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Motivation and retention of Iowa's Master Gardener volunteers

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Motivation and retention of Iowa's Master Gardener Volunteers

by

Bryn Takle

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Co-Majors: Horticulture and Sustainable Agriculture

Program of Study Committee:
Cynthia Haynes, Co-Major Professor
Denny Schrock, Co-Major Professor
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Iowa State University

Ames, Iowa

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ABSTRACT

Retention of participants in volunteer organizations has been shown to be not only a challenge, but also a great benefit to the organization. Rising costs of training and continuing education make each interaction valuable from both perspectives. Volunteer opportunities are abundant but must be meaningful and engaging for the participants in order to keep them involved. Using electronic survey software, Iowa Master Gardeners were asked to respond to a series of questions investigating 1) the current demographics of the population, 2) reasons volunteers associate with the Master Gardener program, and 3) the continuing education topics and delivery methods most preferred by Iowa Master Gardeners.

CHAPTER I
GENERAL INTRODUCTION

Master Gardeners at the National Level

Due to a dramatic shift to suburban lifestyles in the 1960's, County Extension Agents across the United States quickly found themselves overwhelmed by the increasing volume of questions and inquiries regarding home gardening. They were well equipped for the commercial agricultural questions of the past but this new trend brought new challenges. To help answer the call for reputable, locally based horticultural information, the Master Gardner program was launched in Washington in 1972.

Since then, the Master Gardener program has grown to include programs in all 50 states and Washington, D.C. as well as several international associations. The main reasons for its growth and persistence as a viable volunteer program can be attributed to three core concepts: to help local Cooperative Extension Educators disseminate information to a new subset of clientele; to tailor horticultural information to the county level; to ensure quality information is being presented by keeping close ties with their land-grant partners (McAlear, 2005). Over 82 million households in the US are participating in some type of home gardening activity (Methany, 2009) and the demand for dependable horticulture education material remains high.

It should also be noted that a dramatic increase in the percentage of households active in food gardening has been seen in recent years. Fruit, vegetable, berries and herbs

were expected to be grown at 43 million homes in 2009, which reflects a 19% increase from the prior year (National Garden Association, 2009). Of these households, 19% will be new to gardening entirely and would be prime candidates for focused training materials.

Volunteerism

From previous studies, it has been suggested that the reason people volunteer their time can be divided into six broad categories: values (the desire to help others), understanding (learning new skills or information), social (volunteering looks favorable in community or friends also volunteer), career (skills acquired will allow access to new employment, foot in the door), protective (relieves sense of guilt for being more fortunate than others), and enhancement (increase in self esteem or personal gain) (Clary et al., 1996). Master Gardener surveys, however, indicate two of these reasons are far more important—personal knowledge gain and the desire to help others. Waliczek et al. showed that over 73% of a surveyed group of Texas Master Gardeners hoped to gain horticultural knowledge and 33% joined with the intention of providing a benefit for the community (Waliczek et al., 2002). Similarly, Schrock et al. found that Missouri Master Gardeners valued gaining knowledge, skills and abilities as well as altruism to bring the most satisfaction (Schrock et al., 2000).

In the 1990's it was shown that, although participation in some public and social activities was down, volunteer hours have increased. Further, seniors showed the greatest volunteer hours while middle-aged adults were volunteering less (Goss, 1999). This

bodes well for volunteer groups that draw from, or are of interest to, this demographic. Overcoming this trend and appealing to the next generation of volunteers will allow volunteer groups to continue serving their missions.

Master Gardeners in Iowa

Since its inception in 1979, the Iowa Master Gardener program has trained over 13,000 volunteers. The initial training involves approximately 40 hours of classroom sessions in a variety of topics related to horticulture. In addition to the formal education, the new interns must commit to 40 hours of community-based volunteer service where they can hone their skills. Upon completion of this requirement, the interns are considered active Master Gardeners. To remain active, volunteers must earn six hours of continuing education and complete 12 hours of volunteer service annually.

The mission of the Iowa Master Gardener Program is to provide current, research-based, home horticulture information and education to the citizens of Iowa through Extension and Outreach programs. To achieve this mission, volunteers must provide community impact by way of education and beautification of their respective county's public places.

Retention of Volunteers

When volunteers ended their tenure as Minnesota Master Gardeners, 56% said it was due to a lack of time while 23% responded that they left the program for personal reasons or illness and 15% were dissatisfied with the program (Meyer, 2004). Focusing

on the primary reason, it appears that these volunteers had high demands for their time and, therefore, wished to make the most of their volunteer experiences.

Recruitment and training of new volunteers is necessary to grow the organization, but retention of current individuals has particular advantages. Experienced Master Gardeners act as mentors to incoming interns and recruiters of new members (Stouse and Marr, 1992). It is likely coordinating horticultural education with the interests of volunteers is important and would increase retention.

Stillwell and Culp (2010) suggest that a varied and season-long approach to recognizing Master Gardeners for their commitment could be beneficial to retaining volunteers from year to year. While this strategy is a time commitment to staff, the reduction of resources allocated to annually recruiting a new contingent of volunteers would be beneficial in the long run.

Rationale and Significance

As budgets are reduced and extension specialists' time to provide educational information becomes less available, the significance of volunteer programs like the Master Gardeners becomes more important (Rohs, 1996). Following the mission of the organization, the volunteers act as community educators and extend the education arm of the land-grant program. This allows the extension personnel to focus their resources on more advanced or technical programming.

The impact the Iowa Master Gardener program has in local communities is clearly visible. These community educators disseminate university-based research to the public in a variety of forums. Moreover, much of this education is provided as Master Gardener groups lead community beautification projects. These volunteers gave over 103,000 hours of service to projects in 2014 and had contact with nearly 675,000 Iowans. The monetary value of this service to the community is estimated at nearly \$2.43 million (Iowa State University Extension and Outreach, 2015; Independent Sector, 2014).

Objectives

The objectives of this study are threefold. The first is to identify the demographics of current, active Master Gardeners. By knowing more about volunteers, coordinators could be more effective when it comes to providing for their needs. Prior data drawn from other states shows that the typical Master Gardener is a married female in her 40s or 50s that is employed out of the house (Kirsch and VanDerZanden 2002; Schrock, 2000). Challenging the assumption that Iowa had similar membership, this trend will be tested with the hypothesis of an increase in diversity of both age and gender. These data have great value when prioritizing training and service activities for the group.

The second objective will examine the motivation causing Iowa residents to enroll in the Master Gardener training program. The mission of the organization states that it is to provide current, research-based, home horticulture information and education to the citizens of Iowa through Iowa State University Extension and Outreach programs and projects. Previous research shows that the top reason cited for joining a Master Gardener

program was for personal benefit (Schrock et al., 2000). It is hypothesized that this trend will remain unchanged and show that the primary reason for joining the Iowa Master Gardeners is to gain horticultural knowledge.

Finally, this study will investigate whether the continuing education topics and delivery methods currently being provided are meeting the needs of the Iowa Master Gardeners. Selected training is currently available in a web-based format but a majority is provided either by extension educators in local extension offices, or in the class-on-campus events held at Iowa State University as part of the core course training. While the trend toward offering more on-line lectures is efficient at reaching a larger audience, acceptance of web-based learning by Master Gardeners remains unknown. Volunteers value their time and if they feel like they are not getting what they want out of volunteering (poor or under supervised, lack of direction/information) they are more likely to become disinterested and leave the program. Being able to tailor training materials and community volunteer opportunities to appropriate audiences could increase their engagement and retention.

CHAPTER II

DEMOGRAPHIC SURVEY OF IOWA MASTER GARDENER VOLUNTEERS

A paper to be submitted to *Journal of Extension*

Bryn Takle, Cynthia Haynes, Denny Schrock

Demographics of Iowa Master Gardener Volunteers

Introduction

Due to a dramatic shift to suburban lifestyles in the 1960's, County Extension Agents across the United States quickly found themselves overwhelmed by the increasing volume of questions and inquiries regarding home gardening. They were well equipped for the commercial agricultural questions of the past but this new trend brought new challenges. To help answer this new call for reputable, locally based horticultural information, the Master Gardener program was launched in the state of Washington in 1972.

The Master Gardener program has since expanded with programs in all 50 states and Washington, D.C. and other countries. The program has remained viable because it helps local Cooperative Extension Educators disseminate information, tailors horticultural information to the local level, and ensures quality information is being presented by keeping close ties with land-grant universities (McAleer, 2005). Over 82 million households in the US participate in some type of home gardening activity (Methany, 2009) and the demand for dependable horticultural information remains high.

