertain how to calculate appropriate application rates

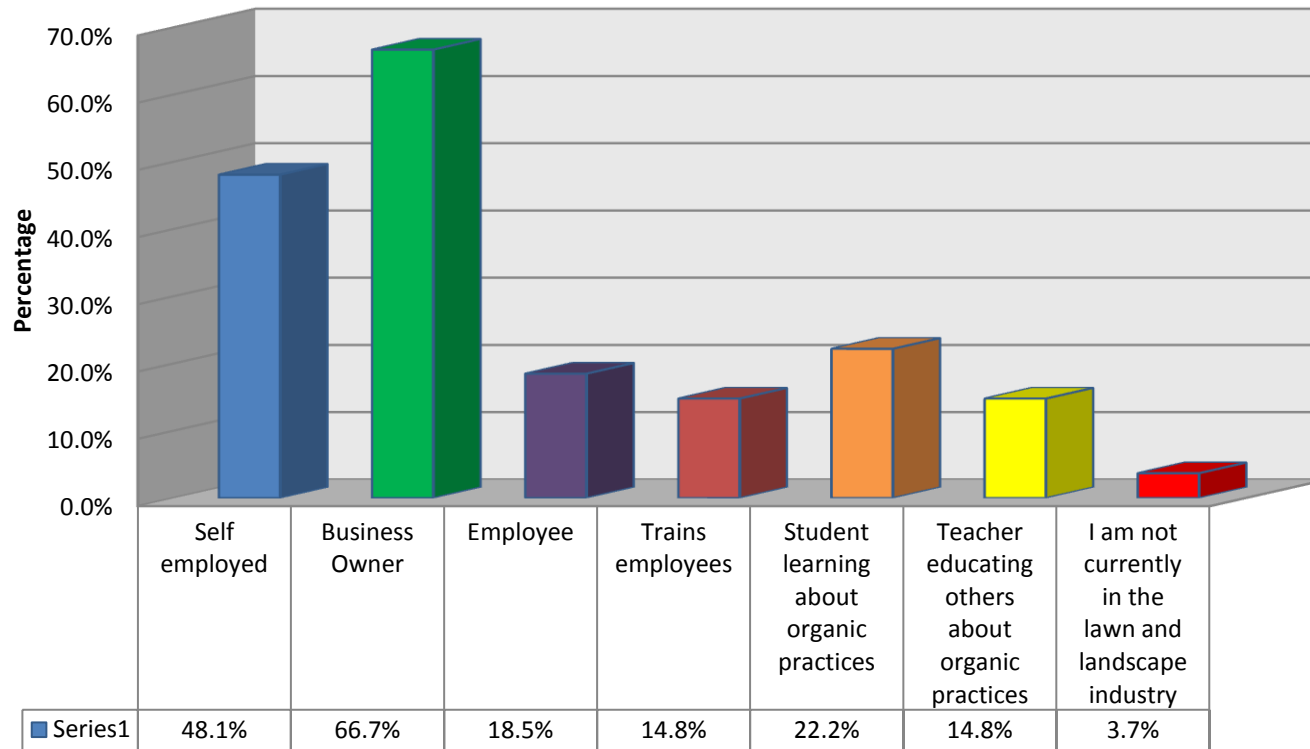
Finally, although not empirically tested, there does seem to be a tendency to know the correct answer yet not to be able to translate that answer into an application of that knowledge. Although data in this study is suggestive, it appears that a need exists for development of education and training which incorporate a practical application of such knowledge.

The charts, graphs, raw survey data and survey research methods from which the above findings are based are attached.

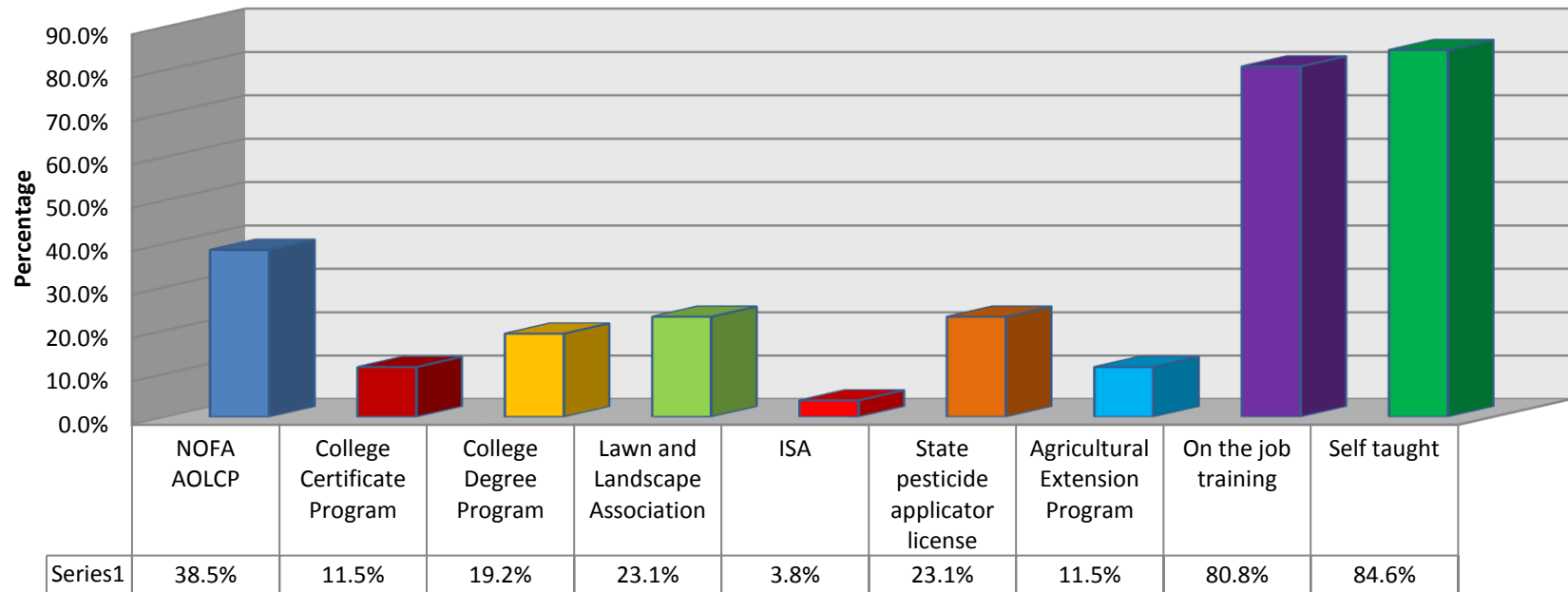
Level of experience in lawn and landscape industry



