industry and other universities through inclusion in the yearly OARDC Ornamentals Annual Reports and Research Summaries Circular (Boggs et al., 1996; Chatfield et al., 1996).

Evaluation

Annual evaluation surveys of BYGL are sent to readers. A sampling from the 1995 survey (251 respondents) includes the following:

- 58% strongly agreed and 41% agreed (1% was neutral) that BYGL was useful to his or her job or business
- 48% strongly agreed and 43% agreed (9% was neutral) that BYGL was useful for clientele questions
- 46% strongly agreed and 48% agreed (6% was neutral) that BYGL was useful in identifying plant problems
- 62% strongly agreed and 33% agreed (4% was neutral, <1% disagreed) that BYGL was timely

Respondents also listed several specific uses of the BYGL. For example, information found in the BYGL was used in news articles, newsletters, and as an information base for radio and TV programming.

Sample

Here is a typical example of BYGL reports from BYGL 94-3:

FORSYTHIA BLOOM. By now everyone is weary of the saga of forsythia blooming only below the insulating snowline due to flower bud death during the January freeze (BYGL 94-1).

Occasionally someone calls and mentions that his forsythia is in full bloom, all the way to the top of the plant. What gives? It's not wishful thinking—perhaps he simply has one of the forsythia cultivars with more winter-hardy flower buds.

Chuck Behnke reports that Meadowlark is in full bloom in Medina County, and Chatfield saw this cultivar in full glory at Kingwood Center in Mansfield on 19 April. Michael Dirr, in his *Manual of Woody Landscape Plants*, notes that flower buds of Meadowlark are hardy to -35F. Chatfield's nurserywoman sister-in-law Jane also reports that the forsythia cultivar Northern Sun is in full bloom in chilly Maine.

The Buckeye Yard and Garden Line approach offers an economical and efficient way of getting timely information to extension, industry, and consumer clientele. As electronic mail becomes more widespread, an ever-increasing audience will benefit from this new methodology in communications.

For further information, or to subscribe to the BYGL, contact: fischnich.1@osu.edu.

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Factors Influencing Volunteering in the Master Gardener Program

Frederick R. Rohs¹ and Robert R. Westerfield²

Summary. Limited budgets and downsizing have threatened the delivery of technological and educational information by the cooperative extension service. As such trends continue, volunteers become more important. Background factors, influence of specific individuals, attitudes toward the value of the program, and personal benefits received influence a person's decision to become a Master Gardener volunteer. In this study, individuals who were older than 50 and had children and parents who were former volunteers in an extension program were more likely to become Master Gardener volunteers, as were individuals who felt that the Master Gardener program benefited the community and themselves. Specific individuals, such as garden club members, other Master Gardeners, a neighbor, or persons holding leadership positions in the community, might also influence an individual's decision to volunteer.

Limited budgets and downsizing in the cooperative extension service have threatened program availability, expansion, and staffing. Such events have forced cooperative extension to reexamine the delivery of programs, technological information, and services. One way to maintain the current level of programs and services is to recruit and retain volunteers. Effective recruitment and retention depends on understanding why individuals volunteer.

The reasons for volunteer participation are many. Smith (1972) proposed that special attitudinal factors influence volunteer participation in addition to social background factors such as age, sex, and educational and income levels. These attitudinal factors include perceived benefits the community and society reap from the organization (societal value), perceived benefits individuals gain from volunteering in the organization (personal benefits), and the influence specific individuals have in the personal decision to volunteer.

Many Master Gardener volunteers feel that the community benefits greatly from the program. These benefits include beautifying the community, improving the citizenry through education (Relf and McDaniel, 1994), increasing community stewardship, and improving the environment (Hlubik and Weidman, 1995).

Personal benefits from volunteering as a Master Gardener include gaining knowledge, self improvement (Simonson and Pals, 1990; Stowe and Marr, 1992), and helping and working with others (Simonson and Pals, 1992). Other studies of extension volunteer programs (Rohs, 1986; VanTilburg-Norland, 1992) showed that

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reputation or status of the organization or program attracted persons and influenced participation as did the reputation of specific individuals (Rohs, 1986; Stowe and Marr, 1992).

Few researchers have looked at all of these factors together. This study sought to combine several broad factors (social background, societal and community benefits, personal benefits, and influences of other individuals) into one study to determine the relative importance of factors that influence volunteering in the Georgia Master Gardener program.

Methodology

The data came from Master Gardeners from 12 Atlanta metropolitan counties who completed training in February

Table 1. Demographics of Georgia Master Gardeners who completed training in February 1993; n = 77.