Understanding the demographics of Master Gardener volunteers allows coordinators to effectively prepare them to serve as educators in their community. A comprehensive study of the Iowa Master Gardener program also establishes a baseline set of data to compare to future studies. The objective of this study is to identify the demographics of the Iowa Master Gardener volunteers.

Methodology

Iowa Master Gardeners were surveyed using an instrument created in Qualtrics Survey Software (Jan. 2015; Provo, Utah, USA). Researchers and the research project were approved through Iowa State University's Institutional Review Board (Appendix A) prior to pilot testing and full survey distribution.

Iowa Master Gardener county coordinators who were also active Iowa Master Gardener volunteers served as the pilot group. The pilot survey was sent to 31 individuals on 2 Dec. 2014. Feedback was solicited regarding question design and overall usability and based on participants' input, minor revisions were made to the instrument before full distribution.

One day prior to distribution of the full survey, an email was sent to Iowa Master Gardeners giving a brief background about the researcher, describing the purpose of the survey, and explaining that participation would be voluntary and anonymous. This email was delivered through Qualtrics, an unfamiliar email address to many of the recipients. To confirm the legitimacy of the survey, an additional email was sent from the Iowa State

University email address of the researcher mentioning the State Coordinator and the Professor-in-charge of the Iowa Master Gardener program.

The distribution list was assembled from the online hours reporting system where active Iowa Master Gardeners record volunteer service and continuing education hours. The two counties that did not use this system provided a list of email addresses of their active Master Gardeners.

The full survey was distributed on 22 Jan. 2015. On 10 and 27 Feb. 2015, follow up emails were sent via Qualtrics to each participant who had not yet completed the survey. The survey closed on 23 Mar. 2015. Survey links were distributed to 3713 valid email addresses. Of these, 1880 participants opened the email and 1263 began or completed the survey. According to standards established by American Association of Public Opinion Research the response rate was 34.0% (AAPOR, 2008).

Survey Instrument Development

The survey of Iowa Master Gardeners consisted of 49 closed or open-ended questions, which were formulated to address the following objectives: 1) identify the demographics of Iowa Master Gardeners, 2) distinguish preferred topics and delivery methods for continuing education, and 3) determine motivations for involvement in the program. The data for this manuscript were derived from answers to ten closed-ended questions imbedded into the larger survey and that addressed the first objective. The data

were analyzed using the SPSS software package (IBM SPSS Statistics Version 23.0; Armonk, NY, USA).

Results

The survey results presented in Table 1 show that Iowa Master Gardeners are predominately female (79.9%) and married (78.4%) with children (82.1% data not presented). The largest portion of respondents are in their 60's (43.7%) with only a small percentage (11.5%) less than 50 years old.

Table 1. Age, Gender and Relationship Status of Iowa Master Gardener Volunteers

	Frequency	Percent
Age		
20's	6	0.6%
30's	40	3.8%
40's	76	7.2%
50's	256	24.2%
60's	462	43.7%
70+	218	20.6%
Gender		
Female	844	79.9%
Male	212	20.1%
Relationship		
Married	822	78.4%
Divorced	95	9.1%
Widowed	72	6.9%
Single, never married	56	5.3%
Separated	3	0.3%

More than half of respondents claim household earnings over \$70,000. Slightly less than half of Iowa Master Gardeners are retired (46.5%) or did not work outside of the home (5.1%), meaning that more than 48% work outside of the home full or part time and

still make time to volunteer with the program. Participants are well educated with 65% earning at least a bachelor's (34%) or graduate (31%) degree.

Table 2. Income, Employment and Education of Iowa Master Gardener Volunteers

	Frequency	Percent
Income		
under \$30,000	63	6.8%
\$30,000-\$49,000	148	15.9%
\$50,000-\$69,000	209	22.5%
\$70,000 or greater	510	54.8%
Work status		
Retired	482	46.5%
Work outside of the home full time	340	32.8%
Work outside of the home part time	162	15.6%
Do not work outside of the home	53	5.1%
Education		
Senior High School	168	16.1%
Associates Degree	199	19.1%
Bachelor's Degree	355	34.0%
Graduate Degree	322	30.8%
Years in current residence		
< 5 years	154	14.8%
6 - 10 years	167	16.0%
11 - 20 years	253	24.3%
> 20 years	467	44.9%

Forty-five percent of respondents have been active in the program for six or more years (Table 3) but length of service is fairly evenly distributed from those in their first year to those with more than 10 years service. In 2014, to maintain active Master Gardener status, the requirement for volunteer service hours was 12 hours over the course of the year. More than 89% of respondents reported surpassing this requirement and 45.0% reported more than 40 hours of service. Eighty-seven percent of Iowa Master Gardeners planned to continue to meet the requirements and maintain active status in

even with the increased requirement to 20 volunteer service hours beginning in January 2015.

Table 3. Years of service and level of engagement of Iowa Master Gardeners

	Frequency	Percent
Years in the program		
first year	218	18.0%
2-3 years	274	23.0%
4-5 years	177	15.0%
6-9 years	246	20.0%
10+	301	25.0%
In 2014, how many hours of volunteer time did you commit to the MG program?		
None	13	1.0%
1-12 hours	102	10.0%
13-40 hours	418	43.0%
41-80	231	24.0%
>80	208	21.0%

Discussion and Conclusions

Iowa's Master Gardener population is similar to studies conducted in other states where the majority of volunteers were female. Iowa's Master Gardener program has a slightly higher female demographic (79.9%) compared to Oregon (74%), Texas (64%), and Missouri (65%) (Kirsh and VanDerZanden, 2002; Mayfield and Theodori, 2006; Schrock et al., 2000). According to 2010 U.S. Census data, these four states had nearly identical percentage of males and females in the state, ranging from 50.4% female population in Texas to 51% female population in Missouri. Iowa and Oregon each reported 50.5% female population (U.S Census Bureau, 2010).

The Iowa Master Gardener demographic is older than data reported from Oregon and Missouri (Kirsh and VanDerZanden, 2002; Schrock et al., 2000). The Oregon

program reported 40% over the age of 62 in 2002 and the Missouri study showed 36.3% were 60 or older in 2000. In Iowa, 64.3% were over the age of 60. U.S. Census data from 2010 reported an older population in Iowa with 14.9% of the population 65 years of age or older compared to 14.0% and 13.9% in Missouri and Oregon, respectively (U.S. Census Bureau, 2010).

A study by the National Gardening Association showed younger (18-34) food gardeners were the fastest growing segment of the national population increasing fastest (63%) between 2008 and 2013 (National Gardening Association, 2014). This age group is currently a small percentage of the Iowa Master Gardener population but given this trend, should be targeted for recruitment.

A parallel study of Iowa Master Gardeners found respondents to be motivated by learning new horticultural knowledge and skills (Takle, 2015). This mirrors the education level reported by program participants with nearly two-thirds earning a college degree. Previous studies in Oregon and Missouri both found 53% of respondents to have a four-year college degree or higher (Kirsh and VanDerZanden, 2002; Schrock et al., 2000). It is clear that the learning and education is important to the current Iowa Master Gardener population.

Cost of the program could be a barrier for volunteers to join and remain active. Initial program fees plus any costs associated with traveling to training, continuing education, and volunteer commitments can quickly add up. Providing scholarships could

decrease expenses and might make the program more accessible for all income classes. Overcoming this barrier could have an effect on future demographics of the program.

The Iowa Master Gardener program has maintained stable membership numbers for nearly a decade. Data from the Iowa Master Gardener hours reporting system show approximately 2400 volunteers providing over 105,000 hours of community service in 2014, contacting an approximate 835,000 public citizens (Iowa State University, 2015). The value of this volunteer time can be estimated at \$23.07 per hour, or \$2.43 million (Independent Sector, 2015).

A concern of program coordinators is the level of homogeneity shown by the current population. Highly engaged older individuals may not continue to participate at their current level. Ethnicity questions were not asked with this survey, but results would likely show limited diversity between ethnic populations within the program. This may be attributed to the fact that Iowa has a low minority population, less than 9% according to the 2010 census (U.S Census Bureau, 2010). Understanding cultural differences in minority populations could help with recruitment and retention efforts (Hobbs, 2001).

This study established baseline data to compare future studies against. It is recommended that similar demographic information be collected again in seven to ten years to identify changes in this target audience.

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Abstract

A survey was conducted of the Iowa Master Gardener volunteers to identify the demographics of the program. The majority of volunteers were female and above 50 years old, which aligns with data from previous studies of other state's Master Gardener programs. A large percentage of participants report their education level at or above a four-year college degree, which supports data showing these volunteers have a strong desire for acquiring new skills and training. An increase in diversity across all aspects of the demographic profile should be considered. Increasing diversity can have a positive impact on recruitment of new demographic sectors.