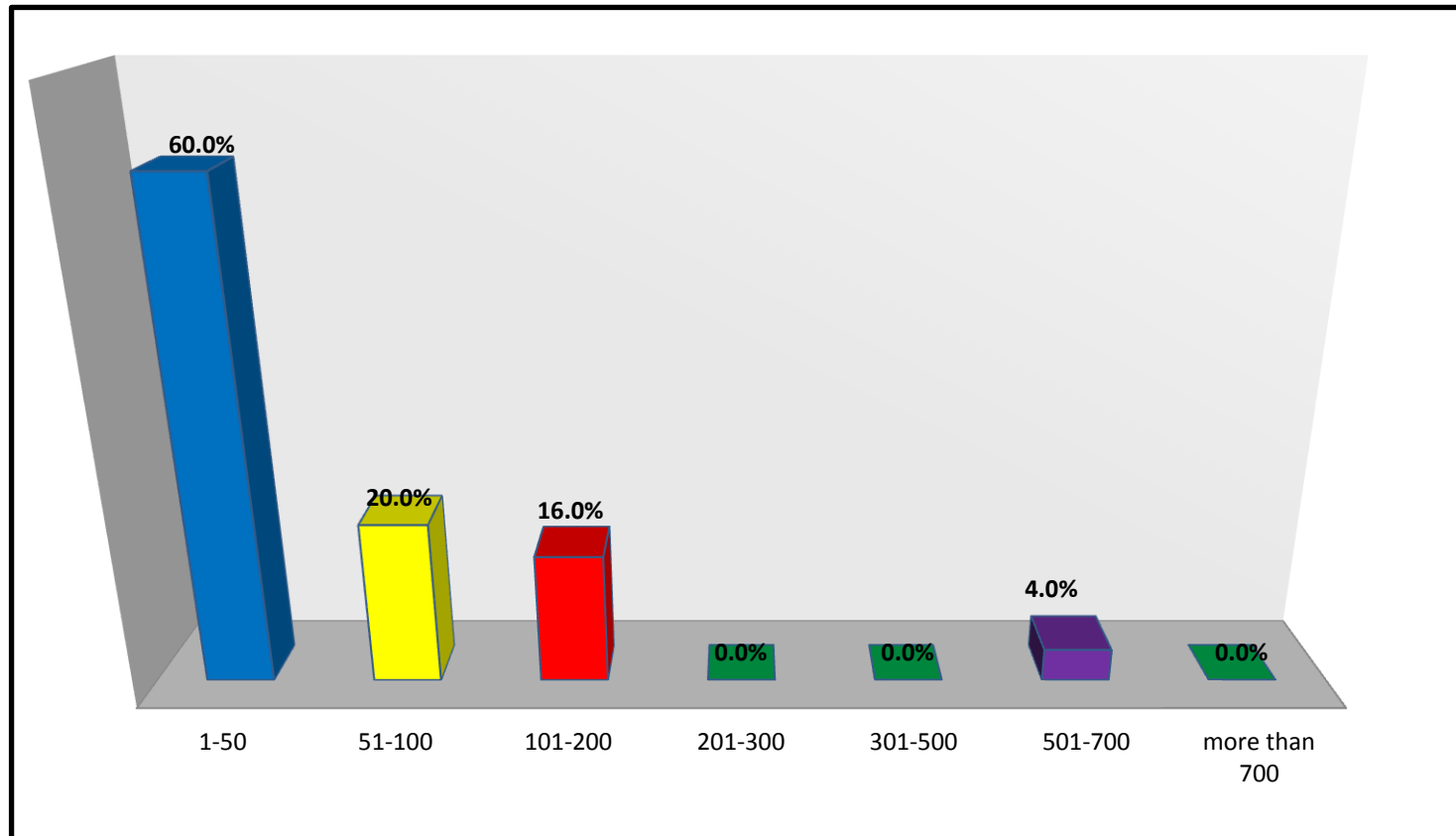
Description of Respondents



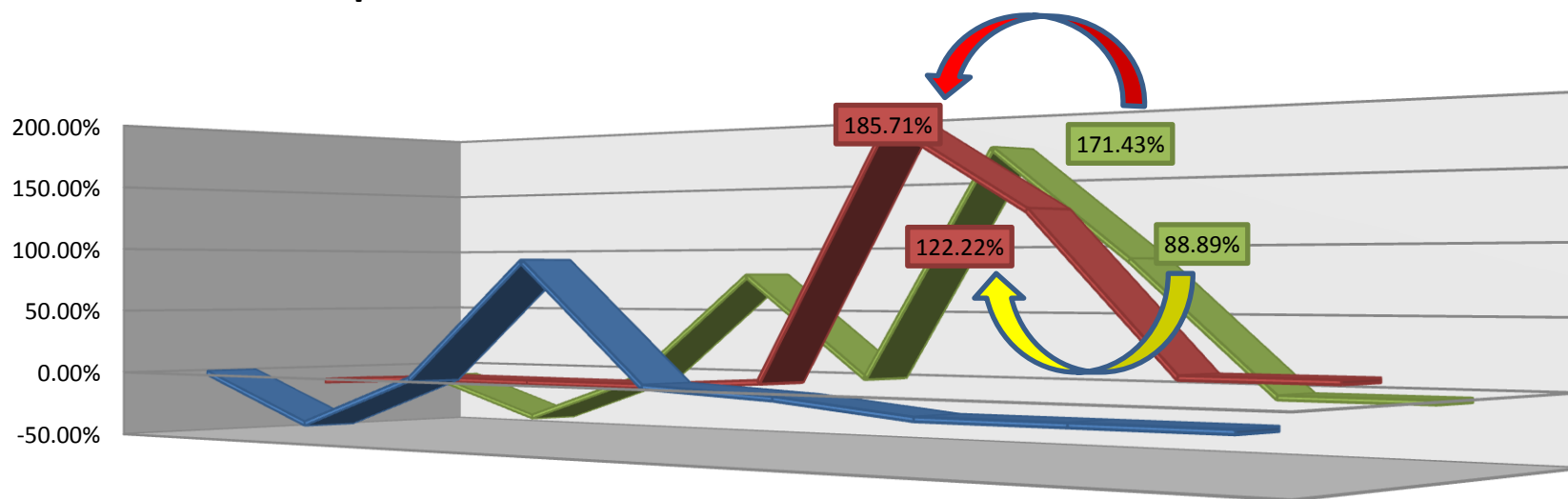
Horticultural Education, Certifications, Licenses, Degrees of Respondents



Size of Respondent's Customer Base

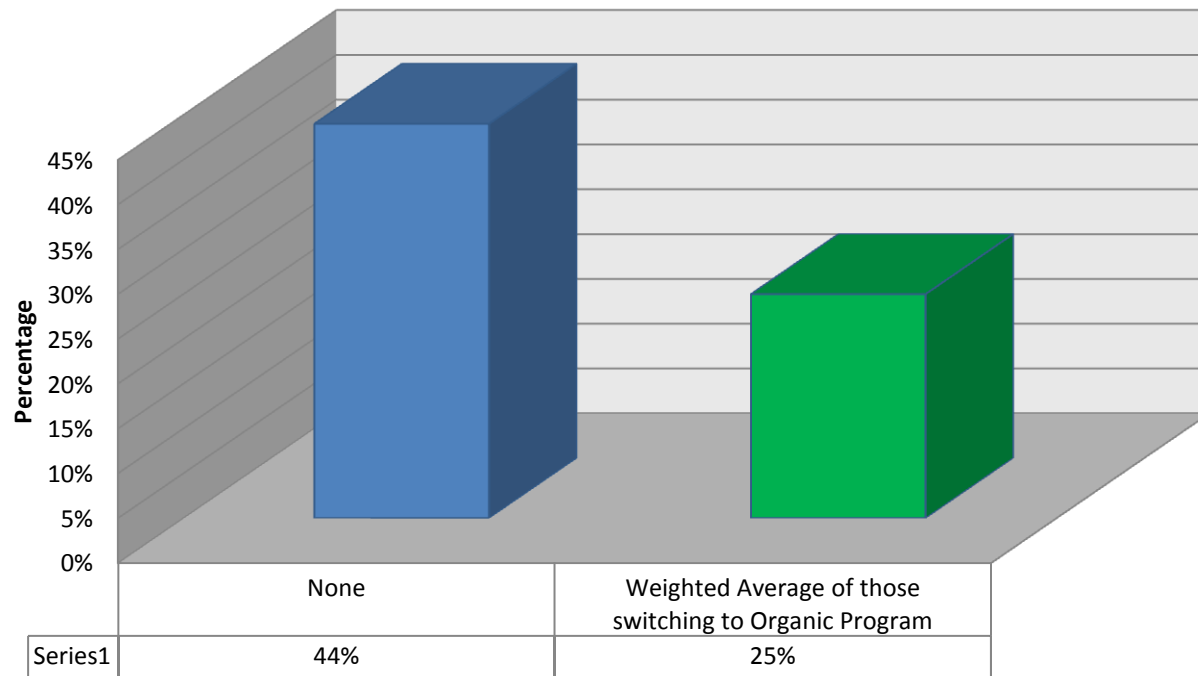


Median Percent Change in Frequency of Services Comparison of Prior Seasons, 2012 Season and 2013 Season

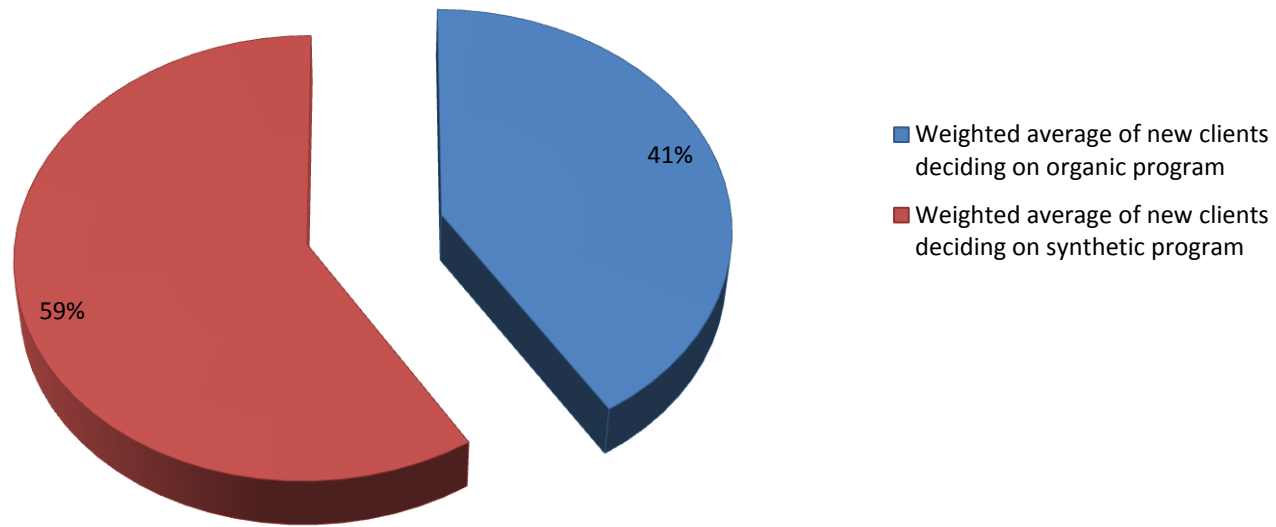


	Lawn mowing	Gardens	Tree care	Landscape design and construction	Landscape irrigation	Organic fertility programs	Organic control program for weeds and pests	Synthetic fertility programs	Synthetic control program for weed and pests
Delta Median (Prior- 2012)	0.00%	-37.04%	0.00%	88.24%	0.00%	-5.00%	-15.00%	-15.00%	-15.00%
Delta Median (2012- 2013)	-9.52%	-5.26%	-5.56%	-5.56%	0.00%	185.71%	122.22%	11.11%	11.11%
Delta Median (Prior- 2013)	-9.52%	-40.35%	-5.56%	77.78%	0.00%	171.43%	88.89%	-5.56%	-5.56%

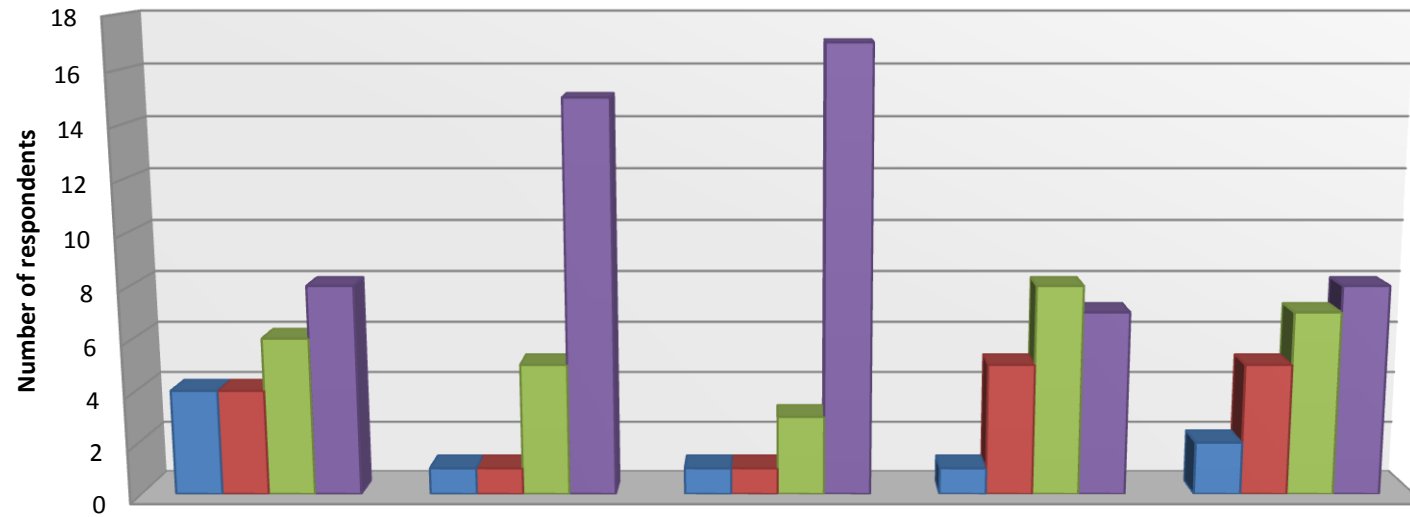
Percentage of existing customers switching from Synthetic to Organic Program (2012-2013)



