

Contribution of Women in Homestead Vegetable Cultivation in Rajshahi District of Bangladesh

M. F. Chowdhury¹, M. R. Amin² and M.M. Sheikh³

Abstract

The study was carried out to determine the extent of contribution of women in homestead vegetables cultivation and to explore relationships among the selected characteristics of the women and their contribution in homestead vegetables cultivation. The highest percentage (47 percent) of respondents had high contribution in vegetable cultivation compared to 27 percent medium contribution, 20 percent low contribution and 6 percent had very low contribution. Correlation analysis indicated that the characteristics of the women namely education, family size, annual income, training exposure, organizational participation, individual extension contact, group extension contact, mass extension contact, decision making process and innovativeness had significant positive relationships with the contribution of women in homestead vegetable cultivation. The regression coefficients of only three variables viz. education, physical fitness and training exposure were statistically significant indicating that these variables had significant contribution in the vegetable cultivation of the women.

Keywords: Women, contribution, homestead, vegetable, cultivation

Introduction

Homestead is the centre of all agricultural production activities in rural Bangladesh. Homestead is the dwelling place as well as production unit of vegetables, fruits, fuel, timber, livestock and fisheries in an integrated manner. According to Ninaz (1986), homestead refers to home and adjoining land occupied by a family for the purpose like small-scale agricultural production, home-up keeping sanitation, health and nutrition.

In Bangladesh, about 84.5 percent of the population lives in rural areas (BES, 2006). There are about 14.4 million households of which 12.7 million exists in rural areas. The size of homestead area varies with the class of farmers and it ranges on an average from 0.004 to 0.08 hectares. But approximately 28 percent of the household have only homestead but do not have cultivated land,

28.2 percent have land up to 0.20 ha and 40.8 percent are small farmers owning up to one ha (BBS, 2002).

Women constitute roughly half of world population. In Bangladesh women constitute about 49 percent of the total population (BBS, 2004). In our subsistent agro-based economy, people of both the sex help each other in their daily life in almost all the productive and socio-economic activities. But their works are divided more or less on gender basis and women are not likely to do this job out side their household, meant for field jobs. Women are involved with homestead agricultural production activities such as vegetables, fruits and timber production, small animals (goats, sheep) and poultry rearing to supply food and increase family income (Akhter, 1990).

¹&²Associate & Assistant Professor, respectively, Dept. of Agronomy and Agricultural Extension, University of Rajshahi, Rajshahi and ³Scientific Officer, Bangladesh Agricultural Research Institute (BARI), Joydebpur, Gazipur.

In view of the foregoing discussions, the researcher undertook an investigation with the following objectives: to determine and describe the contribution of women in homestead vegetable cultivation; and to

explore relationships between the selected characteristics of the women and their contribution in homestead vegetable cultivation.

Methodology

Rajshahi district was purposively selected as the locale of the study to know the contribution of women in homestead vegetable cultivation activities. Two, out of eight upazilas of the district were randomly selected which are Paba and Tanore. Two villages from Paba upazila and two villages from Tanore upazila were the representative villages of the study, which are randomly selected. Random sampling was used to select the representative villages. Ten percent of the population was randomly selected from each group. The 15 selected characteristics of the women were the independent variables of the study. These characteristics included their age, education, physical fitness, family type, family size, farm size, annual income, farming experience, training exposure, organizational participation, individual extension contact, group extension contact, mass extension contact, participation in decision making process regarding homestead agriculture and innovativeness. The contribution in homestead vegetable cultivation was the dependent variables of the study. The independent variables of the study were measured through some conventional methods. To measure contribution, 10 items of vegetable cultivation in homestead areas were selected. The respondents were asked to indicate their extent of contribution to each of the 10 items along with a three-point scale: "no contribution", "occasional contribution" and "regular contribution". These scales of responses were given scores of 0, 1 and 2, respectively. The contribution

score of a rural woman was obtained by summing her scores for all the 10 items. The contribution score could range from 0 - 20, zero indicating no contribution and 20, very high contribution.

For better understanding of comparative contribution of rural women on 10 items in each of the activities, a contribution index (CI) was computed using the following formula:

$$CI = (P_{nc} \times 0) + (P_{oc} \times 1) + (P_{rc} \times 2)$$

Where,

P_{nc} = Percentage of rural women with no contribution

P_{oc} = Percentage of rural women with occasional contribution

P_{rc} = Percentage of rural women with regular contribution

The range of score of contribution index could be 0 to 20 where 0 indicating no contribution and 20 regular contributions. An interview schedule was prepared to collect necessary and relevant information according to the objectives of the study. Data were collected through face to face interviewing using pre-tested interview schedule by the researcher herself.

The computer software like Microsoft Excels and SPSS were used to analyze the data. Descriptive statistical measures such as frequency, range, mean, percentage distribution, standard deviation, rank order, categories and indices etc. were used to describe and interpret the data. For exploring relationships between any two variables Pearson's Product Moment Correlation (r)

was used. Linear regression analysis was also employed to determine the contribution of independent variables to the dependent

variables. Throughout the study 0.05 level of probability were used as the basis for the statistical significance.