Parameter	Percentage
Age	
Under 25	5
25 to 50	40
Over 50	55
Gender	
Female	69
Male	31
Marital status	
Married	84
Single	16
Have children	
Yes	79
No	21
Occupation	
Business	24
Homemaker	24
Retired	29
Professional	16
Laborer	8
Income	
Less than \$20,000	12
\$20,000 to \$50,000	36
More than \$50,000	52
Parents were extension volunteers	
Yes	3
No	97
Education	
High school graduate	8
Some college	41
College graduate	35
Graduate or professional School	16
Spouse is a Master Gardener volunteer	
Yes	10
No	90
Residence	
Urban	32
Suburban	57
Rural	11
Years in present location	
Less than 5	27
5-10	31
More than 10	42

1993. In June 1994, a preaddressed, stamped questionnaire was mailed to 110 individuals. To increase the response rate, follow-up mailings were administered 2 weeks later to nonrespondents. Replies from late respondents were compared statistically to early respondents to estimate the nature of replies from nonrespondents as proposed by Miller and Smith (1983). No significant differences were found on key variables (demographic and volunteering activity) between early and late respondents. A total of 77 individuals returned the questionnaire for a response rate of 70%.

Attitudinal factors influence participation in a voluntary activity. Three attitudinal factors examined in this study were defined as follows:

Societal value—To what extent do the Master Gardeners perceive the program to be needed in society? What purpose does it serve? What benefits do the society and community reap from the existence of this program?

Personal benefit—What benefits does the individual reap from the program? What is attractive to the individual about this program?

Influence of others—What influence did other individuals have in one's decision to participate as a Master Gardener volunteer?

Indicators of societal value and personal benefit were based on scales with Likert-type statements. Face validity was determined by seeking opinions and suggestions from a six-member panel of county extension agents and former Master Gardeners about the instrument used during a pilot test. For the pilot test, the Cronbach alpha coefficient (Cronbach, 1971) was used to assess the reliability of the two scales included in the questionnaire. The reliability coefficients for the scales were 0.88 for societal value and 0.89 for personal benefit.

Perception of societal value of the Master Gardener program was determined by summing the responses to each of 12 items on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), indicating the degree to which the respondent agreed or disagreed with the statement. Mean scale scores for each individual >2.5 on a grand scale mean were interpreted as indicating a favorable attitude about the societal value of the Master Gardener program; scores <2.5 on a grand scale mean were interpreted as unfavorable attitudes toward the program.

Personal benefit of the program was determined by summing the responses to each of 19 items in the scale in which volunteers indicated on a 5-point scale ranging from

Table 2. Voluntary activity of Georgia Master Gardeners who completed training in February 1993; n = 77.

Activity	Percentage
Presently volunteering as a Master Gardener	
Yes	90
No	10
Hours volunteered per year at the county level	
Less than 20	48
20-40	12
More than 40	40
Hours volunteered per year at area and state level	
Less than 20	57
20-40	15
More than 30	28

Table 3. *Societal value of Georgia Master Gardener program.*

Statement—The Master Gardener Program, more than any other similar organization...	Mean ^z
Provides opportunity to learn about plants, soil, and horticultural topic.	4.60
Teaches knowledge and skills that contribute to the advancement of mankind and society.	4.33
Benefits local, state, and national economy.	4.29
Provides practical classroom instruction and hands-on experience.	4.06
Meets adult needs not met by other parts of society.	4.06
Provides better instruction in horticultural skills.	3.89
Contributes to community growth and development.	3.88
Encourages individual independence.	3.79
Promotes feeling good about yourself to be able to perform life tasks.	3.77
Provides adults with social rewards for productive effort.	3.69
Provides opportunity to assume responsibility.	3.69
Provides educational benefits not provided by private sources or nurseries.	1.95
Grand societal value scale mean	3.8

^z1 = strongly disagree, 5 = strongly agree.

1 (strongly disagree) to 5 (strongly agree) the degree to which they agreed or disagreed with the statement. Mean scale scores for each individual >2.5 on a grand scale mean were interpreted as indicating that the Master Gardener program had some benefit features that could be realized on an individual basis by being a Master Gardener volunteer.

To measure the influence of other individuals, we asked the Master Gardeners to indicate, from a list of individuals provided, how influential each person was in their decision to volunteer. The degree of influence for each individual was rated on a 4-point scale ranging from 1 (much influence) to 4 (no influence).

Demographic questions (social background factors) included age, gender, income, marital status, education, occupation, having children, volunteer experience of parents and spouses, residence, and length of residence.

To gain a clearer understanding of current voluntary activity, we also asked respondents 1) if they were volunteer-

ing currently as a Master Gardener, and 2) how many hours they had devoted to Master Gardener activities at county, area, and state levels.