Percentage New 2013 customers choosing an Organic versus Synthetic Program

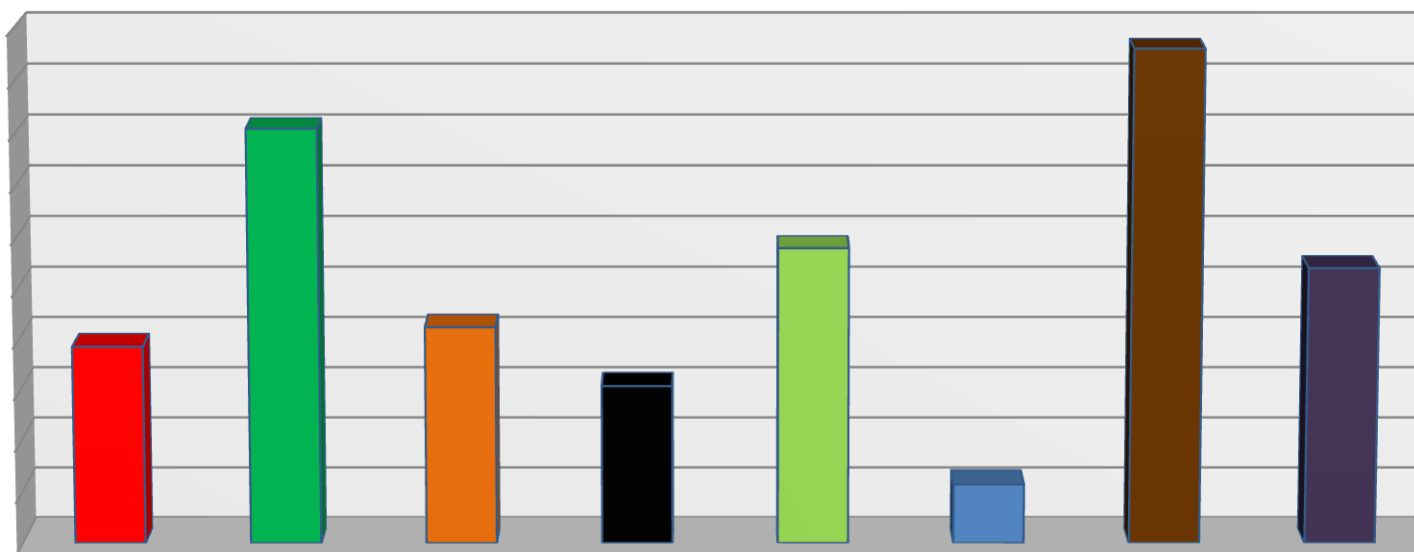


Factors affecting customer decision to use an organic program

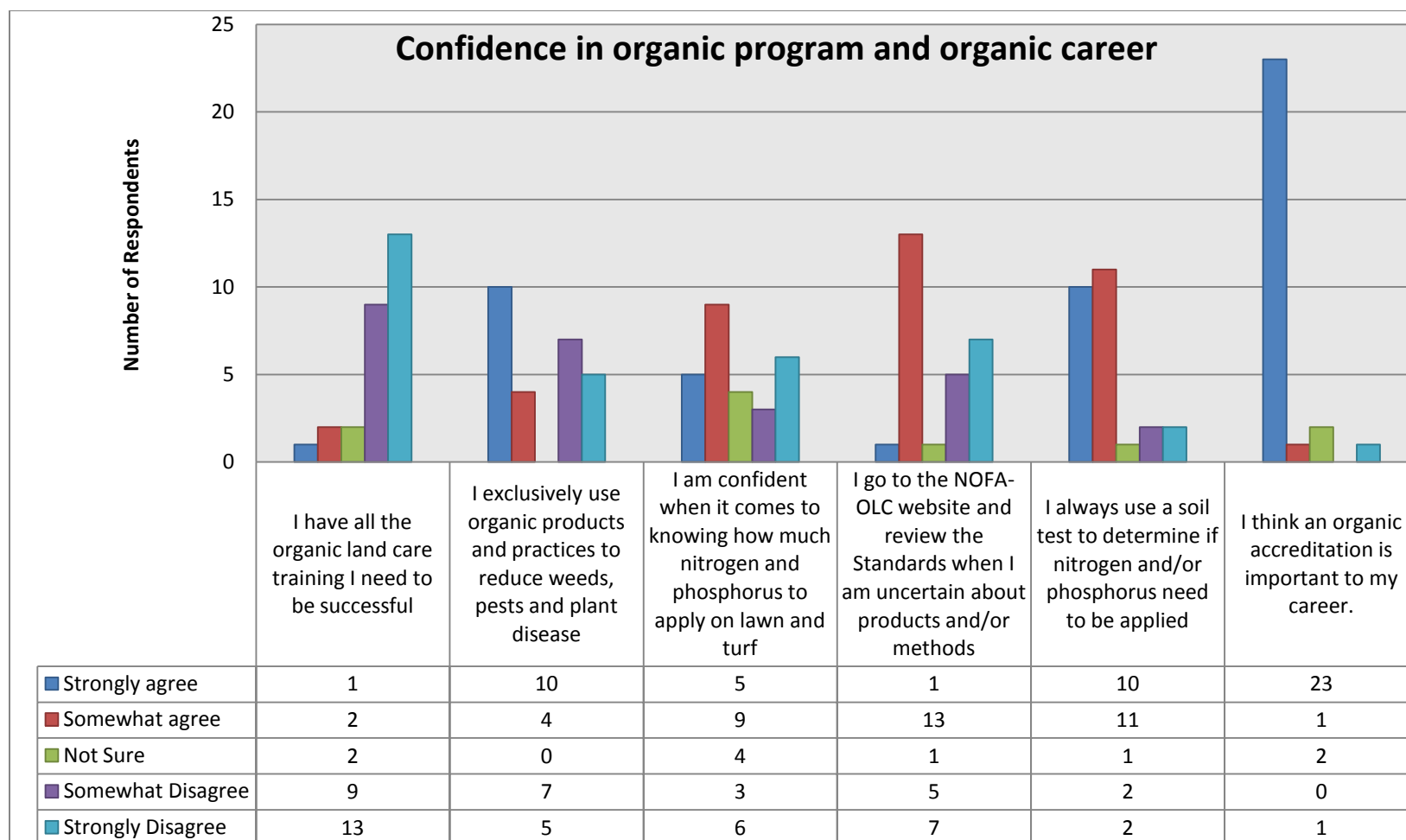


	affordability	environmental concerns	human and pet health	lawn beauty	water quality
Not at all important	4	1	1	1	2
Less important	4	1	1	5	5
Somewhat important	6	5	3	8	7
Very important	8	15	17	7	8

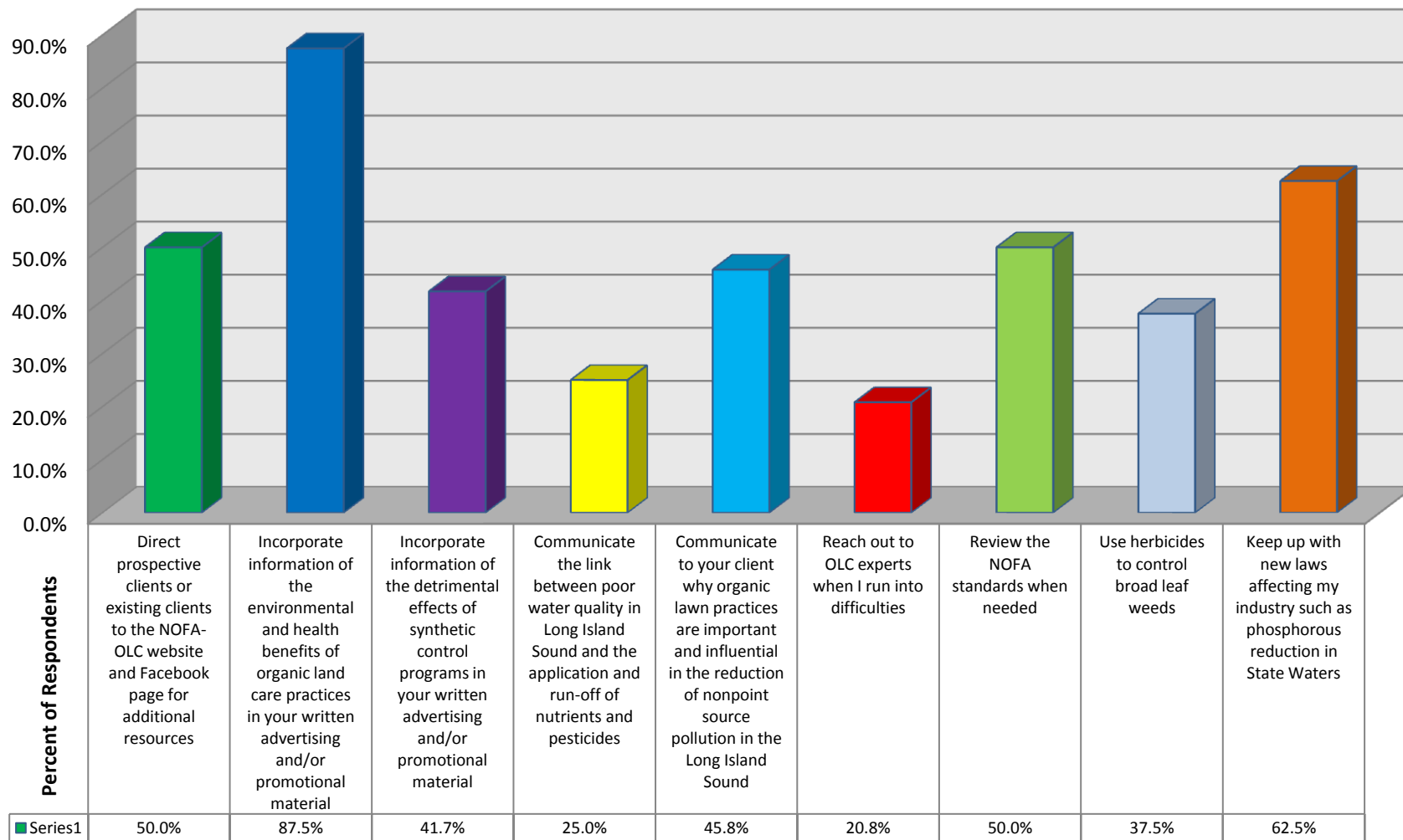
Products used by Respondents



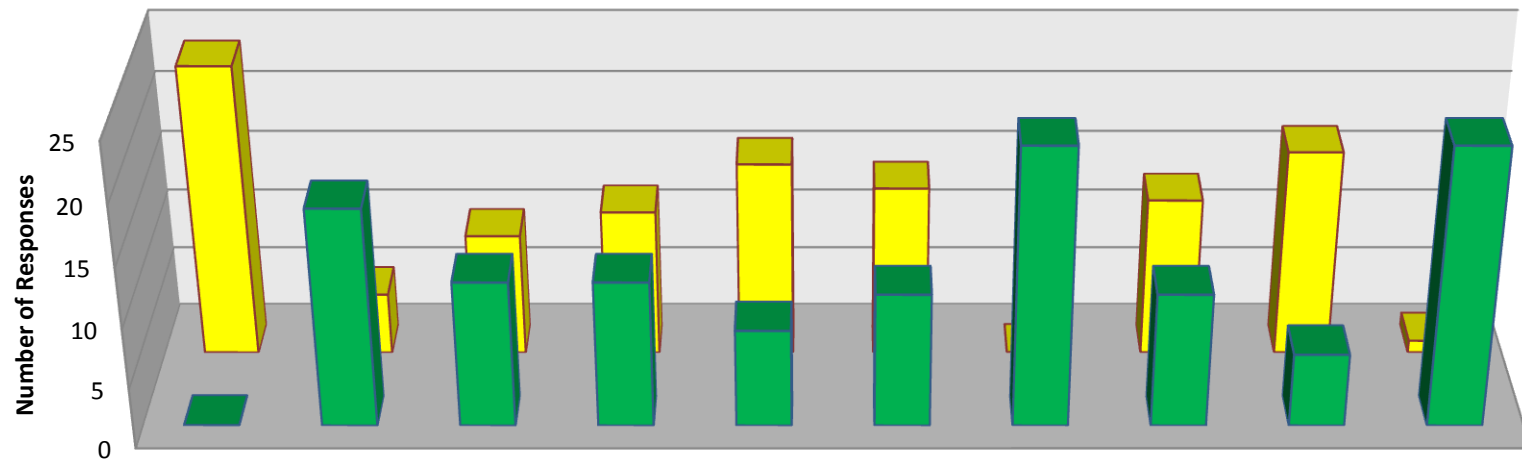
	synthetic fertility product	organic fertility product	herbicides	insecticides	organic control products	EPA 25b exempt products	compost	compost tea
Series1	38.5%	80.8%	42.3%	30.8%	57.7%	11.5%	96.2%	53.8%



