MEASURING THE SUCCESS OF WOMEN LED “DRY ZONE HOME GARDENING” PROGRAM WITH ORGANIC AMENDMENTS IN SRI LANKA

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Abstract: This paper attempts to measure the level of success of the dry zone home gardening (HG) program introduced by the government of Sri Lanka among the women. The women used the organic amendments for their HG activities. This study assessed the success of the program and the constraints faced in engaging in home gardening using organic amendments, and solutions to overcome were identified. Using an interviewer administrated structured questionnaire and purposive sampling technique, data were collected from 80 beneficiaries in Thirappane DS division. The results revealed that the beneficiaries were mainly married, unemployed, with no primary education and in more than 50 years' age category. There was significant relationship between two socio-economic factors, farming factors, reasons to engage in home gardening with organic amendments, and outcomes of the program. Majority of women perceived that all the purposes of the program were successfully achieved. But 91.25 % of women have no idea on farming with organic amendments at large scale. Most influencing reason was the resulting low productivity with organic amendments. To address these solutions, the government should intervene to build the larger scale farming with organic amendments in Anuradhapura district.

Keywords: *Anuradhapura district, Home gardening program, Organic amendments, Women*

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INTRODUCTION

Sri Lanka is a lower middle-income country with a GDP per capita of USD 4,073 (CBSL, 2018) and a population of 21.67 million people (DCS, 2018). It is transitioning from a predominantly rural-based economy towards an urbanized economy depending on manufacturing and services. Despite this transition, agriculture contributes 7% of GDP (CBSL, 2018) and employs around 26.1% of working population concentrated in the rural sector. The rural population is 77.4 % of the total populace. With the economic growth, the national poverty headcount ratio declined from 15.3 % in

2006/07 to 4.1 % in 2016. Among the population, 56% contributes to the labor force in country. Unemployment rate is higher in rural areas among the women 6.5% (Census and Statistics, 2017).

The dry zone of Sri Lanka is well-known as the cradle of island's hydraulic civilization with the foremost kingdom, Anuradhapura. Average annual rainfall in the dry zone is generally 1000mm mostly from October to December and has a dry period from late May to September (Burt and Weerasinghe, 2014). Average temperature of Anuradhapura is 28.4 Celsius. Total employed population is 61.3%, comprising 78.7% of males

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and 46.7% of females. Out of the population 46.1% contributes for the agriculture sector while unemployment rate is 4.6. Contribution as family workers is 18.9% in Anuradhapura district and it is the highest proportion of family worker contribution rate in the country. This is more common among females. About 79% of contributing family workers are female (Census and Statistics, 2017).

On the other hand, extensive use of agrochemicals has become a debated issue after the identification of Chronic Kidney Disease of unknown etiology (CKDu) in the dry zones especially among farmers. It has become the main health problem in north central province (NCP) with highest records of mortality and morbidity rates and recognized reasons were unknown (Rathnayake *et al.*, 2012, Noble *et al.*, 2014). Affected people are in the ages range of 40-60 years, and most of them are farmers or agricultural laborers. Though causality for the CKDu has not yet been identified, it is believed accumulation of heavy metals are aggravating the CKDu (Wanasinghe *et al.*, 2018). The demand for organic products has increased specially among urban consumers from places where they could get an assurance about the quality of the products (Anuradha, 2001; Wimalawansa, 2014; Jayasumana *et al.*, 2015). Organic agriculture is seen as a sustainable solution to combat these issues (Ranasinghe, 2016). Government has also taken step to ban certain agrochemicals (Malkanathi *et al.*, 2019) and promote organic cultivation.