Findings and Discussion

Distribution of Respondents According to Their Contribution in Homestead Vegetable Cultivation

Score for contribution in homestead vegetable cultivation could range from 0 to 20. The computed score for contribution ranged from 6 to 20 with an average of 13.62 and standard deviation of 3.91. The respondents were classified into four categories based on their scores as very low

contribution, low contribution, medium contribution and high contribution. The result presented in Table 1 showed that highest percentage (47 percent) of respondents had high contribution in vegetable cultivation compared to 27 percent medium contribution, 20 percent low contribution and 6 percent had very low contribution. The distribution appears in Table 1.

Table 1 Distribution of respondents according to their contribution in homestead vegetable cultivation

Categories	Women		Mean	Standard Deviation
	Number	Percent		
Very low contribution (up to 6)	12	6	13.62	3.91
Low contribution (7 to 10)	40	20		
Medium contribution (11 – 14)	54	27		
High contribution (15 and above)	94	47		
Total	200	100	Max = 6, Min = 20 Range = 14	

From Table 1 it was observed that women in Tanore and Paba upazila of Rajshahi district highly contributed in homestead vegetable cultivation activities (20-47% in different categories) but only a few percent of women (6%) take part in above activities very poorly. Mazumder *et al.* (1983) and Akhter (1990) reported similar findings and they reported that women contribute their family income through homestead farming activities along with different agricultural activities.

Comparative Contribution in Items Related to Homestead Vegetables Cultivation

The computed contribution index of 10 items ranged from 168 to 386 against possible score of 0 to 400 with an average of 270 (Table 2). It is evident from Table that the item, 'collection and preservation of

seed' had highest contribution index (CI=386) and ranked 1st. The item 'harvesting of crops' occupied 2nd position in order of ranking with CI of 364 and "weeding", 'support arrangement' and 'land selection' was in 3rd position with CI of 300 while 'mulching' was in last position with CI of 168. It is encouraging that women in all items/operations needed for vegetable cultivation though their level of contribution varies with nature of operations. This might be due to the fact that now-a-days GOs and NGOs have taken several programmes on homestead vegetable cultivation and they are giving emphasis to involve women in vegetable cultivation. Moreover, TV, radio and other mass media are advertising which might have brought some changes in their attitude.

Table 2 Comparative contribution of women in 10 items of homestead vegetable cultivation with contribution indices (CI) and rank order

Sl. No.	Items in vegetable cultivation	Contribution of women			CI	Rank order
		Never	Occasional	Regular		
1.	Collection and preservation of seed	0	14	186	386	1
2.	Harvesting of crops	2	32	166	364	2
3.	Weeding	18	64	118	300	3
4.	Support arrangement for creeper vegetables	16	68	116	300	3
5.	Land selection for vegetable cultivation	6	88	106	300	3
6.	Bed preparation	8	100	92	284	4
7.	Application of manures and fertilizers	30	114	56	226	5
8.	Irrigation	52	104	44	188	6
9.	Sowing	52	112	36	184	7
10.	Mulching	52	128	20	168	8

Relationships Between the Selected Characteristics of the Respondents and Their Contribution in Homestead Vegetable Cultivation

Among the 15 selected characteristics of the respondents, education, family size annual income, farming experience, organizational participation, individual extension contact, group extension contact, mass extension contact, decision making and innovativeness had significant positive relationship with the contribution in homestead vegetable cultivation. Physical fitness and family type showed significant negative correlation with respondents' contribution. It means that the superior personal selected characteristics of the respondents the higher is the contribution of the women in vegetable cultivation. Similar findings were also reported by Ahmed *et al.* (2007) in their experiment for problem confrontation of poultry farming. Parveen (1993) and Naher (2000) also found similar findings with their experiment with rural women.

Correlation analysis indicated that the characteristics of the women namely education, family size, annual income, training exposure, organizational participation, individual extension contact, group extension contact, mass extension contact, decision making process and

innovativeness had significant positive relationships with the contribution of women in homestead vegetable cultivation.

Table 3 Relationships between the selected characteristics of the respondents and their contribution in homestead vegetable cultivation

Dependent variable	Independent variables	Coefficient of correlation
Vegetable cultivation	Age	-0.120
	Education	0.613**
	Physical fitness	-0.187**
	Family type	-0.426**
	Family size	0.336**
	Farm size	0.374**
	Annual income	0.377**
	Farming experience	-0.066
	Training exposure	0.324**
	Organizational participation	0.544**
	Individual extension contact	0.531**
	Group extension contact	0.449**
	Mass extension contact	0.430**
	Decision making	0.485**
	Innovativeness	0.345**

Out of 13 variables the regression coefficients of only three variables viz. education, physical fitness and training exposure were statistically significant indicating that these variables had significant contribution to the variation in the vegetable cultivation of the women (Table 4). The other ten variables had no significant contribution to the same.