Results and discussion

Demographics. Of the volunteers, 55% were over 50 years of age (Table 1), 69% were women, 84% were married, 79% had children, 23% were employed in business, 24% were homemakers, 29% were retired, 16% were professionals, and 8% were laborers, 57% lived in a suburban area, 42% had lived in the present location over 10 years, 52% reported incomes at or above the \$50,000 category, 80% had completed high school, 41% had some college education, 35% had completed college, 97% indicated that their parents had not been extension volunteers, and 91% of the married Master Gardeners indicated that their spouses were not Master Gardener volunteers.

Voluntary activity. Participation and involvement

Table 4. *Personal benefits of Georgia Master Gardener program.*

Statement	Mean ^z
I like the status of belonging to the Master Gardener organization.	4.38
I like the flexibility I have as a Master Gardener to conduct the types of volunteer work I want.	4.36
Master Gardener materials (training, manuals, newsletters) are excellent.	4.34
There are many rewards for being a Master Gardener.	4.25
As a volunteer organization, the Master Gardeners provide excellent training sessions on conducting adult programs.	3.98
I felt I would have plenty of help after becoming a Master Gardener volunteer.	3.93
Master Gardener provides training for leaders in several skill areas I wanted to develop in myself.	3.81
I feel Master Gardener volunteers are adequately rewarded for their volunteer efforts.	3.80
I receive praise and recognition from being a Master Gardener volunteer.	3.73
The Master Gardener Program does an excellent job of providing recognition.	3.68
As a Master Gardener volunteer, I have gained the respect of many people in the community.	3.44
By becoming a Master Gardener volunteer I felt I could help alleviate some societal problems.	3.32
I like to work with youth and Master Gardeners provides that opportunity.	3.30
The Master Gardener organization is regarded as a highly prestigious organization in the community.	3.28
I became a Master Gardener volunteer because I wanted to meet more people.	3.18
The Master Gardener Program is well known in my community.	2.82
Many influential people in our community belong to the Master Gardener organization.	2.61
There are certain economic benefits gained from being a Master Gardener volunteer.	2.60
The income tax deductions for volunteering are an attractive feature in volunteering in the Master Gardener program.	2.30
Grand personal benefits scale mean	3.5

^z1 = strongly disagree, 5 = strongly agree.

Table 5. Level of influence^z by others on participants as Georgia Master Gardener volunteers.

Influence	None		Little		Some		Much		Mean
	n	%	n	%	n	%	n	%	
Other Master Gardeners	29	38.7	5	6.7	9	12.0	32	43.7	2.56
County agents	27	36.0	7	9.3	18	24.0	23	30.7	2.40
Spouse	21	28.0	12	6.0	15	20.0	27	36.0	2.37
Neighbors	43	56.0	6	7.9	14	18.7	13	17.4	1.60
Garden club members	48	64.0	14	18.7	4	5.3	12	12.0	1.58
Community leaders	51	68.0	9	12.0	7	9.3	8	10.7	1.36
4-H'ers	59	78.7	3	4.0	5	6.7	8	10.7	1.17

^z1 = none, 2 = little influence, 3 = some influence, 4 = much influence; n = 75.

data revealed that 90% of respondents were presently serving as Master Gardener volunteers in June 1994 (Table 2). About half (52%) of the volunteers gave 20 h or more per year at the county level, conducting training sessions, answering phone calls, writing letters and reports, preparing for Master Gardener programs, and participating with other Master Gardeners in meetings, activities, and committee work. However, only 43% gave 20 h or more at area and state levels, participating in fairs, tours, or other statewide events.

Societal value and personal benefits. Master Gardeners had a favorable attitude relative to the societal value of the Master Gardener program. Their mean statement scores ranged from 1.85 to 4.60. The grand societal value scale mean was 3.8 (Table 3). Based on item means, the three qualities most valued by Master Gardener volunteers were 1) the program's ability to provide adults with an opportunity to learn about plants, soil, and related horticultural topics, 2) perceived improvement of the community and society, and 3) benefit to the local, state, and national economy.

Master Gardeners also had a favorable attitude relative to the personal benefits gained from the program. Their grand mean scale score was 3.5 with a range from 2.30 to 4.38 (Table 4). Item means indicated that the three items personally most attractive to the volunteers were 1) status, 2) flexibility of the program, and 3) the quality of the learning materials.

Influence of others. Master Gardeners also were asked to indicate how much influence different people had on their decision to volunteer as Master Gardeners. Respondents indicated that, overall, other Master Gardeners had the most influence, followed by county extension agents, spouses, garden club members, neighbors, community leaders, and 4-H participants, respectively (Table 5).

Factors related to voluntary activity. Table 6 reports the significant relationships among the factors in the study. Only three demographic factors were related to volunteering as a Master Gardener. These factors were age, marital status, and occupational status of being employed in business. Individuals who were married were more likely to volunteer than those who were not married. The older the individual, the more he or she volunteered at the county level. Also, volunteers employed in business and industry, such as in sales or middle management, were more likely to devote more time to Master Gardener activities at area and state levels than those in other occupational categories such as homemakers, retirees, professionals, or laborers.