The government intervened to reduce the use of intense inorganic agrochemicals and provide adequate supply of organic products for farmers. In Sri Lanka, organic farming with proper standards were initiated in 1979 by a non-government organization, namely, “*Gami Seva Sevana*” (Jayakodi, 2001). But, recently Sri Lankan government introduced *Gewathuwagawa* program (i.e. Home gardening program) under the food production national program in 2016 with the main purpose of promoting women to use the organic amendments while up lifting the rural livelihood. The beneficiaries were women. The government provides the seeds of vegetables and fruits, extension services, training programs and the related inputs. But households were asked only to use organic amendments for growing crops from

those who took part in the “Dry zone home gardening program for Anuradhapura District.

HGs have been an ancient land use activity in the tropical world (De Silva, 1981; McConnell, 1992, 2003; Kumar and Nair, 2004). HGs are farming systems that are located adjacent to homes, in close association with family activities and a wide diversity of plant species and livestock species to meet family needs (Landon-Lane, 2004). The value of HG is that it is the source for securing food in home (Marambe *et al.*, 2015; Montagnini, 2006), generating income or reinvesting income for the family (Pushpakumara *et al.* 2012) and acquiring the family neediness of nutrients (Fernandest and Nair, 1986; Marsh, 1998; Landon-Lane, 2004; Kumar and Nair, 2007; Galhena *et al.*, 2013).

This study aims to assess the success of dry zone home gardening program with organic amendments. The specific objectives are; (i) to identify the relationship between socio-economic factors and the reasons to engage in dry zone home gardening by women; (ii) to identify the relationship between the farming factors and reasons to engage in home gardening with organic amendments, and outcomes of the program; (iii) to identify the relationship between the reasons to engage home gardening with organic amendments and outcomes of the program; (iv) to assess the level of success of the dry zone home gardening program and (v) to identify the constraints in engaging with home gardening with organic amendments and the identify the remedies to these constraints.

RESEARCH METHODS

Study Location

Anuradhapura is one of main district in Sri Lanka which contributes significantly for national income through agriculture. Its average annual rainfall in the dry zone is generally 1000mm mostly from October to December and has a dry period from late May to September (Burt and Weerasinghe, 2014). Average temperature of Anuradhapura is 28.4° Celsius (Census and Statistics, 2017). Highest family worker participation (18.9%) is in Anuradhapura district. Anuradhapura has been heavily affected by CKDu and issues with drinking water. Thus, Anuradhapura was selected as the study area purposively. There are 23 DS divisions in Anuradhapura district and out of these,

Thirappane DS division was selected and four GN divisions in Thirappane were used for the study.

Sampling and data collection

The conceptual framework (Fig. 1) summarizes the data which were collected. It illustrates the socio-economic factors, farming factors and reasons for engaging in home gardening with organic amendments, outcomes of the program, constraints, and remedies. Questionnaire had five sections: socio-economic factors, farming factors related with home gardening by using organic amendments (8 factors), reasons for engaging home gardening with organic amendments (3 factors), outcomes of the program (6 factors), and constraints by using organic amendments for home gardening and

remedies according to their point of view (see fig.1).

From each GN division, twenty women respondents participated for the survey. They all took part in the dry zone HG program. The total sample size was eighty women engaged in HG's program and random sampling was used for this study (Mokone *et al.*, 2018). A pilot test was done with key informant interviews to finalize and validate the questionnaire. Then, an interviewer administered structured questionnaire was used to collect data. Additional interviews were conducted with regional agriculture officers and GN division government officers who support this program.

Figure 01: Conceptual model on establishing HG's with organic amendment

The socio-economic factors of the respondents were analyzed with descriptive statistics, Correlation analysis and chi-square tests. The relationships between socio-economic factors and reasons for engaging home gardening with organic amendments, outcomes of the program, farming factors related home gardening and reasons for engaging home gardening with organic

amendments, outcomes of the program and the reasons for engaging home gardening with organic amendments and the outcomes of the program were analyzed. A SWOT analysis was also performed.

RESULTS AND DISCUSSION

This section presents the findings and discussion emanating from the findings.