Organic business procedures

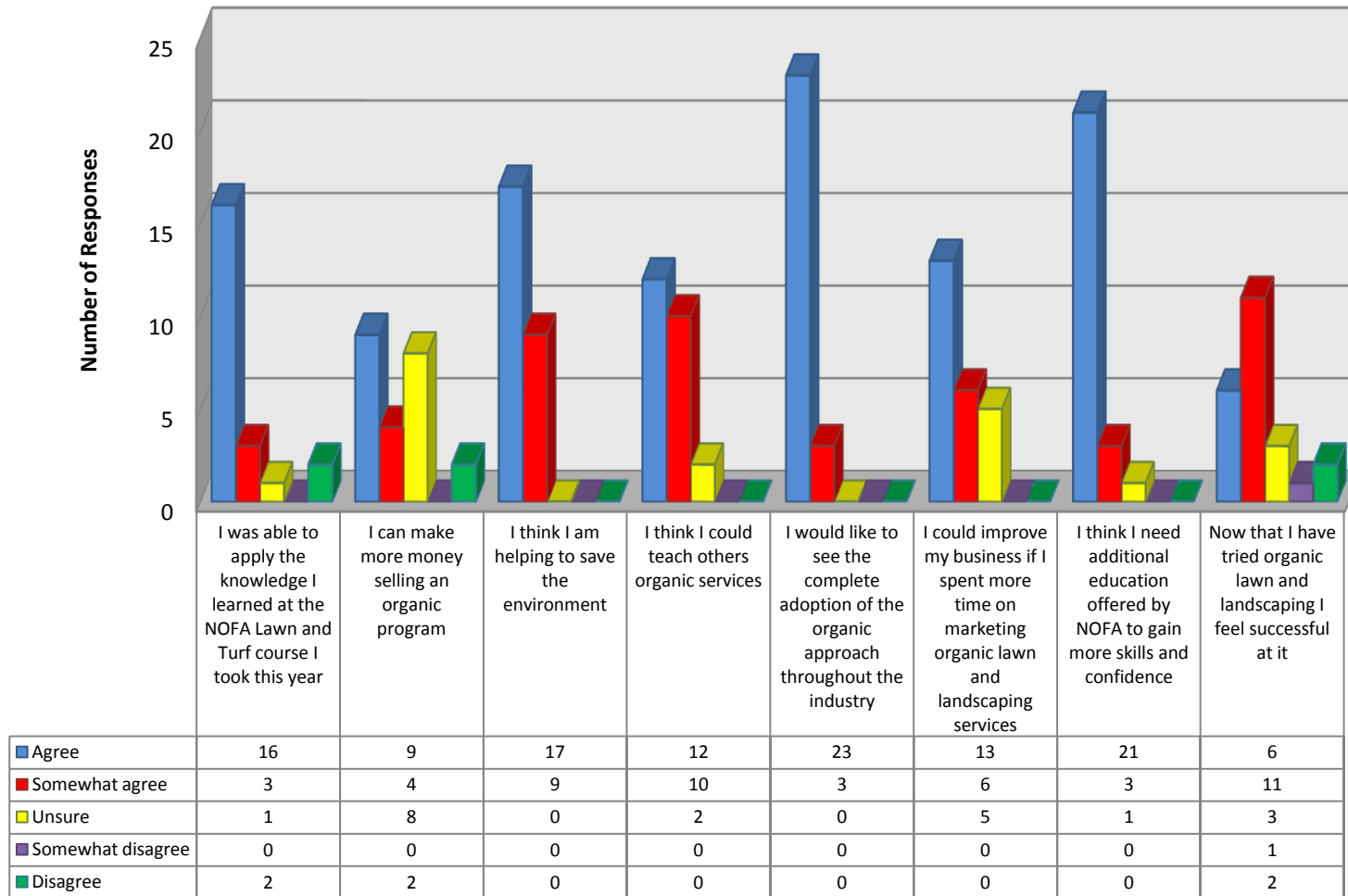


Knowledge of NOFA's Organic Lawn Best Practices

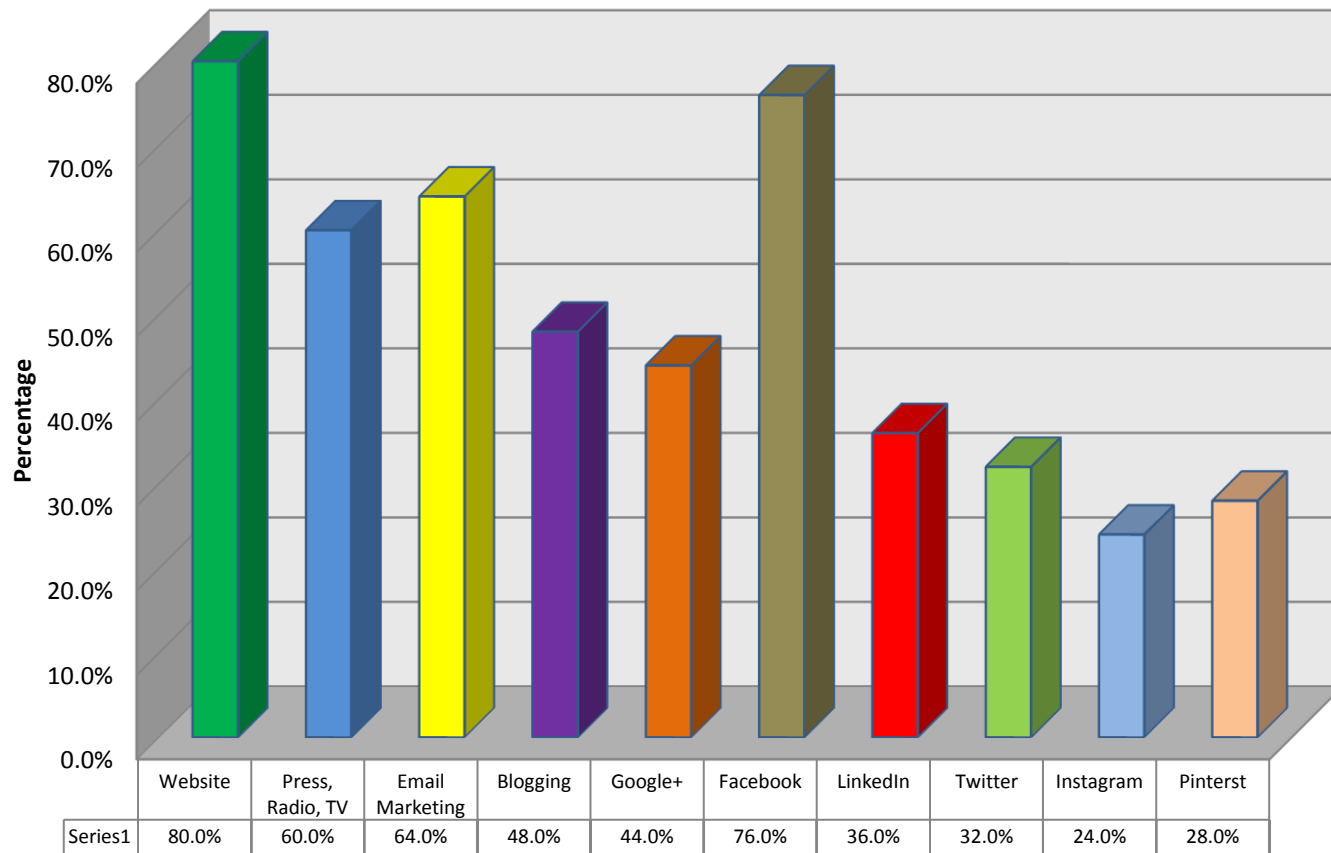


	Cool season grasses thrive in 9.5 to 10 pH	Soil acidity is probably the single most important factor affecting the chemistry and biology of the soil	If Ca (Calcium) levels are low you should use Calclitic lime	There is a national criteria and/or standard for compost quality	Fertilizers containing 10% N (Nitrogen) are a part of an organic lawn program	Compost top dressing can be as high as 1"	One goal of organic lawn and turf care is nutrient cycling	Mowing should never be lower than 3"	Watering lawns during summer drought places undue stress on the grass plants	Any fertilizers containing phosphorus should not be applied to any portion of lawn located 20 feet or less from any body of water
■ Agree	0	18	12	12	8	11	23	11	6	23
■ Disagree	24	5	10	12	16	14	0	13	17	1