CHAPTER III

WHAT MOTIVATES IOWA'S MASTER GARDENERS

A paper submitted to *HortTechnology*

Bryn Takle, Cynthia Haynes, Denny Schrock

Abstract

The mission of the Master Gardener program is to disseminate research-based garden education to local communities. Past research has shown volunteers to have diverse motivations for selecting volunteer activities. The objective of this study was to determine Iowa Master Gardeners' motivations for volunteering in the program.

An electronically survey was sent to more than 3700 active and former Iowa Master Gardeners. Results show that statements relating to learning and new experiences were the most important motivating factors for joining the program. Participants were also motivated by the opportunity to help others. Similarities can be seen between the motivations of this group and others studied.

Introduction

The mission of the Iowa Master Gardener program is to provide current, research-based, home horticulture information and education to the citizens of Iowa through Iowa State University Extension and Outreach programs and projects. To achieve this mission, volunteers serve as community educators to broaden the educational reach of extension, which allows extension personnel to focus resources on more advanced or technical

programming. Volunteers also provide community impact through beautification of public places.

A review of literature finds many survey tools developed for investigating the motivations of volunteers (Byrne and Caskey, 1985; Wolford et al., 2001; Schmiesing et al., 2005). One instrument, the Volunteer Functions Inventory (VFI), was developed and tested by Clary et al. (1996) to investigate the motivations of volunteers. It defined six motivational categories, or factors, for the rationale behind volunteerism. These factors are Career, Enhancement, Protective, Social Understanding, and Values.

Schrock et al. (2000) modified the VFI slightly to target Master Gardeners and found Missouri Master Gardeners to have a strong tendency for two of the six factors, to obtain horticultural knowledge for personal use (Understanding) and to help others (Values). Similarly, Waliczek et al. (2000) showed that over 73% of a surveyed group of Texas Master Gardeners hoped to gain horticultural knowledge and 33% joined with the intention of providing a benefit for the community.

No baseline data exist on why Iowa Master Gardeners choose to join the program. Therefore, the objective of this study was to determine their motivations for volunteering in the Master Gardener program. Coordinators can use these data to continue to develop programming and volunteer activities to ensure these needs are met.

Methodology

Iowa Master Gardeners were surveyed using an instrument created in Qualtrics Survey Software (Jan. 2015; Provo, Utah, USA). Researchers and the research project were approved through Iowa State University's Institutional Review Board prior to pilot testing and full survey distribution.

Iowa Master Gardener county coordinators that were also active Iowa Master Gardener volunteers served as the pilot group. The pilot survey was sent to 31 individuals on 2 Dec. 2014. Feedback was solicited regarding question design and overall usability and based on their input, minor revisions were made to the instrument before full distribution.

One day prior to distribution of the full survey, an email was sent to Iowa Master Gardeners giving a brief background on the researcher, describing the purpose of the survey, and explaining that participation would be voluntary and anonymous. This email was delivered through Qualtrics, an unfamiliar email address to many of the recipients. To confirm the legitimacy of the survey, an additional email was sent from the researcher, the State Coordinator and the Professor-in-charge of the Iowa Master Gardener program which included familiar names and the Iowa State University email server address.

The distribution list was assembled from an online hours reporting system where active Iowa Master Gardeners record volunteer service and continuing education hours.

Counties that do not use this system provided a an email list of active Master Gardeners in the county.

The full survey was distributed on 22 Jan. 2015. On 10 and 27 Feb. 2015 follow up emails were sent via Qualtrics to each participant who had not yet completed the survey. The survey closed on 23 Mar. 2015. Survey links were distributed to 3713 valid email addresses. Of these, 1880 participants opened the email and 1263 began or completed the survey. According to standards established by American Association of Public Opinion Research the response rate was 34.0% (AAPOR, 2008).

Survey Instrument Development

The survey of Iowa Master Gardeners consisted of a combination of 49 closed and open-ended questions. The survey addressed the following objectives: 1) identify the demographics of Iowa Master Gardeners, 2) distinguish preferred topics and delivery methods for continuing education, and 3) determine motivations for involvement in the program. The data for this manuscript addresses the third objective.

To address the third objective, two instruments were imbedded into the larger survey. The Volunteer Functions Index (VFI) developed by Clary et al. (1998) utilizes responses to a set of 29 statements based on a 7-point Likert scale (Likert, 1932) where 1="not at all important" and 7="very important". From these responses, six motivational functional groups have been identified: Values, Understanding, Social, Career, Protective, and Enhancement. The second set of questions consisted of 19 closed-ended

statements. Rohs (1996) and Schrock (2000) used this instrument to address the distinction between personal gain and the benefit to the individual's community. Minor modifications were made to the question set to improve clarity. These questions utilized a 5-point Likert scale where 1="strongly disagree" and 5="strongly agree". The results are referred to here as Return on Investment.

The data were analyzed using the SPSS software package (IBM SPSS Statistics Version 23.0; Armonk, NY, USA). The data were classified using factor analysis. This statistical method creates latent variables, often called factors, which are not directly measurable but identify underlying similarities between responses (Field, 2009; Rummel, 1967). Principal axis factoring with varimax rotation was the extraction method used to identify the factors in this study. Cronbach's alpha was used to test for internal consistency within each question set.

Results

Volunteer Functions Index

This study found six factors, similar to Clary (1996) and Schrock (2000), yet some questions aligned differently causing renaming of the categories. The means for these renamed six factors (Learning, Altruism, Society, Self Esteem, Relationship, Career) are reported in Table 1. Statements in the Learning factor are grouped together because they relate to acquiring horticultural knowledge and skills. The Altruism factor has statements that focus on helping others. Statements in the Society factor relate to the importance of community to the participant. Statements that fit the Self Esteem factor

emphasize personal feelings and self-confidence. The Relationship factor involves statements pertaining to friends, and the Career factor relates to beginning or helping change careers.

Cronbach's alpha showed strong internal reliability with a value of 0.930 for the VFI. Each factor was also measured with Cronbach's alpha and all but one factor had values above 0.794. The Relationships group had an alpha value of 0.666, which is likely low due to only two statements loading, or aligning with this factor.

A significant difference was found between the means of the factors ($\chi^2=3054.89$, $p<0.001$) using a Friedman test. A Wilcoxon Signed Rank test with a Bonferroni correction determined every factor mean to be significantly different from each other ($p<0.008$).

The Learning factor was found to be the most important reason Iowa Master Gardeners volunteer with the program. This agrees with previous work (Schrock, 2000) and shows that Master Gardeners join this organization to learn more about horticulture and gardening. The statements "I can learn more about home gardening" and "Volunteering as a Master Gardener lets me learn horticulture through direct, hands on experience" recorded the top two mean scores (6.26, 6.08). Six statements were grouped into this factor and collectively they had the highest mean score of 5.48 of all factors.

The Altruism factor was the next most important reason Iowa Master Gardeners volunteer. The mean for this group (4.73) was lower than the learning factor, but significantly more important than all remaining factors. The highest rated statement in this group, “I feel it is important to help others”, was the third highest statement mean in the VFI (5.66).

Only three statements were sorted into the Society factor. These statements were “People I know share an interest in community service”, “Others with whom I am close place a high value on community service” and “Volunteering is an important activity to the people I know best”. The statement means varied from 4.65 to 4.16 with a group mean of 4.33.

Self Esteem (3.20), Relationship (2.60) and Career (1.84) factors rated lower than other factors. While the lowest mean score came from the Employment factor it also had the largest standard deviation.

Return On Investment

Exploratory principal component analysis showed two strong factors (New Discoveries, Self) and two weak factors (Community, Recognition) that affected respondents’ perceived return on investment (Table 2). For the purpose of analysis, these factors were named New Discoveries, Self, Community, and Recognition. The New Discoveries factor includes statements that relate to acquiring new knowledge, skills or benefits. The Self factor includes statements about benefits to the individual and personal

development. Community statements all have a strong society tie and Recognition relate to praise and prestige. Cronbach's alpha for this question set was 0.885.

New Discoveries and Self had the strongest Cronbach's alpha scores, 0.787 and 0.853 respectively. The statements "I like the status of belonging to the Master Gardener program" and "I like the flexibility I have as a Master Gardener volunteer to conduct the types of volunteer work I want" were not as strongly sorted by factor analysis into the Self group (0.420, 0.409). They were included because the themes in the statements align appropriately with the remaining statements in the group. The Community and Recognition factors had much lower Cronbach's alpha values (0.636, 0.404 respectively) likely due to the limited number of statements that loaded in those factors.