Sample Profile

Out of 80 respondents interviewed who were engaged in 'dry zone home gardening' program, all the respondents were married. Majority of women (31.25 %) were in the middle ages, ranging from 31-40 years of age category (Table 1). Almost quarter of the respondents were in the age categories of 41-50 years (25 %) and 51-60 years (23.5 %). The mean age of the sample was 46 years. It has been found that at old ages people are less likely to involve in to vegetable production and

improvements (Falola *et al.*, 2013). And young vegetable growers usually exhibited by youth accounts for majority of agricultural labor (Falola *et al.*, 2013; Muhammad-Lawal *et al.*, 2009). So majority of women were in middle age (31-40) and (41-50) age categories (almost 55 %). So, there is potential of enthusiasm and ability to adapt new concepts like organic farming. Further, their economic motives urge them to engage better with farming. They are also physically committed and available for involvement in household activities compared to the people in their twenties who are involved education and career advancement.

Table 1. Demographic and socio-economic characteristics of the respondents (n=80)

Variable	Category	Frequency	(%)
Age Mean – 46.08years	21-30	7	8.75
	31-40	25	31.25
	41-50	19	23.75
	51-60	20	25
	>60	9	11.25
Educational level	No education	15	18.5
	Primary education	42	51.9
	Secondary education	23	29.6
Household size	1-4	51	63.75
	5-8	29	36.25
Occupation	Government	1	1.2
	Other	21	26.3
	No	58	72.5
Farm land size Mean– 0.2856ha	0-0.25	64	80.1
	0.26-0.5	15	18.6
	0.51-0.75	1	1.3
Farming experience Mean– 12.41 years	No	4	5
	1-5	20	25
	6-10	18	22.5
	11-15	14	17.5
	16-20	12	15
	>21	12	15

Source: Survey data

Education is generally considered an important variable that could enhance farmers' adoption of new technology (Agwu, 2004; Omotesho *et al.*, 2012). In the sample, about 52% had acquired education only up to primary education level. Around thirty 30% had education up to secondary level and the rest (18%) did not have education even up to primary level (Table 1). Since, a significant number of people are educated. There is great potential for adaption of new technology and

innovations regarding organic farming even at household level.

The results showed that, 63.75 % of respondents had a household size ranging 1 to 4 members, and others (35.25%) had 5 to 8 family members. Most respondents (72.5 %) had no employment and they were housewives. About 26.3 % of respondents had private or self-employment and only one women had government job. This shows that HGs can be used as a viable option for empowering women in this area. In most of the cases women's

contribution has not been sufficiently studied both in terms of socially and economically. HGs can be used as a means of empowering women, to contribute to the family economy with an additional income and improve women's decision making abilities (Gamhewage *et al.*, 2015). Further Gamhewage *et al.*, reveal that the best strategy practiced by the urban women farmers to uplifting the family economy is re-investing the income or savings of household expenditure due to urban agriculture activities on same agricultural activities. And another research carried out on market gardens in elsewhere has shown that a 10 m x 20 m (0.05acr) vegetable plot for small farm families can increase the family income by 30% (Chadha and Oluoch, 2003). Most of the respondents, 64 % had land area less than 0.25 acres. The average land area was 0.2846 acres for the respondents. According to Marambe *et al.*, 2012, an average size of HGs discussed as less than 0.6 hectares. So, majority had adequate land area for their home gardening. In this study, majority of women have 0.25 acres of land area which was used for home gardening. Thus, women house makers could even generate an income through this HG program. Malkanthi (2016) points out that in underutilized crop cultivation, women contribution outperforms men's contribution compared to conventional farming. Thus, there is a chance of increasing the income from somewhere up to 15 to 20% from these HGs.

In addition, majority of women's (60.5 %) husbands are employed in farming and about 39.5 % were engaged with employment other than farming. This would bring significant improvements in household where the husbands are involved in any other jobs except farming. Because when farming is the main occupation both the husband and wife will be supporting the activities as HGs might not bring an additional income. This

income generated comes under farming and decision making is not done by the women farmers, rather by male counterparts.