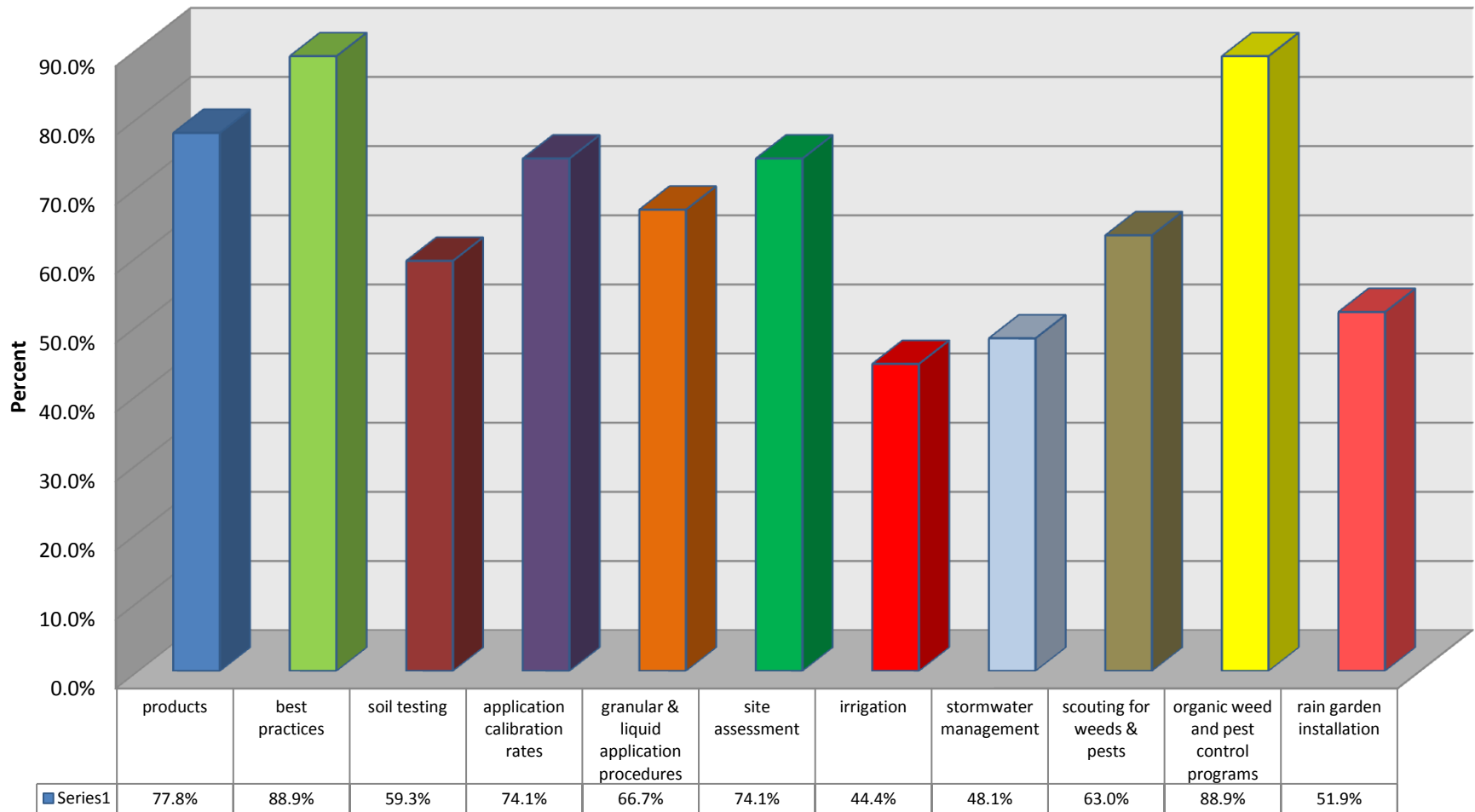
Organic program perspectives



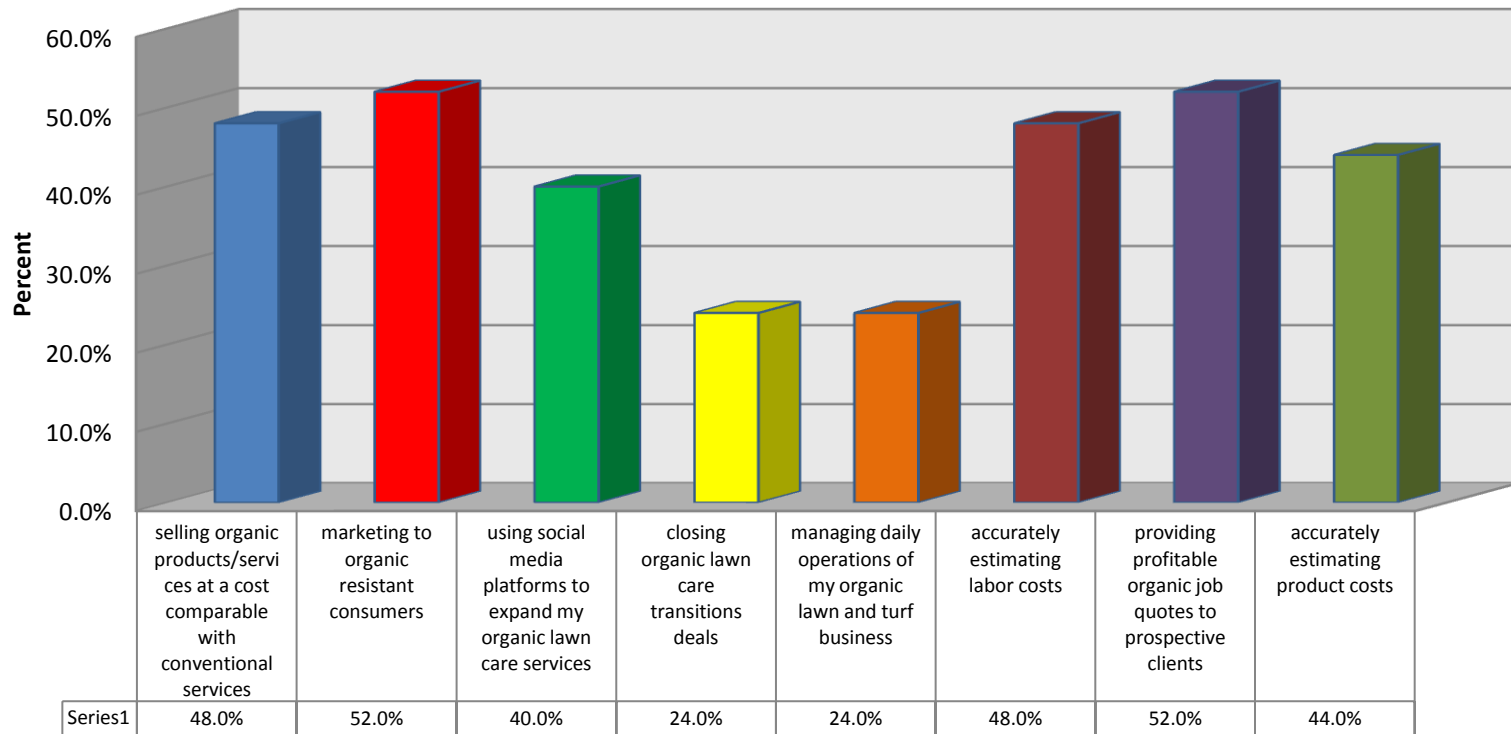
Interest in marketing training



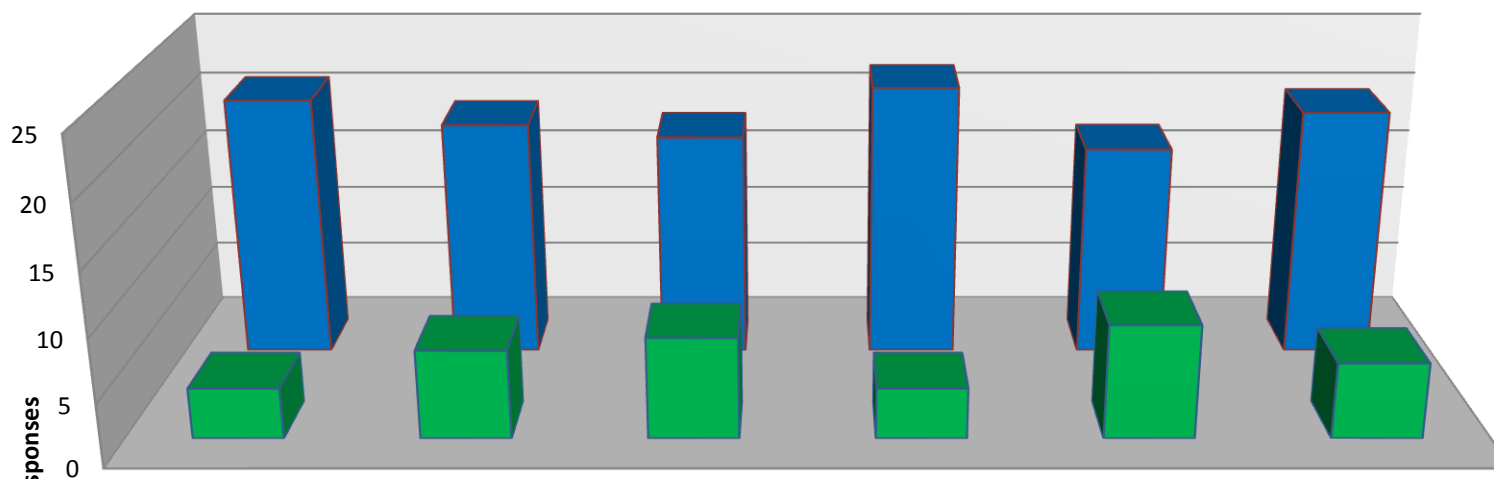
Interest in skill training



Day to day challenges that hinder success

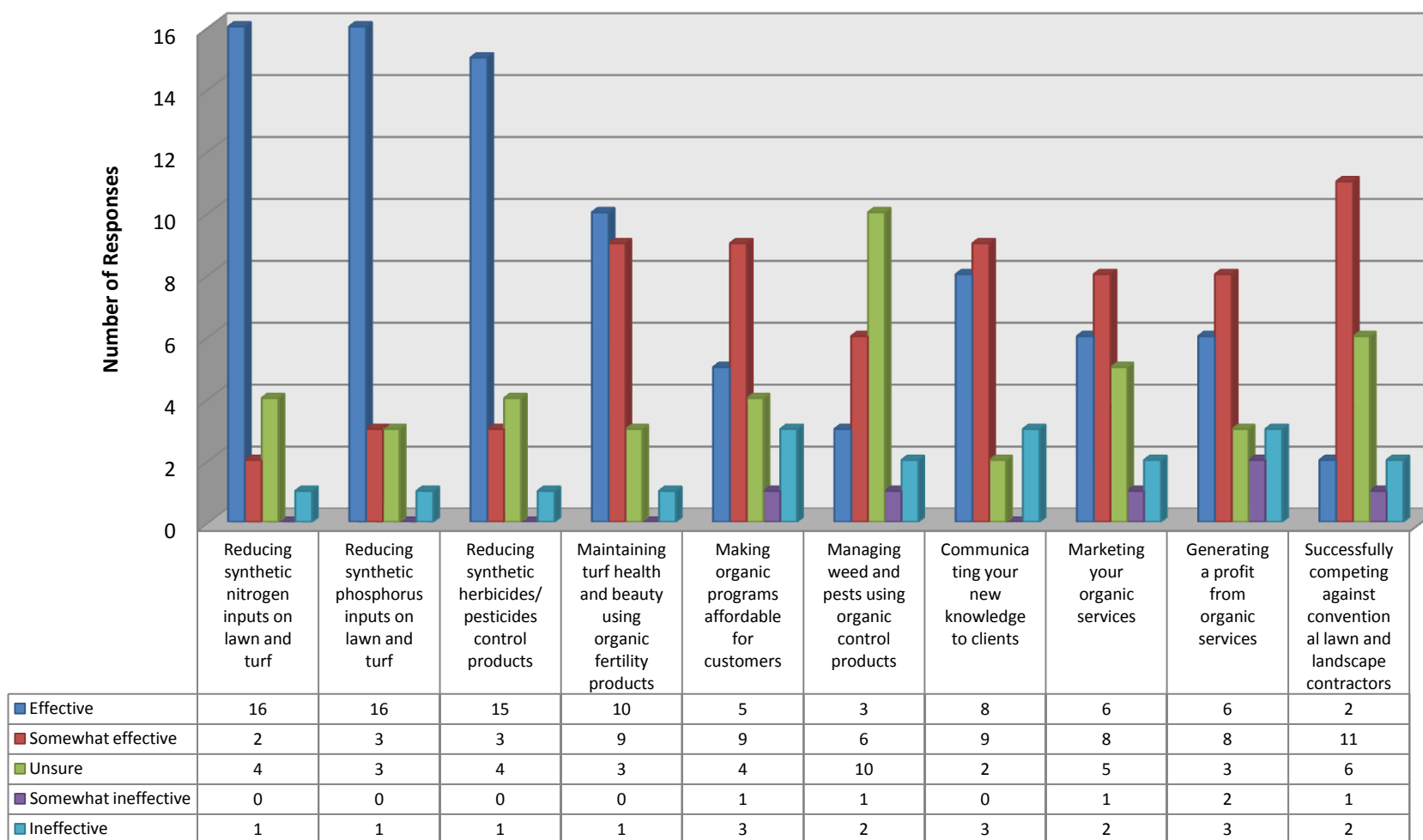


Knowledge Confidence

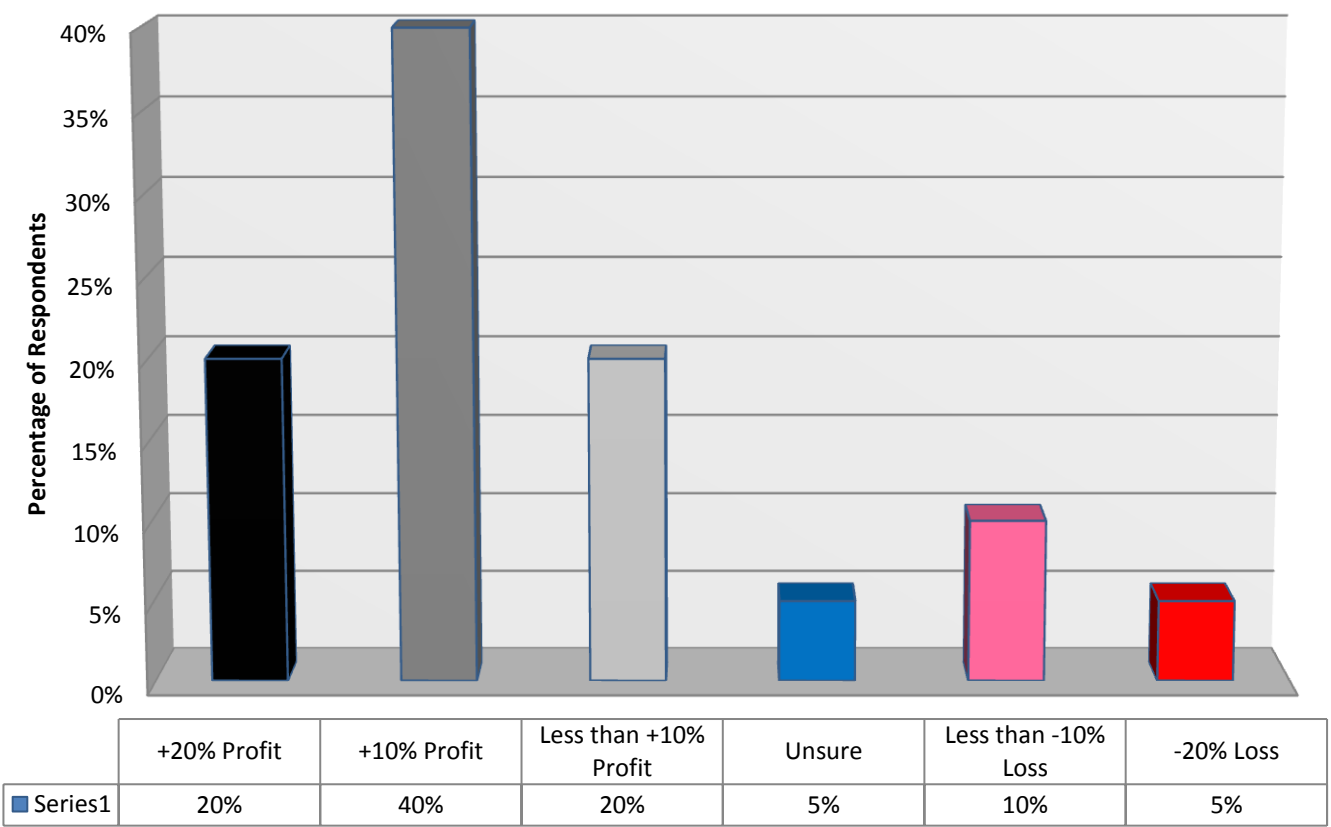


	I know how much synthetic nitrogen I applied this year	I know how much organic nitrogen I applied this year	I know how much