Iowa Master Gardeners felt most strongly that the program allowed them to gain personal horticultural skills and knowledge. Six of the top seven statements involved these aspects and had mean scores over 4.0 on a five-point Likert scale. Participants of this study rated the statement "provides opportunity to learn about plants, soil and horticultural topics" the highest. Only one mean score indicated any disagreement. Although this statement "Many influential people in my community are Master Gardeners" with a mean of 2.95 was the lowest ranked by the participants, it was reported as only slight disagreement.

The mean scores for each factor show New Discoveries to have the highest with a mean 4.30, while Self had 3.86. A Friedman test found significant differences between

the groups ($\chi^2=1243.98$, $p<0.001$) and a Wilcoxon Signed Rank test with a Bonferroni correction ($p<0.013$) found each group to be significantly different from another.

Discussion

Overall, the motivations of the Iowa Master Gardeners align similarly to previous studies (Rohs, 1996; Schrock, 2000). Learning more about horticulture and altruism were the two most important reasons they chose to volunteer with the program.

The six factors described by Clary (1996) held true for the Missouri Master Gardener program (Schrock et al., 2000). Several differences were seen in the sorting of the factors between the current study and the previous works. For example, this study found the statements “As a Master Gardener I can do something for a horticultural cause that is important to me” and “Through the Master Gardener program I can explore my own strengths” factored into New Discoveries. In the previous studies they factored into Career and Enhancement respectively. This suggests that Iowa Master Gardeners consider these statements to have a strong connection to learning, especially new horticultural skills.

The Altruism factor aligned closely with previous work, only omitting the statement “Volunteering is an important activity to the people I know best”. It appears the wording of this statement fits more closely in Society, where it was reported on this study.

The broad Social category seen in previous studies showed a dichotomy in this study with statements relating to community and those mentioning “friends”. Two factors (Society, Relationships) were identified where the Social category was seen previously. Respondents regarded community or societal aspects higher than relationships with friends when indicating their reasons for volunteering.

The two factors from previous studies called Protective and Enhancement aligned into a single factor (Self Esteem) in this study. Given their relation to personal feelings of self, it can be argued that they should align together in one category.

Statements relating to career differed only slightly from previous work. The addition of the statement “Master Gardener volunteer experience will look good on my resume” obviously aligns closely with Career. Iowa Master Gardeners determined the statement “As a Master Gardener I can do something for a horticultural cause that is important to me” aligned more closely with Learning rather than Career. The low interest in utilizing their Master Gardener experiences as a career builder can be attributed to the age demographic. More than 60% of respondents were 60 or older (data not reported) and, therefore, not likely to be looking to begin a new career.

The second set of questions confirms the reasons why Iowa Master Gardeners join the program and shows how volunteers recognize their impact. Respondents agreed most strongly that New Discoveries were their most important reason for participating in the program. To a lesser extent, they also agree that Self and Recognition were important

motivational factor for participating. Even though Community was the lowest ranked factor, respondents were more likely to agree than disagree that it was an important factor for volunteering. One possible explanation for the relatively low ranking is the difficulty volunteers have quantifying the impact they have with beautification and public programming. While measuring impact can be difficult, doing so could increase program participants' awareness of their value to the community.

Horticulture and gardening are important to Iowa's Master Gardeners. They are interested in learning new skills and information, mainly for personal gain. They are not, however, making the connection between their volunteer work and the community. Extension personnel and coordinators must provide educational activities and volunteer experiences of interest to the volunteers. Linking these back to the community will meet the altruistic motivations of the group while increasing engagement and retention.

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Table 1: Reasons for Volunteering for the Iowa Master Gardener Program

	Mean	VFI
Learning (Group mean - 5.48) a		
I can learn more about horticulture and home gardening.	6.26	U
Volunteering as a Master Gardener lets me learn horticulture through direct, hands on experience.	6.08	U
As a Master Gardener I can do something for a horticultural cause that is important to me.	5.49	C
Volunteering as a Master Gardener allows me to gain a new perspective on things.	5.22	U
Volunteering as a Master Gardener is a way to make new friends.	5.01	S
Through the Master Gardener program I can explore my own strengths.	4.82	E
Altruism (Group mean - 4.73) b		
I feel it is important to help others.	5.66	V
I am genuinely concerned about the home gardeners I am serving.	4.73	V
I feel compassion toward people in need.	4.62	V
I am concerned about those less fortunate than myself.	3.96	V
Society (Group mean - 4.33) c		
People I know share an interest in community service.	4.65	S
Others with whom I am close place a high value on community service.	4.18	S
Volunteering is an important activity to the people I know best.	4.16	V
Self Esteem (Group mean - 3.20) d		
I can learn how to deal with a variety of people as a Master Gardener.	3.96	P
Volunteering as a Master Gardener increases my self-esteem.	3.92	E
No matter how bad I've been feeling, volunteering as a Master Gardener helps me to forget about it.	3.91	P
Volunteering as a Master Gardener makes me feel needed.	3.72	U
Volunteering as a Master Gardener helps me feel better about myself.	3.66	E
Volunteering as a Master Gardener makes me feel important.	3.34	E
By volunteering as a Master Gardener I feel less lonely.	2.75	P
Volunteering as a Master Gardener is a good escape from my own troubles.	2.56	S
Volunteering as a Master Gardener helps me work through my own personal problems.	2.37	P
Doing Master Gardener volunteer work relieves me of some of the guilt over being more fortunate than others.	1.82	P
Relationships (Group mean - 2.60) e		
My friends volunteer as Master Gardeners.	2.78	S
People I'm close to want me to volunteer as a Master Gardener.	2.42	S
Career (Group mean - 1.84) f		
The Master Gardener program allows me to explore different career options.	1.97	C
Through the Master Gardener program I can make new contacts that might help my business career.	1.89	C
Master Gardener volunteer experience will look good on my resume.	1.88	E
Volunteering as a Master Gardener can help me get my foot in the door at a place where I would like to work.	1.60	C

Any two means not followed by the same letter are significantly different ($p < 0.008$).

Table 2. Iowa Master Gardeners' Perceived Return on Investment

	Mean
New Discoveries (Group mean - 4.30) a	
Provides opportunity to learn about plants, soil, and horticultural topics.	4.71
Provides practical classroom instruction and hands-on experience in horticulture.	4.46
Contributes to community growth and development.	4.29
Teaches knowledge and skills that contribute to the advancement of society.	4.13
Master Gardener materials (training, manuals, newsletters) are excellent.	4.11
Provides educational benefits not provided by private horticulture business.	4.08
Self (Group mean - 3.86) b	
I like the flexibility I have as a Master Gardener to conduct the types of volunteer work I want.	4.31
There are economic benefits to the community provided by the Master Gardener program.	4.01
Provides opportunity to assume responsibility.	3.95
Provides adults with social rewards for productive effort.	3.84
Encourages individual independence.	3.80
Promotes feeling good about yourself to be able to perform life tasks.	3.78
I like the status of belonging to the Master Gardener organization.	3.74
The Master Gardener program provides training for leaders in several skill areas I wanted to develop in myself.	3.42
Recognition (Group mean - 3.62) c	
I rarely receive praise and recognition for being a Master Gardener volunteer (reversed scale).	3.65
The Master Gardener organization is regarded as a highly prestigious organization in the community.	3.60
Community (Group mean - 3.21) d	
I became a Master Gardener volunteer because I wanted to be more engaged in my community.	3.63
By becoming a Master Gardener volunteer I feel I can help alleviate some societal problems.	3.05
Many influential people in my community are Master Gardeners.	2.95

Any two means not followed by the same letter are significantly different ($p < 0.013$).

CHAPTER IV

IOWA MASTER GARDENERS' PREFERRED CONTINUING EDUCATION TOPICS
AND DELIVERY METHODS

A paper submitted to *HortTechnology*

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Abstract

Recruitment and training of new volunteers is necessary to grow a Master Gardener organization, but retention of current individuals has particular advantages. Aligning educational topics and methods with the interests of volunteers is important and helps with retention. To maintain active status Iowa Master Gardeners must complete a minimum of 10 hours of continuing education and 20 hours of volunteer service each year. The objective of this study was to identify popular continuing education topics and preferred delivery methods of Iowa Master Gardeners. Continuing education themes vary from state to state but focus on regionally relevant horticultural topics. The data indicate that Iowa Master Gardeners have a strong interest in learning about native plant material and sustainable horticultural practices. The most preferred delivery method by Iowa Master Gardeners was live presentations and workshops, with 93% of respondents reporting they were moderately or very interested. Video presentations and webinars were generally less preferred. Certain social media sites were also popular with Iowa Master Gardeners. Nearly 60% of respondents used Facebook some or a lot and more than 30% use Pinterest some or a lot.