Table 4 Regression coefficients of vegetable cultivation of the women with their selected characteristics in the general linear model procedures

Code	Selected characteristics of the women	Unstandardized coefficients		Standardized coefficients β	t	Significance
		β	Std. error			
	Constant	13.510	3.730		3.622	0.000
X ₂	Education	2.280	0.643	0.554	3.549	0.000
X ₃	Physical fitness	-1.170	0.543	-0.131	-2.154	0.033
X ₅	Family type	0.401	0.897	0.045	0.446	0.656
X ₆	Family size	0.176	0.144	0.110	1.225	0.222
X ₇	Farm size	0.725	0.398	0.123	1.821	0.070
X ₈	Annual income	-0.005	0.016	-0.032	-0.310	0.757
X ₉	Training exposure	-0.945	0.377	-0.204	-2.505	0.013
X ₁₀	Organizational participation	0.181	0.229	0.136	0.789	0.431
X ₁₁	Individual extension contact	0.027	0.190	0.025	0.143	0.886
X ₁₂	Group extension contact	0.059	0.143	0.056	0.416	0.678
X ₁₃	Mass extension contact	-0.130	0.166	0.093	-0.782	0.435
X ₁₄	Participation in decision making process	-0.005	0.012	-0.043	-0.433	0.666
X ₁₅	Innovativeness	0.010	0.072	0.012	0.141	0.888

R² = 0.437, Adjusted R² = 0.395, F Value = 10.262

The R² value was 0.437 and corresponding F value was 10.262, which was significant at 0.000 level. The R² value indicating that 43.7 percent of the total variation in the vegetable cultivation of the women was explained by the 3 variables included in the regression analysis. However, it was possible that the proper contribution of the factors could not be expressed because of the inter correlation among the variables. Therefore, it was decided to run a stepwise multiple regression analysis and the findings are presented in the Table 5. It was observed that out of 13 variables, only 3 variables namely education, physical fitness and training exposure were entered into the regression model which combined accounted for 41.3 percent of the total

variation in vegetable cultivation of the women. The F value was 45.938, which was significant at 0.000 levels.

In view of the significant contributions of the above mentioned 3 factors to the variation in the vegetable cultivation of the women in homestead agricultural production, researcher rejected the concerned null hypotheses and concluded that each of the above 3 factors had significant effect on ' vegetable cultivation ' of the women.

The women who had more education, more physically fit and more trained were found to have more involvement in vegetable cultivation of the women in the homestead agricultural production.

Table 5 Regression coefficients of the selected characteristics of the women with their homestead vegetable cultivation

Selected characteristics of the women	Unstandardized coefficients		Standardized coefficients β	t	Significance
	β	Std. error			
Constant	16.738	2.456		6.816	0.000
Education	2.981	0.310	0.724	9.606	0.000
Physical fitness	-1.262	0.492	-0.141	-2.567	0.011
Training exposure	-0.816	0.348	-0.176	-2.342	0.020

$R^2 = 0.413$, $F = 45.938$, $P = 0.000$

Education develops mental and psychological ability of a person to understand and decide new ideas and practices. It broadens ones outlook, extends the horizon of knowledge, power of observation and decision making ability. Education enables a woman to use the print media for information on agricultural information, store them for future use and retrieve them when needed. This helps the women to be aware of an innovation relatively early and use sources of information, which are technically more accurate. An educated person in general likely to have higher exposure of different information sources and used to come in contact with various extension agents and make frequent contact with other information sources, which make them able to acquire accurate information. It is logical to think that such opportunity make them rich in knowledge about various recommendation of modern vegetable production.

Training exposure had significant contribution to vegetable cultivation of the women. It means that, a person having more training experienced will have more skill in vegetable cultivation. Training involves exchange of views and ideas of the women. Training helps to increase the level of knowledge develops skill and change attitude of an individual.

The unique contribution of each 3 variables was also determined by taking the changes in R^2 value occurred for entry of a particular variable in the step-wise regression model. The results are shown in Table 7. The three variables together could explain 41.3 percent of the total variation in the vegetable cultivation of the women and the rest 58.7 percent remain unexplained. Education alone contributed 37.6 percent of the variation followed by physical fitness 2.1 percent and training exposure only 1.6 percent of the variation in vegetable cultivation of the women.

Table 6 Changes in multiple R^2 for enter of a variable into the stepwise multiple regression models for homestead vegetable cultivation

Model	Variables	R^2	R^2 Change	Variance Explaining (percent)	Significance level
1	Education	0.376	0.376	37.6	0.000
2	Physical fitness	0.397	0.021	2.1	0.010
3	Training exposure	0.413	0.016	1.6	0.020

Conclusion

Based on the findings of the study, it could be concluded that the highest proportion of the women in Paba and Tanore upazila had high contribution in vegetable cultivation; the women who had higher education, family size, annual income, training and organizational participation and had contacts with different media, had higher

contribution in vegetable cultivation; and respondents' personal education, physical fitness and training exposure led them to contribute significantly in their contribution in homestead vegetable cultivation. The findings of the study may be act as a baseline for the researchers to conduct research for the improvement.

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