phosphorus I applied this year	I know how to do soil testing	I know how to interpret soil test results and determine the best treatment	I know how to interpret pH levels and determine the best treatment
No	4	7	8	4	9	6
Yes	21	19	18	22	17	20

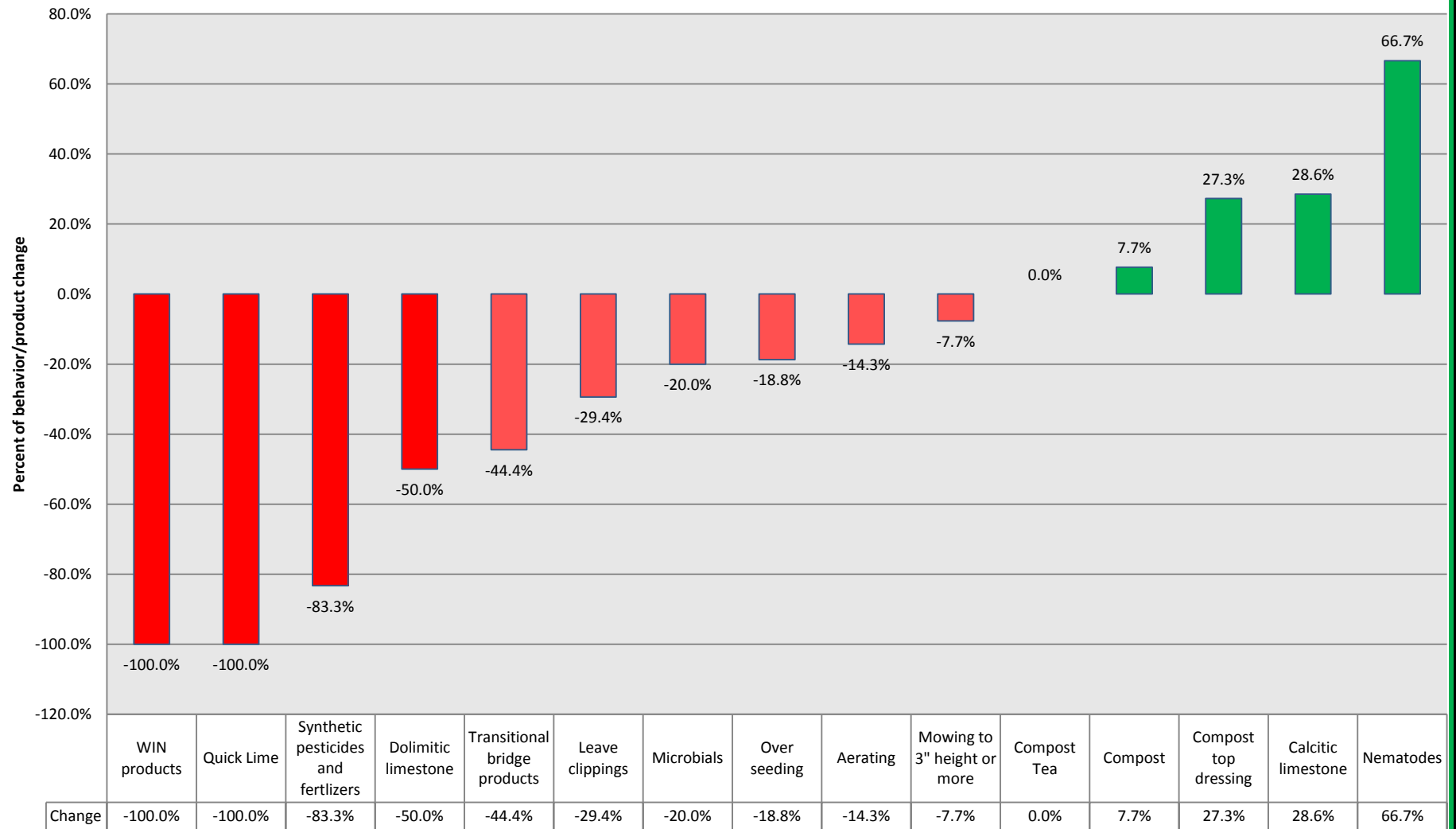
Professional Effectiveness after taking NOFA class



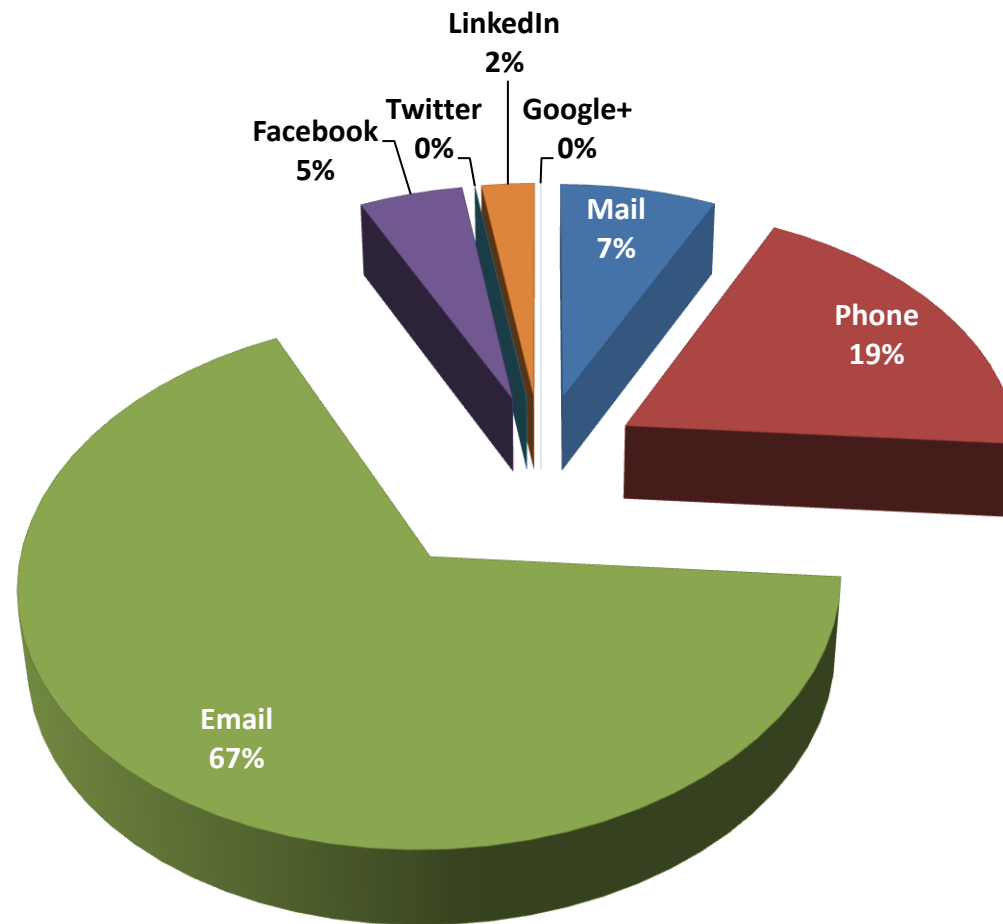
Profit Clusters



Change in organic program products or behavior after 2013 class



What is the best way to reach you?