Introduction

The Master Gardener program was launched in Washington state in 1972 and has been established in all 50 states, Washington, D.C. and several international locations. The program is based on three core concepts: to help local Cooperative Extension Educators disseminate information; to tailor horticultural information to the local level; and to ensure that quality information is distributed by working through land-grant universities (McAleer, 2005). Annually, over 82 million households in the U.S. participate in some type of home gardening activity (Methany et. al, 2009) and the demand for dependable horticultural information remains high.

Since its inception in 1979, the Iowa Master Gardener program has trained more than 13,000 volunteers. The initial training involves classroom and web-based sessions in a variety of topics related to horticulture. Both the live and web sessions are held at county extension offices across the state. Annually more than 300 individuals enroll in the training at more than 20 sites throughout Iowa. In addition to training at county offices, participants are expected to attend a one-day conference on the Iowa State University campus where groups rotate through a series of eight, 45-minute hands-on workshops. Although there are no nationally required topics for the core course training, similarities exist among programs (Moore and Bradley, 2015). In Iowa, the core topics include: Animal Ecology, Botany, Composting, Entomology, Fruit Culture, Herbaceous Ornamentals, Houseplants, Integrated Pest Management, Sustainable Home Landscape Design, Pesticides and Pesticide Safety, Plant Pathology, Plant Propagation, Soils and

Soil Fertility, Trees and Shrubs, Turfgrass Management, Vegetables and Herbs, and Weed Science (Iowa Master Gardener Program, 2014).

In addition to at least 40 hours of classroom instruction new interns must provide 40 hours of community-based volunteer service to hone their skills. Upon completion of this requirement, the interns are considered active Master Gardeners. To remain active, volunteers must acquire at least 10 hours of continuing education and complete 20 hours of volunteer service annually.

Recruitment and training of new volunteers is necessary to grow the organization, but retention of current individuals has particular advantages. Experienced Master Gardeners act as mentors to incoming interns and recruiters of new members (Stouse and Marr, 1992). It has been shown that Master Gardeners associate with the program for two main reasons: to increase horticultural knowledge and to help their community (Schrock et al., 2000). Disappointment with the program and not enough horticulture education have been cited as reasons for not continuing with the program (Meyer, 2004). It is likely coordinating horticultural education with the interests of volunteers is important and would increase retention.

The objectives of this study were to identify popular continuing education topics, preferred delivery methods, and social media usage among Iowa Master Gardeners. Armed with this information, state and county coordinators can tailor training to the interests of their constituents.

Methodology

Iowa Master Gardeners were surveyed using an instrument created in Qualtrics Survey Software (Jan. 2015; Provo, Utah, USA). Researchers and the research project were approved through Iowa State University's Institutional Review Board prior to pilot testing and full survey distribution.

Iowa Master Gardener county coordinators who were also active Iowa Master Gardener volunteers served as the pilot group. The pilot survey was sent to 31 individuals on 2 Dec. 2014. Feedback was solicited regarding question design and overall usability and based on their input, minor revisions were made to the instrument before full distribution.

One day prior to distribution of the full survey, an email was sent to Iowa Master Gardeners giving a brief background on the researcher, describing the purpose of the survey, and explaining that participation would be voluntary and anonymous. This email was delivered through Qualtrics, an unfamiliar email address to many of the recipients. To confirm the legitimacy of the survey, an additional email was sent from the researcher, the State Coordinator and the Professor-in-charge of the Iowa Master Gardener program.

The distribution list was assembled from an online hours reporting system where active Iowa Master Gardeners record volunteer service and continuing education hours.

Counties that do not use this system provided a list of email addresses of their active Master Gardeners.

The full survey was distributed on 22 Jan. 2015. On 10 and 27 Feb. 2015 follow-up emails were sent via Qualtrics to each participant who had not yet completed the survey. The survey closed on 23 Mar. 2015. Survey links were distributed to 3713 valid email addresses. Of these, 1880 participants opened the email and 1263 began or completed the survey. According to standards established by American Association of Public Opinion Research the response rate was 34.0% (AAPOR, 2008).

Survey Instrument Development

The survey of Iowa Master Gardeners consisted of a total of 49 questions, 11 of which were open-ended and 38 closed-ended. The survey addressed the following objectives: 1) identify the demographics of Iowa Master Gardeners, 2) determine motivations for involvement in the program, and 3) determine preferred topics and delivery methods for continuing education. The data for this manuscript addresses the third objective.

Questions addressing the third objective related to three distinct areas: topics for continuing education, delivery methods, and social media use. There were 12 questions about topics for continuing education focusing on regionally relevant horticultural subjects. These questions asked for responses based on a four-point scale from “not at all interested” to “very interested”. The eight questions pertaining to the preferred delivery

method for receiving training materials used the identical interest scale. The four questions regarding social media usage were based on a four-point scale ranging from “not at all” to “a lot.”

The data were analyzed using the SPSS software package (IBM SPSS Statistics Version 23.0; Armonk, NY, USA). A Freidman Test was used to determine significant differences. Post hoc testing using a Wilcoxon Signed Rank Test with a Bonferroni correction determined whether significance differences existed between ranked items.

Results

Continuing Education

The data indicate that Iowa Master Gardeners have a strong interest in learning more about native plant material and sustainable horticultural practices (Table 1). A Freidman test showed a significant difference in interest among topics ($\chi^2=869.28$, $p<0.001$). Interest in native plants had the highest mean score of 3.41. Eighty-seven percent of respondents were moderately or very interested in more training and education about native plants. Sustainable horticultural practices had a mean score of 3.24. A number of topics (landscape ecology, composting, plant propagation, plant diagnostics, local foods) had means of 3.0 or above indicating at least moderate interest, but were of significantly less interest than the top two. Youth garden education and food safety were of least interest. Nearly half of participants (49.4%) recorded only slight or no interest in further training in youth garden education. The mean interest for this topic was 2.56, but

it also had the largest standard deviation indicating more widely distributed responses than for other topics.

The demographic data were further analyzed by dividing the respondents by gender, age and level of involvement (Table 4). Females preferred Local Foods and Organic Gardening more than males did, indicated by a statistically significant difference in mean score. Males reported a higher mean preference score in Integrated Pest Management (significant at 0.05 level) while a second topic, Plant Diagnostics, showed significance at the 0.10 level. Dividing the group by age (less than 50 years old, 50 or more years old) showed that the younger group of Iowa Master Gardeners had a higher mean preference score in four topics: Sustainable Horticultural Practices, Local Foods, Organic Gardening, and Composting. All topics were more preferred by the group that reported greater than 40 volunteer hours, four of which were significant including: Youth Garden Education, IPM, Plant Diagnostics and Sustainable Horticultural Practices.

Delivery Methods

Live presentations and workshops were the most preferred form of training by Iowa Master Gardeners (Table 2). A Freidman Test found a significant difference among preferred delivery methods ($\chi^2=1283.69$, $p<0.001$). Post hoc testing with the Wilcoxon Signed Rank test using a Bonferroni correction ($p=0.006$) determined the top three preferred delivery methods to be significant from each other and all other methods.

More than 90% of participants were very (68.6%) or moderately (24.4%) interested in hands-on workshops. Similarly, more than 90% were very (63.6%) or moderately (29.7%) interested in face-to-face presentations or lectures. More than half (50.1%) were very interested and almost a third (32.7%) were moderately interested in organized field trips. Means for video presentations and state electronic newsletters were not significantly different from each other. Similarly, means for self-paced online training modules and real-time Adobe Connect webinars were not significantly different from each other. Although these methods were less preferred than the top three, more than two-thirds of respondents were moderately or very interested in these training methods. Almost half of respondents cited only slight (29.4%) or no interest (19.2%) in audio podcasts.

More in-depth analysis of the demographic data revealed several interesting findings. Females more strongly preferred Hands-on workshops and Organized field trips compared to males (Table 5). State electronic newsletters, Audio podcasts, Real-time Adobe Connect webinars, and Self-paced on-line training modules were more strongly preferred by 20-49 years olds compared to those over 50. Only Face-to-face presentations/lectures were more strongly preferred by those over 50. When sorted by level of involvement, those who were more involved had a greater preference for Face-to-face presentations, Real-time Adobe Connect webinars, Hands-on workshops, and Video presentations.

Social Media Usage

Certain social media sites were popular with Iowa Master Gardeners (Table 3) and a Freidman Test indicated significant difference among them ($\chi^2=1284.23$, $p<0.001$). Facebook was the most widely used site with almost 60% of respondents using the site some (25.6%) or a lot (34.2%). Pinterest use ranked second with more than a third (33.6%) using it some (19.9%) or a lot (13.7%). Further investigation by gender showed that both Facebook and Pinterest were used by females more than males. More than 75% of females used Facebook and 60.4% used Pinterest. Facebook use by males was reported at 66.5% while Pinterest use was only 33%. More than 80% of Iowa Master Gardeners were not using Twitter or Instagram.