With regard to farming experience, 25 % of respondents had experience between 1-5 years (table 1). Approximately another 22% of women had between 6 to 10 years. Roughly around 15% of each had between 11-15 years, 15-20 years and more than 20 years of experience, respectively. Few (5%) had no farming experience who were aged between 21-30 years. Majority had experience of HG than 10 years (mean = 12 year). Most of them had traditional knowledge regarding farming as they practice. So, they have an ability to utilize this knowledge for home gardening again. Though most of studies had revealed of HGs regarding on how to manage plants and their sustainable use, there were only a few studies regarding on the local practices, traditional uses and management of various plants besides the species inventories (Hitinayake and Sinclair, 1994; Nuberg *et al.*, 1994; Sinclair and Hitinayake, 2000).

Relationship Between Socio-Economic Factors, Reasons for Engaging in HG, and Outcomes of The Program

The socio-economic factors such as age, education level, land area and whether husband engaged in farming or not affected for the reasons to engage with dry zone home gardening. As the reasons the demand of the organic products, health concerns, and additional income were considered. The outcomes were higher long-term productivity, higher contribution of family members, greater food stability in family, higher environmental sustainability, and higher additional income were considered. The chi-square results discussed that the few associations were present between socio-economic factors and the reasons for engaging home gardening program and outcomes of the program. Presented (Table 2).

Table 2. Chi-square results for reasons to engage in HGs and outcome of the program

Factors	Chi-square value	P value
Own land area versus concerning the demand for organic products	32.465	0.000
Women's husband is doing farming as occupation versus concerning other income source	8.649	0.034
Own land area versus acquiring higher additional income	19.820	0.003

Note: significant at p =0.05 level

According to the results, there is a significant relationship between perception on own land area

versus concerns on demand for the organic products, χ^2 (2, N = 80) = 32.465, p <.05. The

production quantity depends on directly on the land area. At present demand for organic products, is increasing (Kapuge, 2016). Also, the relationship between women's husband is doing farming or not and the household's concern to earn an additional income (yes/no) are significantly associated. The relation between these variables was significant, χ^2 (2, N=80) = 8.649, $p < 0.05$. If women's husband is a farmer, from their collective effort, they can develop their HG. Through that, they can acquire a greater output. So, this leads to gain an additional income. Thus, when it comes to economies of scale in inputs, the families with farming can do well in HGs as well (Duffy, 2009). The motivation to earn an additional income is one of the reasons for maintaining a HG. Gaining additional income is one of outcome of the "home gardening" program. There is a significant association, χ^2 (2, N=80) = 19.820, $p < 0.05$ between the motivations to earn an additional income versus land size. Which suggests women are motivated to earn more when there is more land.

Relationship Between Farming Factors, Reasons to Engage in HG Program with Organic Amendments, and Outcomes of The Program

Under the farming factors, organic amendments, other inputs which are needed for cultivation, extension services, supervision of agricultural instructors, irrigation facilities and experience for farming of women were considered. Mostly they used mulch, cow dung and other amendments like gliricidia (*Gliricidia sepium*), food waste etc. as the organic amendments.

Table 3. Sources of inputs for HG

Organic amendment	Source	% age
Cow dung	Homemade	11.25
	Buying from market	6.25
	Neighbours	82.5
Mulch	Home made	100
Other amendments	Home made	100

Source: Survey data

Since these women live in rural areas, they have adequate access to mulch for preparing compost. Cow dung is a common organic amendment which is used in rural areas for organic farming for a long time. However, some women

complained about getting cow dung for free. Thus, they are forced to buy cow dung from market or anybody who has a cow shed in the village or the neighboring villages. Usually they had to buy a gunny bag of cow dung from market for Rs. 500 to Rs.600. Only few women possess cowsheds at their home (Table 3).