Attitudinal factors also influenced voluntary activity. The more personal benefits individuals reaped from volun-

teering as Master Gardeners the more likely they were to have continued to volunteer and to volunteer more hours at the county level (Table 6). Individuals also volunteered more hours at the county level if the program was perceived as benefiting their community and society.

The role of several individuals also can influence the voluntary activity of a Master Gardener volunteer. In this study, the more influence 4-H participants and garden club members had on individuals, the more hours they would spend per year at the county level.

To investigate the existence of direct relationships and identify possible predictors, we used stepwise regression analysis. The stepwise regression analysis (Table 7) revealed that eight variables explained about 34% of the variance in whether or not an individual volunteered in the Master Gardener Program: influence of garden club member, whether parents were volunteers, personal benefits, societal value, having children, age, influence of a community leader, and influence of a neighbor. Only 34% of the variance could be explained in this study; however, in my experience, most research of this nature explains 25% or less of the variance.

Individuals who were older than 50 and felt that the community and society benefited from the program, and who derived some personal benefit from participating as a volunteer, were more likely to become a Master Gardener

Table 6. Pearson product moment coefficients for significant relationships between factors; N = 77, P < 0.01.

Factor	Pearson coefficient
Presently volunteering ^z	
Marital status ^y	0.28
Personal benefits of Master Gardener program	0.30
Influence of 4-H members ^x	0.23
Influence of Garden Club members ^x	0.32
Hours volunteered per year at county level	
Age	0.26
Societal value of Master Gardener program	0.33
Influence of 4-H member ^x	0.28
Influence of Master Gardeners ^x	0.25
Hours volunteered at area and state levels	
Employed in business ^w	0.29

^z1 = yes, 2 = no.

^w0 = no, 1 = yes.

^y0 = married, 1 = not married.

^x1 = no influence, 4 = much influence.

Table 7. *Eight-variable regression model of factors affecting current volunteer activity; P < 0.01.*

Factor	Partial R	Model R	F value (variable entered)
Influence of garden club members ^z	0.103	0.103	8.45
Parents were volunteers ^y	0.065	0.168	5.61
Personal benefits	0.037	0.206	3.35
Societal value	0.037	0.244	3.50
Have children ^x	0.023	0.267	2.18
Age	0.024	0.291	2.32
Influence of community leader ^z	0.023	0.314	2.26
Influence of neighbor ^z	0.023	0.338	2.36

^z1 = no influence, 4 = much influence.

^y0 = no, 1 = yes.

^x1 = yes, 2 = no.

than individuals younger than 50 who did not view the program as benefiting the local community or themselves (Table 7).

These findings have implications for how we recruit volunteers for the Master Gardener program and how we can keep them involved. Background information about an individual such as age, marital status, occupation, and whether or not he or she has children or parents with previous volunteer experience can help Master Gardener coordinators identify persons who are more likely to volunteer. Also, identifying community leaders who belong to local garden, civic, church, or governing groups and enlisting them as recruiters may enhance the ability to gain additional Master Gardener volunteers. Lastly, the recruitment process must emphasize that the community and the volunteer benefits from the Master Gardener program. Listing these potential benefits and discussing them during the recruitment process should help recruitment efforts.

Conclusion

Because individuals who were older than 50, married, employed in business, and had children and parents with previous volunteer experience were more likely to be volunteering currently, recruitment and retention efforts should be aimed at these individuals, since they are more likely to volunteer and continue volunteering. Retention efforts should emphasize the various societal and community value and personal benefits that individuals may realize from being a Master Gardener volunteer. Other individuals such as garden club members, 4-H members, community leaders, and neighbors also can influence an individual's voluntary activity and enhance retention efforts.

Intensity of Master Gardener activity at the county and area and state levels also is associated with several factors. Older individuals who feel their voluntary efforts benefit the community (high societal value) and are influenced by 4-H members and other Master Gardeners are likely to devote more hours to Master Gardener activities at the county level. Master Gardeners employed in business are more likely to devote more hours to area and state Master Gardener activities than retirees, homemakers, and laborers. While we traditionally have thought of retirees as having more time to

devote to volunteer activities, they may be less willing to volunteer for Master Gardener activities that require travel from the local community. Individuals employed in businesses, such as sales and management, travel frequently and are more likely to volunteer for area and state activities requiring travel.

While this study targeted Master Gardeners in the 12-county Atlanta area, our findings are similar to other volunteer action studies on different groups (Houghland and Wood, 1980; Rohs, 1986). Knowledge of these factors may allow managers of Master Gardener programs to determine why individuals volunteer, thus aiding retention efforts.

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