NOFA Organic Lawn Care Certificate Course Final Survey: 2013

How would you describe yourself? (check all that apply)

Answer Options	Response Percent	Response Count
Self employed	48.1%	13
Business Owner	66.7%	18
Employee	18.5%	5
Trains employees	14.8%	4
Student learning about organic practices	22.2%	6
Teacher educating others about organic practices	14.8%	4
I am not currently in the lawn and landscape industry	3.7%	1
Other (please specify)		4
<i>answered question</i>		27
<i>skipped question</i>		2

What is your level of experience in lawn and landscape industry?

Answer Options	Response Percent	Response Count
Just starting out in the business with no experience	11.1%	3
1-5 years of professional experience	22.2%	6
6-10 years of professional experience	22.2%	6
Over 10 years of professional experience	44.4%	12
<i>answered question</i>		27
<i>skipped question</i>		2

What kinds of horticultural education, certifications, licenses, degrees do you hold? (check all that apply)

Answer Options	Response Percent	Response Count
NOFA AOLCP	38.5%	10
College Certificate Program	11.5%	3
College Degree Program	19.2%	5
Lawn and Landscape Association	23.1%	6
ISA	3.8%	1
State pesticide applicator license	23.1%	6
Agricultural Extension Program	11.5%	3
On the job training	80.8%	21
Self taught	84.6%	22
Specify organization or state issuing certification or license		14
<i>answered question</i>		26
<i>skipped question</i>		3

How many clients did you provide lawn and landscaping services to this past season?

Answer Options	Response Percent	Response Count
1-50	60.0%	15
51-100	20.0%	5
101-200	16.0%	4
201-300	0.0%	0
301-500	0.0%	0
501-700	4.0%	1
more than 700	0.0%	0
<i>answered question</i>		25
<i>skipped question</i>		4

About how many clients received the following services in prior years and during the 2012 and 2013 seasons

Prior years in business

Answer Options	NA	1-15%	16-30%	31-45%	46-60%	61-75%	76-90%	more than 90%	Response Count
Lawn mowing	3	4	0	3	2	1	3	3	19
Gardens	2	3	1	0	0	3	5	3	17
Tree care	3	8	1	1	1	0	1	2	17
Landscape design and construction	1	5	5	4	0	0	0	1	16
Landscape irrigation	9	3	0	2	0	1	0	0	15
Organic fertility programs	6	6	1	4	0	0	1	1	19
Organic control program for weeds and pests	5	6	2	2	0	1	0	1	17
Synthetic fertility programs	6	2	3	4	0	1	1	0	17
Synthetic control program for weed and pests	6	2	3	4	0	1	1	0	17

2012 Season

Answer Options	NA	1-15%	16-30%	31-45%	46-60%	61-75%	76-90%	more than 90%	Response Count
Lawn mowing	2	4	2	3	1	3	1	3	19
Gardens	2	2	2	0	0	3	4	5	18
Tree care	2	9	1	0	2	0	1	2	17
Landscape design and construction	1	4	6	4	0	0	0	2	17
Landscape irrigation	9	3	0	2	0	1	0	0	15
Organic fertility programs	6	5	1	4	1	0	1	2	20
Organic control program for weeds and pests	5	6	1	1	2	1	0	1	17
Synthetic fertility programs	6	1	5	3	1	0	1	0	17
Synthetic control program for weed and pests	6	1	5	3	1	0	1	0	17

2013 Season (Current)

Answer Options	NA	1-15%	16-30%	31-45%	46-60%	61-75%	76-90%	more than 90%	Response Count
Lawn mowing	3	3	3	4	3	2	1	2	21
Gardens	2	2	2	1	0	4	3	5	19
Tree care	2	10	1	0	1	1	2	1	18
Landscape design and construction	1	4	7	4	0	0	0	2	18
Landscape irrigation	9	4	0	2	0	0	1	0	16
Organic fertility programs	3	4	2	4	3	1	1	3	21
Organic control program for weeds and pests	2	4	5	1	0	3	1	2	18
Synthetic fertility programs	9	1	1	5	0	2	0	0	18
Synthetic control program for weed and pests	8	2	1	5	0	2	0	0	18

									Question Totals
Other (please specify)									7
									answered question 23
									skipped question 6

About how many of your existing clients switched from a synthetic program in 2012 to an organic program in 2013?

Answer Options	Response Percent	Response Count
None	44.0%	11
10%	28.0%	7
25%	4.0%	1
35%	0.0%	0
45%	0.0%	0
55%	0.0%	0
65%	4.0%	1
75%	0.0%	0
85%	0.0%	0
95% or more	20.0%	5
<i>answered question</i>		25
<i>skipped question</i>		4

About how many of your new 2013 clients decided on an organic program versus a synthetic program?

Answer Options	0-25%	26-50%	51-75%	76-100%	Response Count
Portion of new clients who decided on an organic	14	1	1	8	24
<i>answered question</i>					24
<i>skipped question</i>					5

How important were the following factors in your client's decision to use an organic program?

Answer Options	Very important	Somewhat important	Less important	Not at all important	Response Count
affordability	8	6	4	4	22
environmental concerns	15	5	1	1	22
human and pet health	17	3	1	1	22
lawn beauty	7	8	5	1	21
water quality	8	7	5	2	22
<i>answered question</i>					22
<i>skipped question</i>					7

Which of the following products do you use? (check all that apply)

Answer Options	Response Percent	Response Count
synthetic fertility product	38.5%	10
organic fertility product	80.8%	21
herbicides	42.3%	11
insecticides	30.8%	8
organic control products	57.7%	15
EPA 25b exempt products	11.5%	3
compost	96.2%	25
compost tea	53.8%	14
<i>answered question</i>		26
<i>skipped question</i>		3

Do you agree or disagree with the following statements?

Answer Options	Strongly agree	Somewhat agree	Not Sure	Somewhat Disagree	Strongly Disagree	Response Count
I have all the organic land care training I need to be	1	2	2	9	13	27
I exclusively use organic products and practices to	10	4	0	7	5	26
I am confident when it comes to knowing how much	5	9	4	3	6	27
I go to the NOFA-OLC website and review the	1	13	1	5	7	27
I always use a soil test to determine if nitrogen and/or	10	11	1	2	2	26
I think an organic accreditation is important to my	23	1	2	0	1	27
<i>answered question</i>						27
<i>skipped question</i>						2

Which of these statements follow or adhere to NOFA's Organic lawn best practices

Answer Options	Agree	Disagree	Response Count
Cool season grasses thrive in 9.5 to 10 pH	0	24	24
Soil acidity is probably the single most important factor affecting the chemistry and biology of the soil	18	5	23
If Ca (Calcium) levels are low you should use Calcitic lime	12	10	22
There is a national criteria and/or standard for compost quality	12	12	24
Fertilizers containing 10% N (Nitrogen) are a part of an organic lawn program	8	16	24
Compost top dressing can be as high as 1"	11	14	25
One goal of organic lawn and turf care is nutrient cycling	23	0	23
Mowing should never be lower than 3"	11	13	24
Watering lawns during summer drought places undue stress on the grass plants	6	17	23
Any fertilizers containing phosphorus should not be applied to any portion of lawn located 20 feet or less from any body of water	23	1	24
<i>answered question</i>			25
<i>skipped question</i>			4

Do you agree or disagree with the following statements?

Answer Options	Agree	Somewhat agree	Unsure	Somewhat disagree	Disagree	Response Count
I was able to apply the knowledge I learned at the	16	3	1	0	2	22
I can make more money selling an organic program	9	4	8	0	2	23
I think I am helping to save the environment	17	9	0	0	0	26
I think I could teach others organic services	12	10	2	0	0	24
I would like to see the complete adoption of the	23	3	0	0	0	26
I could improve my business if I spent more time on	13	6	5	0	0	24
I think I need additional education offered by NOFA to	21	3	1	0	0	25
Now that I have tried organic lawn and landscaping I	6	11	3	1	2	23
<i>answered question</i>						26
<i>skipped question</i>						3

What marketing tools and/or platforms do you need more training in to be successful in the organic lawn and landscaping industry (check all that

Answer Options	Response Percent	Response Count
Website	80.0%	20
Media publicity by press, radio, television	60.0%	15
Email Marketing	64.0%	16
Blogging	48.0%	12
Google+	44.0%	11
Facebook	76.0%	19
LinkedIn	36.0%	9
Twitter	32.0%	8
Instagram	24.0%	6
Pinterst	28.0%	7
Other (please specify)		5
<i>answered question</i>		25
<i>skipped question</i>		4

What additional areas of training would help you be more successful in the organic lawn and landscape industry (check all that apply)

Answer Options	Response Percent	Response Count
products	77.8%	21
best practices	88.9%	24
soil testing	59.3%	16
application calibration rates	74.1%	20
granular & liquid application procedures	66.7%	18
site assessment	74.1%	20
irrigation	44.4%	12
stormwater management	48.1%	13
scouting for weeds & pests	63.0%	17
organic weed and pest control programs	88.9%	24
rain garden installation	51.9%	14
Other (please specify)		3
<i>answered question</i>		27
<i>skipped question</i>		2

What day to day issues seem to hinder you from becoming successful in the organic lawn and landscape industry (check all that apply)

Answer Options	Response Percent	Response Count
selling organic products/services at a cost comparable with conventional services	48.0%	12
marketing to organic resistant consumers	52.0%	13
using social media platforms to expand my organic lawn care services	40.0%	10
closing organic lawn care transitions deals	24.0%	6
managing daily operations of my organic lawn and turf business	24.0%	6
accurately estimating labor costs	48.0%	12
providing profitable organic job quotes to prospective clients	52.0%	13
accurately estimating product costs	44.0%	11
Other (please specify)		4
<i>answered question</i>		25
<i>skipped question</i>		4

What do you know? (check all that apply)

Answer Options	Yes	No	Response Count
I know how much synthetic nitrogen I applied this year	21	4	25
I know how much organic nitrogen I applied this year	19	7	26
I know how much phosphorus I applied this year	18	8	26
I know how to do soil testing	22	4	26
I know how to interpret soil test results and determine the best treatment	17	9	26
I know how to interpret pH levels and determine the best treatment	20	6	26
<i>answered question</i>			26
<i>skipped question</i>			3

In the first season after taking the NOFA one day lawn and turf course how effective do you think you were in the following?