Water is an important input. It is one of the major constraints for some women. They did not have adequate water to be used to their HGs especially during the dry season. But majority of women (68.75%) had their own wells and neighbors' wells while some used rain water (32.5%). In labor, majority (96.25%) did not hire labor while few women (3.75%) hire labor for their cultivation. These women cultivated beetle as the main crop at their HGs. Most of the women obtain family labor from their families. Since HGs are smaller in size there is no need to hire labor. Labor is hired when certain activities cannot be performed by them or by the family members, (Table 3). The contribution of family members strengthens the relationship and bonding within the family (Kumar, 2006; Gray, 2013).

All the women used the vegetable seeds which were given by the government in their HGs. In addition to that some fruit were cultivated. The commonly cultivated vegetables are brinjal (*Solanum melongena*), lady's fingers (*Abelmoschus esculentus*), curry chilly (*Capsicum frutescens*), chilly (*Capsicum annum*), turkey berry (*Solanum torvum*), wing beans (*Psophocarpus tetragonolobus*), kekiri (*Cucumis melo*), eggplant (*Solanum melongena*), long beans (*Vigna unguiculata*), tomato (*Lycopersicon esculentum*). Spinach (*Basella alba*) was cultivated as leafy vegetables and as fruits, mango (*Mangifera indica*) and guava (*Psidium guajava*) were cultivated. All vegetables are annual crops and fruits are perennial. Also, few women were cultivated beetle (perennial crop) in their HGs. One notable feature is that, cultivation of eggplant with organic amendments seems difficult. As pests and diseases can be easily attacked the eggplants than other vegetables (Srinivasan, 2009). Since they do not have efficient biological or bio-chemical control methods, they have no ability to control the pest and diseases. There is a need to come up with a solution for pest and disease attacks in egg plants which is viable at HG level.

Sri Lanka provides 100% subsidized free extension service to the farmers in general. From this program, government supported these HG owners with extension facilities. All the women obtained extension services for acquiring the knowledge of making compost and controlling pest and diseases. But, as they complain, even the extension officers do not have sufficient knowledge with novel techniques for these matters. They have been trained only regarding making compost and bio-chemicals. But none of the women, have prepared bio-chemicals. So there is a requirement for providing sufficient knowledge or training for the women regarding preparing bio-chemicals. Also it was revealed that the supervision of HGs done by Agriculture Instructors is at a lower level. Majority (52.5%) said that extension officers supervised one time per month and 42.5% reports

they discussed about HGs with them as two times per month, on average. Elapata *et al.* (2015) also discusses the role of extension officers in “*Divi Neguma*” rural development program specifically on HGs. If this is at a satisfactory level, efficiency of the women who are taking part in this program would go up and they would be motivated. Further knowledge sharing, and adoption of practices that were demonstrated in training programs would be used in a meaningful manner. Especially techniques like bio-chemical and compost preparation would be much successful for farming.

As the farming factors, availability of organic amendments, availability of water, extension services, available time for home gardening, experience of home gardening and availability of labor were considered (Table 7).

Table 4. Chi square results between farming factors and the reasons for engaging home gardening with organic amendments.

	Factors	Chi-square value	P value
Use of cowdung or not	Concerning demand for organic products	14.499	0.025
	Health consciousness	12.489	0.002
	Concerning to earn additional income	24.132	0.000
Participation training programs	Concerning to earn additional income	9.570	0.023

Note: significant at p =0.05 level

According to the results, there is a significant relationship between use of cow dung and perception about demand for home grown products, χ^2 (2, N = 80) = 14.499, $p < 0.05$. Cow dung is a major input for preparing compost. Compost is the main fertilizer to increase the production in organic cultivation. This is an essential component to supply more organic produce to meet the increasing demand. Use of cow dung also shows a significant association between health consciousness and motive to earn an additional income. Since cow dung and composts do not contain any inorganic

agrochemicals, they are healthier to the crops and the organic produce are also healthier for human consumption. The association was significant, χ^2 (2, N = 80) = 9.570, $p < 0.05$ was found between participation training programs and motivation to earn additional income. Training program is a popular knowledge dissemination way for farmers. Proper understanding on preparation of compost and bio chemicals is important to develop HGs with organic amendments.