Discussion

The Iowa Master Gardener program currently maintains an active roster of approximately 2400 members. This number has remained stable since 2009 indicating the program has lost as many participants as it has trained. Meyer (2004) stated that over a quarter of Master Gardeners in the Minnesota program left due to dislike or disappointment with the program, or not acquiring enough horticulture education. Haynes and Trexler (2003) found that organizations must be cognizant of the quality of training programs to meet volunteers' needs. It is clear that the perceived quality of these training materials and educational activities are key to the organization's success.

The mission of the Iowa Master Gardener program is to provide current, research-based, home horticulture information and education to the citizens of Iowa. Much of this

research comes from Iowa State University Extension and Outreach personnel and publications. State level coordinators update the regionally specific topics in the resource manual to include current topics and trends.

Locally, county coordinators should utilize these findings to design both volunteer and continuing education activities of interest to the broader group. For example, knowing that Iowa Master Gardeners are highly interested in learning about native plants and prefer hands-on workshops, scheduling a regional seed-collecting workshop at a local state park could draw strong attendance.

Analyzing topics by various demographic groups showed younger Iowa Master Gardeners to be interested in currently popular topics such as Local Foods and Organic Gardening. Perhaps these topics are more familiar to individuals who honed these skills growing up in a different generation and rural setting than the younger generation. This younger generation also had a higher preference for technology-based delivery methods. This agrees with findings from Madden et. al (2013) who showed 89% of 30-49 year olds use the internet compared to 52% over 65. Since this younger audience is only one-third of the sampled participants, this suggests some of these modes of delivery would be more preferred if the audience was more evenly distributed by age.

By gender, the topics showed a couple of interesting connections. Males preferred IPM and Plant Diagnostics more than females. These are topics that appeal to the analytical and problem solving component of gardening and horticulture. Females showed higher

preference for Local Foods and Organic Gardening, both of which relate to food safety and its potential impacts on their families. Bhatti and Church (2000) cite a 1997 study by the Mintel Group that showed that males have a stronger interest in maintenance aspects of gardening, while women showed a greater interest in cultivation including organic gardening.

As expected, Iowa Master Gardeners prefer personal interaction with their presenters. The top three preferred methods of delivery all involve these personal connections. The differences found by gender showed that females preferred workshops and field trips more than did males. Since the rankings were the same for all methods in both groups, this could indicate a higher preference for group activities by this female demographic. More active Iowa Master Gardeners reported a higher preference for all of the topics provided, half of which showed statistically significant differences. It could be argued that as these volunteers become more engaged in the program, they have a higher appreciation of continuing education by all means possible.

Frequent updates on social media sites show potential to reach this audience. According to a national survey of internet users, Facebook was used by more than 47% of respondents 50 years or older (Duggan and Brenner, 2012). In Iowa, Facebook was used by more than 67% of Master Gardeners in the same age range. Facebook should also be considered as a way to reach a younger age demographic. Nationally, 78.0% of internet users in the 18-49 age range use Facebook while 86.0% of Iowa Master Gardeners (n=100) in the 20-49 age range report at least some use of the site (data not reported).

Duggan and Brenner reported 25% of females use Pinterest, while 60.4% of female Iowa Master Gardeners reported using the site. Data published by Guenther and Swan (2011) in Idaho found no difference between gender and use of electronic technology, although they did not focus on the same social media sites as this study. An increased percentage of adults are now using multiple social media sites. Duggan et al. (2015) report an increase of 10% from 42% to 52% between 2013 and 2014. Although not all social media sites were attractive to this group, some should be considered as an avenue for communication.

Providing training and professional development to volunteer groups has been shown to help with retention (Hager and Brudney, 2004). Appropriate training programs can serve as both a strong retention and recruitment tool (Fahey et al., 2002). This study provides guidance for coordinators in creating future programming, optimal delivery methods, and ideas on using social media to interact with clients. Depending on the region and demographic makeup of the group, topics and delivery methods could vary. Identifying the motivations and interests of the target audience is necessary for engagement and retention.

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Table 1. Preferences for continuing education topics by Iowa Master Gardeners

Topic	N	Not at all Interested	Slightly Interested	Moderately Interested	Very Interested	Mean	SD
Native Plants	961	2.1%	10.9%	30.5%	56.5%	3.41a	0.77
Sustainable Horticultural Practices	953	3.7%	14.2%	37.1%	45.0%	3.24b	0.83
Landscape Ecology	955	3.8%	16.6%	40.7%	38.8%	3.15c	0.83
Composting	953	4.7%	21.3%	34.8%	39.1%	3.08cd	0.89
Plant Propagation	955	5.8%	19.1%	37.5%	37.7%	3.07cd	0.89
Plant Diagnostics	945	5.9%	17.7%	41.9%	34.5%	3.05de	0.87
Local Foods	953	7.2%	20.8%	36.4%	35.6%	3.00de	0.92
Organic Gardening	956	9.1%	22.4%	31.3%	37.2%	2.97e	0.98
Integrated Pest Management (IPM)	952	8.6%	25.2%	38.9%	27.3%	2.85f	0.92
Food Safety	952	13.3%	30.9%	33.5%	22.3%	2.65g	0.97
Youth Garden Education	950	16.9%	32.4%	28.7%	21.9%	2.56g	1.01

Letters indicate significant difference at $p < 0.005$

Table 2. Preferences for training delivery methods by Iowa Master Gardeners

Method	N	Not at all Interested	Slightly Interested	Moderately Interested	Very Interested	Mean	SD
Hands-on workshops	949	0.5%	6.4%	24.4%	68.6%	3.61a	0.63
Face-to-face presentations/ lecture	947	1.3%	5.5%	29.7%	63.6%	3.56b	0.66
Organized field trips	944	2.8%	14.4%	32.7%	50.1%	3.30c	0.82
Video presentations	943	4.7%	16.3%	46.7%	32.3%	3.07d	0.82
State electronic newsletters	941	5.3%	18.1%	42.4%	34.2%	3.06d	0.86
Self-paced on-line training modules	946	10.7%	18.9%	34.6%	35.8%	2.96e	0.99
Real-time Adobe Connect webinars	942	9.9%	20.7%	36.6%	32.8%	2.92e	0.96
Audio podcasts	928	19.2%	29.4%	34.3%	17.1%	2.49f	0.99

Letters indicate significant difference at $p < 0.006$

Table 3. Usage of social media sites by Iowa Master Gardeners

Social Media Site	N	None	Little	Some	A lot	Mean	SD
Facebook	950	26.5%	13.7%	25.6%	34.2%	2.67a	1.20
Female	755	24.9%	11.8%	26.4%	37.0%		
Male	182	33.5%	20.9%	23.1%	22.5%		
Pinterest	930	47.0%	19.5%	19.9%	13.7%	2.00b	1.10
Female	740	39.6%	20.8%	23.4%	16.2%		
Male	178	77.0%	14.0%	5.6%	3.4%		
Twitter	926	82.5%	10.2%	5.5%	1.8%	1.27c	0.65
Female	733	82.3%	10.4%	5.7%	1.6%		
Male	181	84.0%	8.3%	5.0%	2.8%		
Instagram	923	87.1%	6.5%	4.2%	2.2%	1.21c	0.62
Female	733	86.1%	7.1%	4.5%	2.3%		
Male	179	91.6%	3.4%	3.4%	1.7%		

Letters indicate significant difference at $p < 0.013$

Table 4. Preference for continuing education topics by target audience groups

TOPIC	Gender					Age					Level of Involvement				
	Female		Male			20-49		50+			0-40 hours		>40 hours		
	N	Mean	N	Mean	Diff.	N	Mean	N	Mean	Diff.	N	Mean	N	Mean	Diff.
Native Plants	758	3.42	186	3.39	0.03	330	3.40	615	3.42	-0.02	461	3.40	392	3.46	-0.06
Sus. Hort. Practices	752	3.23	185	3.23	0.00	327	3.32	611	3.19	0.13**	459	3.18	388	3.33	-0.15**
Plant Diagnostics	747	3.03	182	3.16	-0.13	324	3.12	606	3.01	0.11	455	2.97	386	3.13	-0.16**
Landscape Ecology	753	3.15	185	3.12	0.03	328	3.12	611	3.16	-0.04	461	3.12	388	3.19	-0.07
Plant Propagation	753	3.07	185	3.07	0.00	328	3.14	611	3.03	0.11	460	3.05	389	3.12	-0.07
Composting	752	3.10	184	3.01	0.09	327	3.19	610	3.02	0.17**	458	3.05	389	3.08	-0.03
IPM	752	2.82	184	3.00	-0.18**	327	2.84	610	2.85	-0.01	456	2.77	389	2.96	-0.19**
Organic Gardening	755	3.00	185	2.84	0.16**	328	3.12	613	2.88	0.24**	460	2.92	389	3.01	-0.09
Local Foods	752	3.03	184	2.84	0.19**	328	3.11	609	2.93	0.18**	458	2.98	389	3.02	-0.04
Food Safety	752	2.64	184	2.66	-0.02	328	2.64	609	2.64	0.00	458	2.61	389	2.69	-0.08
Youth Garden Education	750	2.57	185	2.55	0.02	328	2.61	607	2.54	0.07	459	2.42	387	2.63	-0.21**