Answer Options	Effective	Somewhat effective	Unsure	Somewhat ineffective	Ineffective	Response Count
Reducing synthetic nitrogen inputs on lawn and turf	16	2	4	0	1	23
Reducing synthetic phosphorus inputs on lawn and turf	16	3	3	0	1	23
Reducing synthetic herbicides/pesticides control	15	3	4	0	1	23
Maintaining turf health and beauty using organic fertility	10	9	3	0	1	23
Making organic programs affordable for customers	5	9	4	1	3	22
Managing weed and pests using organic control	3	6	10	1	2	22
Communicating your new knowledge to clients	8	9	2	0	3	22
Marketing your organic services	6	8	5	1	2	22
Generating a profit from organic services	6	8	3	2	3	22
Successfully competing against conventional lawn	2	11	6	1	2	22
<i>answered question</i>						23
<i>skipped question</i>						6

What is your approximate business gross annual income (before all expenses) and profit/loss from lawn and landscaping?

Gross Income															
Answer Options	No income	Less than \$10,000	\$11,000 to \$50,000	\$51,000 to \$100,000	\$101,000 to \$150,000	\$151,000 to \$200,000	\$201,000 to \$300,000	\$301,000 to \$400,000	\$401,000 to \$600,000	\$601,000 to \$750,000	\$751,000 to \$1,000,000	\$1,000,001 to \$2,000,000	More than \$2,000,000	Unsure	Response Count
Gross Income and Profit/Loss	0	4	5	3	0	2	3	0	2	0	0	1	0	0	20
Profit/Loss															
Answer Options	Less than +10% Profit	+10% Profit	+20% Profit	More than +20% Profit	No Profit	Less than -10% Loss	-10% Loss	-20% Loss	More than -20% Loss	Unsure	Response Count				
Gross Income and Profit/Loss	4	8	4	0	0	2	0	1	0	1	20				
															Question Totals
Other (please specify)															4
															<i>answered question</i>
															20
															<i>skipped question</i>
															9

What practices/products were you using before and after taking your NOFA course?

Answer Options	Before NOFA class (2012 Season)	After NOFA class (2013 Season)	Response Count
Synthetic pesticides, fertilizers and soil conditioners	12	2	12
Synthetic/organic transitional bridge products	9	5	11
WIN products	3	0	3
Quick Lime	6	0	6
Dolimitic limestone	8	4	10
Calcitic limestone	7	9	9
Microbials	5	4	7
Nematodes	3	5	6
Leave clippings	17	12	18
Mowing to maintain a height of 3" or more	13	12	18
Over seeding	16	13	19
Aerating	14	12	18
Compost top dressing	11	14	20
Compost	13	14	19
Compost Tea	10	10	15
<i>answered question</i>			21
<i>skipped question</i>			8

What is the best way to reach you?

Answer Options	Response Percent	Response Count
Mail	10.7%	3
Phone	28.6%	8
Email	100.0%	28
Facebook	7.1%	2
Twitter	0.0%	0
LinkedIn	3.6%	1
Google+	0.0%	0
Other (please specify)		2
<i>answered question</i>		28

Survey Research Methods

"Identifying the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices"

Author: Bernadette Giblin NOFA AOLCP and John Valente ASA

Grant: Continuing the NOFA Organic Lawn Care Certificate Program

Cited below are a set of survey design and data analysis deliverables identified as part of the above captioned grant. All of the deliverables are completed.

List of Deliverables

Survey Design & Data Analysis

Provide pre and post qualitative & quantitative survey questions to measure the following:

- 1. Attitudes, skills and content & product, usage, economic ROI of class.*
- 2. Pre & post day of course survey, 3 month follow up survey.*
- 3. Recommendations report detailing the following:*
 - o Newly trained professional's adoption of behavior change to organic practices.*
 - o Analysis of trends for greater adoption of organic land care practices of the newly adopted pool.*

Intention of the results if the analysis is to increase the overall effectiveness of OLC program's messaging targeted at conventional landscape professionals and consumers [Taken from Table of LISFF 2013 Deliverables.docx]

Methodology

At the outset a full review of all grant proposals and documents was conducted. In addition, all of the survey instruments and data collected prior to November, 2013 were examined for accuracy, validity and reliability. The purpose of this examination was to utilize these instruments as springboards to design and launch the December 2013 survey. In a Final Report Programmatic LISFF 2012 (4/30/12 – 6/30/13) Jenna Messier reported in *Lessons Learned*:

"One of the key lessons learned by this project was that most lawn care professionals do not know how to measure or describe how much nitrogen or phosphorus they are applying to a property. Each student completed a survey during their course, asking how much nitrogen and how much phosphorus the student applied last Spring to the total amount of acreage which they manage. Only 12

students out of 58 attempted to answer this question regarding nitrogen applications, with most students leaving it blank. Answers ranged from .5 pounds per acre to 40 pounds per acre. Some students answered between 1 and 12 pounds per 1000 square feet. 7 students replied to the question about phosphorus application, with one person answering 3 pounds per 1000 square feet and the remaining students opting to write down the N-P-K numbers from their fertilizer bags, such as 18-0-2, 25-5-10, 10-10-10, and 18-0-5. This shows a lack of understanding the fertilizers which people are applying, and the inability to understand what percentage of a fertilizer is nitrogen and what percentage is phosphorus.

From this citation, the survey results gathered prior to November of 2013 had validity and reliability challenges. The term validity refers to measuring what you intend to measure, while reliability refers to the ability to be able to consistently measure the same results. In this case, the lack of student understanding affected the validity and reliability of the survey instrument.

From these lessons learned it became clear that any survey instruments for measuring the change of nitrogen and phosphorus use as the result of NOFA education programs had to be different those use prior to November 2013. Most survey participants were not only unclear about what amounts of nitrogen and/or phosphorus were applied, they were also unclear about how to interpret NPK metrics.

It should be clear that the methodological strategy employed was a survey research technique and not a case study approach. In this circumstance, a case study approach would have followed the behavioral and attitudinal shifts of one or more students before and after taking the NOFA class. This approach is often used by Doctors involving control groups tract measuring one or two variables and are “well suited to generating rather than testing hypotheses.” Research Methodology: A Guide for Researcher in Management & Social Sciences, Bill Taylor, Gautam Sinha and Taposh Ghoshal 2006 Prentice Hall of India. Using a case study approach in this grant would not be valid for three reasons:

1. This grant seeks to study the multiple variables including the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices
2. The grant has an underlying hypothesis that students who take a NOFA class will be more inclined to adopt and implement organic lawn care practices
3. A control group (those not taking the class) was not part of the study to measure the null hypothesis, that is there would be no relationship between taking the class and adopting and implementing organic lawn care practices

For these reasons a survey research technique with probability sampling was employed. Since the survey was sent out to first time NOFA students and AOLCP certified professionals a stratified random sample technique was used. *Research Methods in the Social Sciences* Chava Frankfort-Nachmias, David Nachmias 2007

To be more accurate, valid and reliable the last survey administered in December had to be designed to measure these variables by looking at change in behavior and attitude over time. Specifically, it would measure change before and after the experience of an AOLCP education class. Measured variables would be both qualitative and quantitative. The survey was broken into eight components:

1. Respondent's Demographics
2. Change in respondent's attitudes over time regarding conventional and organic fertilization
3. Change in respondent's behaviors over time regarding conventional and organic fertilization
4. Respondent's perceived barriers to implementing organic lawn care practices
5. Respondent's perceived need for additional training
6. Customer's attitudes as a barrier or impetus to the implementation of organic lawn care practices
7. Respondent's perceived level of skill confidence in organic lawn care practices
8. Respondent's skill accuracy in organic lawn care practices

The survey was reviewed, critiqued and modified by Jenna Messier, Director of NOFA Organic Land Care Program and Chip Osborne, AOLCP. There were 116 participants in the survey with a 24% (28) response rate. Given that response rate, the survey has a 2.5% error rate with a 95% confidence interval. Simply put you would be 97.5% \pm correct in asserting attitudes, behaviors and knowledge of those not responding to the survey 95% of the time. Of the respondents, 39.5% (11) were already AOLCP certified and had taken NOFA classes before. These participants were stratified or culled out from the sample to measure the actual pre/post behaviors, attitudes and knowledge of those who had not taken the class. Although this stratification of first time NOFA students reduced the number of respondents to 17 (60.5%), the precision of the survey as a predictive tool remained intact with a 2.5% margin of error at a 95% confidence interval. (See Table 4.2 below)

Table 4.2 Precision of estimating a population percentage v sample size (Given: Population percentage = 10%)						
Sample size	50	100	200	400	800	1600
95% confidence interval	$\pm 8.4\%$	$\pm 6.0\%$	$\pm 4.2\%$	$\pm 3.0\%$	$\pm 2.1\%$	$\pm 1.5\%$

[Survey precision estimates are taken from Research Methodology: A Guide for Researcher in Management & Social Sciences, Bill Taylor, Gautam Sinha and Taposh Ghoshal 2006 Prentice Hall of India]

The report with its findings can be found in the document entitled "Identifying the barriers and catalysts for change regarding the adoption and implementation of organic lawn care practices" authored by Bernadette Giblin NOFA-AOLCP and John Valente ASA

Legend for Photos and Documents - project LISFF 39526

Photo name	Who is in photo	description
Conn College Judy teaching	Judy Preston	Judy starts the training with "Surf and Turf" on March 27, 2014 at Connecticut College - New London
Conn College class full	Whole class	Seating filled with 51 people
Chip at Naugatuck	Chip Osborne	Chip is teaching his class at Naugatuck Valley Community College
NOFA Naugatuck	Whole class	July 2013 class -47 people
Documents	authors	
Organic Fertilizer Fact Sheet	Written by Chip Osborne and Bernadette Giblin	Compilation of information on how to read a fertilizer bag label, how to calculate fertilizer applications, and best practices
Survey Report	Written by John Valente, Bernadette Giblin, Jenna Messier	43 page report with analysis from first 3 organic lawn care courses' students