Table 5: Chi square results between farming factors and outcomes of the program

Factors	Chi-square value	P value
Use of cow dung versus higher long-term productivity	15.074	0.020
Availability of water versus higher additional income	27.852	0.000
Availability of water versus higher additional income	10.058	0.039
Participation training programs versus higher contribution of family members	14.085	0.003

Note: significant at $p = 0.05$ level

In the outcomes of the program (table 5), there is a significant association, $\chi^2 (2, N = 80) = 15.074$ $p < 0.05$ and $\chi^2 (2, N = 80) = 10.058$ $p < 0.05$ between use of cow dung versus perception of higher long-term productivity and perception on environmental sustainability. As cow dung and compost include many macro and micro nutrients essential for the plants and improves the soil structure and microorganism ecology (Herrick and Wander, 1997; Suthar, 2012). This will lead to higher productivity in the long-term and environment sustainability. Availability of water is one of major input for cultivation of any crop. So, the association between availability of water and gaining higher additional income was significant, $\chi^2 (2, N = 80) = 27.852$, $p < 0.05$. Proper management of water, will lead to high production and ultimately higher additional income.

A chi-square test of independence was performed to examine the relation between religion and college interest. The relation between these variables was significant, $\chi^2 (2, N = 170) = 14.14$, $p < .01$. There is a significant association, $\chi^2 (2, N = 80) = 14.085$, $p < 0.05$ between participation in training programs and contribution of family members for HG's. The knowledge gained from training program are shared with the family members. Further, some of activities receive the

assistance of family members, especially children. Children support the mothers in irrigation, pruning activities, land preparation, compost preparation etc. This improves the social capital and mental wellbeing of both parents and children (Gray, 2013). The spouse also supports the women when needed.

Relationship between the reasons to engage in HGs with organic amendments and outcomes of the program

There is significant correlation between health consciousness and higher long-term productivity, higher additional income and higher contribution of family members but the relationships were mild weak and negative. The health concerns of the family are the main reason to use organic amendments to HGs. And the concerning demand of organic products has significant correlation with the higher additional income ($\rho = 0.293$, $p < 0.05$). The association was positive between those. Additional income is a motivating factor for families. So, concern for additional income had significant and positive correlations with higher long-term contribution of family members ($\rho = 0.285$, $p < 0.05$).

Table 6. Correlation results between the reasons for engaging home gardening with organic amendments and outcomes of the program

Reason	Outcome	Correlation coefficient	Asymp. Sig. (2-sided)
Health consciousness	Higher long-term productivity	- 0.232	0.039
	Higher additional income	- 0.232	0.018
	Higher contribution of family members	- 0.276	0.013
Concerning demand for organic products	Higher additional income	0.293	0.008
Concerning additional income	Higher long-term productivity	0.245	0.029
	Higher contribution of family members	0.285	0.011

Note: significant at $p = 0.05$ level

Success of the dry zone home gardening program

The government expects six outcomes from dry zone home gardening program. They are long-term

productivity, food stability, additional income, environmental sustainability, and contribution of family members and satisfaction of beautiful garden (Food production national program, 2016).

Table 07. Outcomes of the home gardening program

Factor	%ages according to Likert Scale			
	High	Average	Low	No
Higher long-term productivity	5	42.5	38.8	13.8
Higher additional income	5	36.3	36.3	22.5
Higher contribution of family members	3.8	25	51.3	20
	Strongly agree	Agree	No idea	Disagree
Greater food stability in family	100			
Higher environmental sustainability	5	58.8	36.3	0
Higher level of satisfaction with garden	67.5	28.8	0	3.8

Source: Survey data

According to the results (Table 7) majority of women had acquired average productivity (42.5%). As there is a transition period for yield with organic amendments, the women can't gain the output immediately as in the case with agrochemicals (Santos *et al.*, 2011). Few participants of the sample (5%) gained high productivity through HGs. But the all women acquired the food stability through this program within their family. As 82 % of harvest was used for their home consumption and only 18 % of harvest was sold. The other outcome of success; gaining an additional income, also revealed similar percentages of productivity but, 22% did not earn any additional income. As the quantity of output is low, they sold the vegetables to small boutiques in the villages and did not gain a reasonable price as well. In contrast, some women provided the excess of vegetables for their neighbors.