**statistically significant at $p < 0.05$

Table 5. Preference for continuing education training delivery methods by target audience groups

DELIVERY METHOD	Gender					Age					Level of Involvement				
	Female		Male		Diff.	20-49		50+		Diff.	0-40 hours		>40 hours		Diff.
	N	Mean	N	Mean		N	Mean	N	Mean		N	Mean	N	Mean	
Hands-on workshops	754	3.64	182	3.51	0.13**	329	3.64	608	3.60	0.04	457	3.58	386	3.68	-0.10**
Face-to-face presentations	754	3.57	182	3.50	0.07	327	3.49	609	3.59	-0.10**	457	3.52	385	3.64	-0.12**
Organized field trips	750	3.34	181	3.17	0.17**	327	3.31	605	3.30	0.01	457	3.28	382	3.36	-0.08**
Video presentations	749	3.07	182	3.08	-0.01	326	3.09	606	3.06	0.03	453	3.01	385	3.13	-0.12**
Self-paced on-line training modules	752	2.95	182	3.03	-0.08	329	3.13	606	2.87	0.26**	456	2.92	384	2.95	-0.03
State electronic newsletters	747	3.06	182	3.03	0.03	325	3.15	605	3.00	0.15**	452	3.01	384	3.09	-0.08
Real-time Adobe Connect webinars	749	2.93	181	2.95	-0.02	327	3.07	604	2.85	0.22**	452	2.84	383	2.98	-0.14**
Audio podcasts	741	2.49	176	2.52	-0.03	321	2.67	596	2.39	0.28**	448	2.44	379	2.53	-0.09

**statistically significant at p<0.05

CHAPTER V
GENERAL CONCLUSIONS

The Iowa Master Gardener program depends on the volunteers who serve it to be successful. Through this study, a number of factors important to its ongoing success have been identified. The information gained will help guide the future of the program, but also establishes a baseline for continued study. The purpose of this study was to answer the following research questions:

1. What are the current demographics of the Iowa Master Gardener population?
2. Why do volunteers associate with the Master Gardener program?
3. What continuing education topics and delivery methods are most preferred by Iowa Master Gardeners?

Empirical Findings

Identifying the demographics of the program allows coordinators to craft communication and events specifically targeted at the current volunteer group. The average Iowa Master Gardener is a 60-70 year-old educated female, who is married with children. Nearly half of the participants work outside of the home but still make time to meet or exceed their annual requirements for the continuing education and community service. The Iowa Master Gardener demographics are, overall, quite similar to those found in other state programs.

It is likely that the demographics of the Iowa Master Gardener program have changed from the past, and will change in the future. It is not evident, however, if nationwide gardening trends, such as the increasing participation by younger gardeners, has affected the Iowa Master Gardener program. Understanding the current program's demographics allow for future comparison.

Understanding the motivations to join and stay active with the organization shows what drives this specific volunteer group and what they wish to personally gain from their volunteer experience. These volunteers are motivated by horticultural knowledge and the skills they acquire and have been shown to leave the program if they are not receiving enough information (Meyer, 2004).

Iowa Master Gardeners like the personal attention received at live presentations, but state and county coordinators should be encouraged by the volunteers' acceptance and comfort with web-based training. Expensive travel can be a limiting factor for both trainers and trainees. Eliminating the costs and time of travel could allow leaders to re-allocate resources toward development of new web programming. Being able to access high quality information on-demand would also allow the statewide audience to participate.

Finally, determining the educational preferences of the volunteer group gives coordinators confidence to create and deliver suitable programming. As trends change in gardening so will the information that is requested of and by Master Gardeners. With careful observation of these details, topics could be offered to specific groups within the larger population. As an example, participation in community gardening and home food

production is increasing. Being able to provide current and relevant training and research eliminates misinformation and could provide a new avenue for recruitment.

The common thread that can be pulled through each of the three research questions is retention. The value of retaining trained volunteers in an organization such as the Iowa Master Gardener program is vital for its continued success. The program has maintained an active population of around 2400 individuals over the last decade. This is in light of the fact that 300-400 new volunteers take the core-training course each year, indicating that attrition is equal to recruitment.

Having volunteers remain active provides consistency with ongoing projects and relationships with the public. They serve as mentors for new trainees, sources of knowledge for the public, and program recruiters in the community. For Extension and Outreach personnel, retention means increased impact through education and beautification by experienced volunteers. This allows these specialists to concentrate on more technical and scientific requests and challenges including program development and training. Coordinators should also strive to provide meaningful volunteer experiences that include learning or skills development. Incorporating learning—the biggest motivating factor of the group—into the service commitment encourages volunteers to view their work as an additional benefit of the program rather than as payback (Stouse and Marr, 1992).

It is unknown how well this study sampled the entire Iowa Master Gardener population. Only nine percent of the respondents reported being less than 50 years of age, but an increase in younger volunteers has been observed at trainings in recent years. It was also expected that the current movements toward local foods and home vegetable

gardening would reflect a stronger interest in these topic, especially by the younger subset of the population.

The research conducted in this study was focused on Iowa Master Gardeners. While similar trends could be expected throughout the United States, it would be careless to assume the findings would be identical. Regional differences in climate, geography and demographics will drive the interests of each group.

Future research

In order for the program to continue to evolve and improve, a modified version of the survey instrument used in this study should be used in seven to ten years. It has been shown that the volunteers who associate with this program have a desire to gain new horticultural knowledge and have certain topics of higher interest. It is unlikely that the group will lose its desire for horticultural knowledge, but it is expected that their demographics, technology and trends will affect their educational requests.

From the current data, a few questions have arisen including:

- Does the age of Iowa Master Gardener affect the preference for topics or delivery method? Does the trend in food gardening and local foods, which is seen increasing in the younger demographic, hold true in Iowa. If so, could that knowledge be capitalized on with targeted recruitment efforts?
- Does the length of time involved with the program affect the preferences for topics or delivery method? In other words, are the newest initiates interested in the same types of topics as the veteran Master Gardener? If

not, would offering training tailored to this group help with recruitment and retention of newer initiates?

Further analyzation of these data could provide the answers to these questions.

The impact from this study to the Iowa Master Gardener program will be realized when the results are put into action. Coordinators are responsible for initiating these action steps. Creating programming that increases attendance and engagement, providing education and opportunities to help others in the community, and growth and increased diversity in the population will provide evidence that this study was beneficial.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 10/7/2014

To: Bryn Takle
260 Horticulture Hall

CC: Dr. Cynthia Haynes
131 Horticulture Hall
Dr. Denny Schrock
137 Horticulture Hall

From: Office for Responsible Research

Title: Motivation and Retention of Iowa Master Gardeners

IRB ID: 14-492

Study Review Date: 10/6/2014

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
 - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
 - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

APPENDIX B

IOWA MASTER GARDENER SURVEY INSTRUMENT

Q1 What year did you take the Iowa Master Gardener core course training?

Q2 Since your initial training, how many years have you been/were you active in the Master Gardener program (6 hours of continuing education and 12 hours of voluntary community service)?

- This is my first year! (1)
- 2-3 years (2)
- 4-5 years (3)
- 6-9 years (4)
- Over 10 years (5)

Q3 In 2014, were you active (6 hours of continuing education and 12 or more hours of voluntary community service) in the Master Gardener program?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To I plan to continue as an active Maste...

Answer If Are you presently volunteering as a Master Gardener? Yes Is Selected

Q4 In 2014, how many hours of volunteer time did you commit to the Master Gardener program?

- None (1)
- 1-12 hours (2)
- 13-40 hours (3)
- 41-80 hours (4)
- More than 80 hours (5)

Volunteering as a Master Gardener is a way to make new friends. (28)	<input type="radio"/>						
Through the Master Gardener program I can explore my own strengths. (29)	<input type="radio"/>						

Q7 Please answer the following set of questions by indicating your level of agreement with the statement "The Master Gardener program..."

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Provides opportunity to assume responsibility. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encourages individual independence. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promotes feeling good about yourself to be able to perform life tasks. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides adults with social rewards for productive effort. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides opportunity to learn about plants, soil, and horticultural topics. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaches knowledge and skills that contribute to the advancement of society. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides practical classroom instruction and hands-on experience in horticulture. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Provides educational benefits not provided by private horticulture business. (8)	<input type="radio"/>				
Contributes to community growth and development. (9)	<input type="radio"/>				
The Master Gardener program provides training for leaders in several skill areas I wanted to develop in myself. (10)	<input type="radio"/>				
There are economic benefits to the community provided by the Master Gardener program. (11)	<input type="radio"/>				
I like the status of belonging to the Master Gardener organization. (12)	<input type="radio"/>				
I like the flexibility I have as a Master Gardener to conduct the types of volunteer work I want. (13)	<input type="radio"/>				
I rarely receive praise and	<input type="radio"/>				

<p>recognition for being a Master Gardener volunteer. (14)</p> <p>The Master Gardener organization is regarded as a highly prestigious organization in the community. (15)</p> <p>I became a Master Gardener volunteer because I wanted to be more engaged in my community. (16)</p> <p>Many influential people in my community are Master Gardeners. (17)</p> <p>Master Gardener materials (training, manuals, newsletters) are excellent. (18)</p> <p>By becoming a Master Gardener volunteer I feel I can help alleviate some societal problems. (19)</p>	<input type="radio"/>				
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Q8 I plan to continue as an active Master Gardener next year.

- Yes (1)
 No (2)

If No Is Selected, Then Skip To Please explain.

Q9 Ideally, what current or new volunteer activities would you like to participate in next year?

Q10 Ideally, what current or new continuing education opportunities would you like to participate in next year?

Answer If I plan to continue as an active Master Gardener next year. No Is Selected And In 2014, were you active (6 hours of continuing education and 12 or more hours of voluntary community service) in the Master Gardener program? No Is Selected

Q11 Please explain.

If Please explain. Is Displayed, Then Skip To Please check the primary reason you a...

Q21 Thinking of your current local Master Gardener Coordinator, please answer the following questions. My coordinator is:

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)
Welcoming/Friendly (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organized (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledgeable/Informed (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responsive (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supportive/Encouraging (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 What improvements would you suggest at the county level?

Q23 To what extent have you used the following Master Gardener resources? (listed in random order)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)
Iowa Master Gardener training materials (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interaction with local Master Gardener Coordinator (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
State Master Gardener News and Views electronic newsletter (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ISU Extension Horticulture & Home Pest newsletter (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ISU Extension Yard & Garden FAQs database (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ISU Plant, Insect & Diagnostic Clinic (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
eXtension Master Gardener blog (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upper Midwest Regional Master Gardener conferences (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
International Master Gardener conferences (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ISU Extension publications (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local county Master Gardener	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

newsletter (11)				
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Q24 To what extent would you be interested in learning more about the following horticultural topics? (listed in random order)

	Not at all interested (27)	Slightly interested (28)	Moderately interested (29)	Very interested (30)
Sustainable horticultural practices (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local Foods (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food Safety (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Youth Garden Education (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrated Pest Management (IPM) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landscape Ecology (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organic gardening (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plant diagnostics (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Native plants (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composting (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plant propagation (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 To what extent would you prefer the following delivery methods for future Master Gardener continuing education? (listed in random order)

	Not at all interested (1)	Slightly Interested (2)	Moderately Interested (3)	Very Interested (4)
State electronic newsletters (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Face-to-face presentations/lecture (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio podcasts (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Real-time Adobe Connect webinars (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-paced on-line training modules (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hands-on workshops (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organized field trips (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video presentations (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q26 To what extent are you active on the following types of social media? (listed in random order)

	None (1)	Little (2)	Some (3)	A Lot (4)
Twitter (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pinterest (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instagram (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q27 Please indicate which (if any) of the following volunteer and/or community service opportunities you are currently involved with. (check all that apply, listed in random order)

- Advisory Board/Committee (1)
- Answer clientele questions one-on-one (2)
- Answer horticulture related phone calls during scheduled hours at an extension office (3)
- Assist 4-H'ers with garden projects (4)
- Assist with community Arbor Day festivities (5)
- Assist with community solid waste reduction programs (6)
- Conduct educational meetings or workshops for youth and adults (7)
- Continuing education requirement (8)
- Coordinate and organize local farmers markets (9)
- Coordinate gardening project at correctional facility (10)
- Help at ISU gardens and demonstration plots (11)
- Help at public parks, arboretums, botanical centers (12)
- Youth education and training (13)
- Organize and/or staff displays or booths at lawn and garden shows (14)
- Participate in radio and TV programs (15)
- Serve as a Master Gardener volunteer coordinator (16)
- Write a local Master Gardener newsletter (17)
- Write columns for a local paper (18)
- Other (19) _____

If Advisory Board/Committee Is Displayed, Then Skip To What is your age?

Q12 Please check the primary reason you are no longer volunteering as an Iowa Master Gardener.

- Health reasons/Illness (1)
- The program did not meet my expectations (2)
- I did not learn enough about horticulture (3)
- I do not have the time to volunteer (4)
- The volunteer opportunities did not meet my expectations (5)
- The cost of the program became too high (6)
- Privacy issues/Background check (7)
- Ineffective coordination at the local level (8)
- Other (9) _____

Answer If Please list the primary reason you are no longer volunteering as an Iowa Master Gardener. The program did not meet my expectations Is Selected

Q13 Please explain how the program did not meet your expectations.

Answer If Please list the primary reason you are no longer volunteering as an Iowa Master Gardener. I did not learn enough about horticulture Is Selected

Q14 Please explain why the program did not meet your expectations.

Answer If Please list the primary reason you are no longer volunteering as an Iowa Master Gardener. The volunteer opportunities did not meet my expectations Is Selected

Q15 Please explain how the program did not meet your expectations.

Answer If Please list the primary reason you are no longer volunteering as an Iowa Master Gardener. Ineffective coordination at the local level Is Selected

Q16 Please explain how the program did not meet your expectations.

Q17 Please list any additional reasons that are causing you to not volunteer any longer.

Q20 What, if anything, could we have done differently (at the state or county level) to have kept you in the program?

Q18 Based on your experience, how would you rate the Iowa Master Gardener program?

- Very Good (1)
- Good (2)
- Fair (3)
- Poor (4)

Q19 Would you recommend the Iowa Master Gardener program to others interested in horticulture?

- Yes (1)
- Maybe (2)
- No (3)

<p>No matter how bad I've been feeling, volunteering as a Master Gardener helps me to forget about it. (7)</p>	<input type="radio"/>						
<p>I am genuinely concerned about the home gardeners I am serving. (8)</p>	<input type="radio"/>						
<p>By volunteering as a Master Gardener I feel less lonely. (9)</p>	<input type="radio"/>						
<p>Through the Master Gardener program I can make new contacts that might help my business career. (10)</p>	<input type="radio"/>						
<p>Doing Master Gardener volunteer work relieves me of some of the guilt over being more fortunate than others. (11)</p>	<input type="radio"/>						
<p>I can learn</p>	<input type="radio"/>						

experience. (18)							
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about myself. (27) Master Gardener volunteer experience will look good on my resume. (28)	<input type="radio"/>						
Volunteering as a Master Gardener is a way to make new friends. (29)	<input type="radio"/>						
Through the Master Gardener program I can explore my own strengths. (30)	<input type="radio"/>						

Q28 What is your age?

- (1)
- 20's (2)
- 30's (3)
- 40's (4)
- 50's (5)
- 60's (6)
- 70+ (7)

Q29 What is your gender?

- Male (1)
- Female (2)

Q30 What is your relationship status?

- Single, never married (1)
- Married (2)
- Divorced (3)
- Widowed (4)
- Separated (5)

Q31 Do you have children?

- Yes (1)
- No (2)

Answer If Do you have children? Yes Is Selected

Q32 What are the ages of your children? (click all that apply)

- Pre-Elementary School age (1)
- Elementary School age (2)
- Junior/Senior High School age (3)
- College age (4)
- Adult (5)

Q33 What is your annual household income level?

- under \$30,000 (1)
- \$30,000 - \$49,000 (2)
- \$50,000 - \$69,000 (3)
- \$70,000 or greater (4)

Q34 What is your current work status?

- Work outside the home full time (1)
- Work outside of the home part time (2)
- Do not work outside of the home (3)
- Retired (4)

Q35 What is the highest level of education/schooling you have attained?

- Elementary (1)
- Senior High School (2)
- Associates Degree (3)
- Bachelor's Degree (4)
- Graduate Degree (5)

Q36 How many years have you lived at your current residence?

- Less than 5 years (1)
- 6-10 years (2)
- 11-20 years (3)
- More than 20 years (4)