Around 63.5% of women perceive that this home gardening program under the aegis of the government helps to achieve environmental sustainability. But some (36.3%) did not have any perception about environmental sustainability. In most of the surveyed households (88.5%) the children are schooling and they do not support the home gardening. But their husbands used to contribute to the cause. In the meantime,

respondents are happy and satisfied about having HG. Being satisfied with a cause helps them to have a balanced mind and contribute to the family in an efficient way. This results in mental well-being of these households (Genter *et al.*, 2015). The study reveals, most women (92.5%) think that sustainable organic farming cannot be established in Anuradhapura district due to various reasons discussed. The main concern is sustainability if these gardens.

Constraints and Remedies in engaging in HG program with organic amendments

In the study, some of major constraints in using organic amendments for HGs were discovered. One major constraint is inadequate extension services for the women to maintain the HGs with organic amendments. officers should play active role as they are the intermediate players between the government and the participants of any program (Elapatha *et al.*, 2015). Market facilities for organic produces are in low level. Though women grow the vegetables as organic products, they have no facility to market them with reasonable price (Jouzi and Lebailly, 2017). The table 8 summarizes the main issues and remedies in terms of a SWOT analysis.

Table 8: SWOT analysis for women participation in dry zone HGs

Strengths	Weaknesses	Opportunities	Threats
Agriculture is the main occupation of people in Anuradhapura	Availability of water is low in dry season	Most of government agriculture programs are commenced in dry zone	Low production at transition period
Majority of women in here are unemployed, rural and family workers.	Availability of cow dung for preparing compost is low	Demand for organic products is increased	Treat of destruction plants by the wild elephants
Available fertile land area is high	Literacy level of most of women is low	The attention of government towards organic farming is increased recently	
Majority of women have farming experience with traditional knowledge			

Source: Survey data

The compost and bio chemical are the major inputs for organic farming. However, women were not able to prepare the best quality compost and biochemical yet. If there are the bio chemical and compost packets in the market at reasonable prices, the women will be motivated to use them. Extension officers and field officers should disseminate the new knowledge regarding organic farming. Further, any form of credit facilitation, establishment of women cooperatives and training would be able to help themselves. Malkanthi *et al.*, (2015) has also highlighted these issues if they are to start as small ventures.

CONCLUSION

This study looked at the relationship of successive socio-economic factors and farming factors of women, in taking part in the government sponsored, 'dry zone home gardening' program, reasons to engage in the program and achieved outcomes from the program. Further, the study measures the outcomes of the program and discussed the constraints which were faced by engaging the program and what are solutions for these constraints.

The study revealed that two of socio-economic factors (availability of land area and whether women's spouse is a farmer/not) had significant relationship with reasons to participate the in the program, perception on

higher demand for organic products, and motivation to earn an additional income.

Farming factors also showed significant relationships with program outcomes. Further there was strong relationship between women participation in training programs and acquiring higher additional income and higher contribution of family members as the outcome. Further study revealed that majority of women acquire the outcomes of the program successfully. The according to the majority of women, the farmers do not prefer to go for large scale farming with organic amendments without addressing the constraints. Especially a marketing and pricing strategy for organic products, improved service of extension officers on HGs and training programs to sustain the program are a must. This study covered the attitudinal concepts of success of the HG program as the first step, but further studies which quantify the success of the program with a wider sample would help to look in to the program in an objective manner.

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