

Participation of Rural Women in Homestead Waste Management towards Integrated Plant Nutrient System (IPNS)

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Abstract - The main purpose of this study was to assess the extent of participation in homestead waste management activities by the rural women towards Integrated Plant Nutrient System (IPNS). Besides this major focus, the sources of homestead wastes and their channels of utilization were identified; and relationship between the selected characteristics of the rural women and their extent of participation in homestead waste management activities were also explored. All the women of farm household except the absentees of Babugonj upazila of Barisal district, Bangladesh constituted the population of the study. Data were collected from the sample of 95 farm households selected out of a total of 1000 farm households from the five (5) selected villages under the one (1) selected union of the upazila through multi-stage random sampling technique with the help of pre-tested interview schedule during from the period from 10 August to 20 September 2017. A vast majority of the respondents had medium to high participation in homestead waste management activities in the study area while their efforts were mostly diverted to kitchen wastes, plant/crop harvest residues and ash management. The correlation test showed that rural women's personal education, farm size, annual household income, family cooperation, daily time allocation for homestead waste management, exposure to agricultural information and seasonal variability of involvement in waste management activities showed significant positive relationship with their extent of participation in homestead waste management activities. While age, family size, area under homestead, perception of IPNS, awareness of environmental degradation and decision making ability in family did not show any significant relationship with their extent of participation in waste management activities.

Keywords - Women, Waste Management, Integrated Plant Nutrient System.

I. INTRODUCTION

According to an old Chinese proverb, "*women hold up half the sky*". In the battle against hunger and poverty, women, and especially rural women, most certainly hold up the heavier half. While many people especially from industrialized countries, may still picture a man on a tractor when they think of farmer in most low income food-deficit countries, where agriculture is less mechanized, the majority of food producers are women, and they are not sitting on tractors. Childe (1971) stated that women had been the pioneer of plant domestication and planned agriculture from the onset of civilization. Over times control on agricultural practices had been taken over by men and they became the owners of the land and other inputs. Bangladesh is a home

to an estimated 140-plus million people, it is among the most overpopulated and impoverished countries in the world. Women constitute almost half of the total population in Bangladesh and majority of them are living in rural areas (BBS, 2012). The rural women are intimately involved in all phases of agriculture, having a great bearing in the production systems.

Though women constitute nearly half of the population of Bangladesh their situation has traditionally been adverse on account of complex cultural factors shaped by historical evolution and traditional societal expectations. However, significant changes have been taken place over the years and the presence of women is being felt more and more in different areas of life. Their increased involvement can be

observed in all sectors of the economy. From the history of agriculture it is known that women first initiated agricultural practices and demonstrated the art and science of farming. Women play a key role in the conservation of basic life support system such as land, water, flora and fauna (Swaminathan, 1985). The pace of development in any country depends upon the participation and commitment of all the women concerned with development activities, especially agricultural production practices, women play significant and crucial role encompassing crop and livestock production, horticulture, pre and post-harvest operations, agro-social forestry and fisheries (Anonymous, 1978). The overall development of any society cannot be expected without the awareness and development of women as well as their active participation.

II. METHODOLOGY

The study was conducted in Babugonj Upazila of Barisal district, situated 17 kilometers east-west of Barisal town. All the women of farm household except the absentees of Babugonj upazila of Barisal district, Bangladesh constituted the population of the study. Data were collected from the sample of 95 farm households selected out of a total of 1000 farm households from the five (5) selected villages under the one (1) selected union of the upazila through multi-stage random sampling technique. All the household women of these 5 villages were listed with the help of Sub-Assistant Agricultural Officers, local union parishad personnel, and local leaders of concerned villages. Independent variables of the study were measured following standard techniques such as age was measured in years, education was measured in schooling years, family size is actual member of the family members, daily time allocation for homestead waste management is measured in time.

Participation Index (PI) has been used to determine the extent of participation. It was defined as the ratio of 'actual participation' to 'possible participation' in any issue expressed as percentage.

The Participation Index (PI) can mathematically be expressed as follows:

$$PI = \frac{1}{3} \times \left(\frac{f_a}{f_p} + \frac{w_a}{w_p} + \frac{d_a}{d_p} \right) \times 100$$

Where, PI = Participation Index

f_a = Actual frequency of performance

f_p = Possible frequency of performance

w_a = Actual part of work done

w_p = Possible part of work done

d_a = Actual control over decision

d_p = Possible control over decision

In the present study, extent of participation in homestead waste management by rural women has been computed according to the formula of Participation Index (PI). In this way, PI could vary from 0 to 100 percent, 0 indicating no participation and 100 indicated full participation in homestead waste management by rural women. This PI has been used for further statistical analysis with the values of independent variables.

III. RESULTS AND DISCUSSION

Participation Index was expressed as percentage and thus, it could vary from 0 to 100. The computed PI of the respondents ranged from 17.86 to 78.17 with an average of 54.70 and standard deviation 14.65. Based on their PI the respondents were classified into three categories. Data presented in Table 4.3 show that about three-fourths (70 percent) of the respondents had medium participation in homestead waste management activities compared to 12 percent high and 13 percent low participation as shown Table 1.

Table 1: Distribution of the respondents according to PI

Respondents			Mean	Standard deviation
Categories (PI)	Number	Percent	54.70	14.65
Low (≤ 33)	13	13.7		
Medium (34-67)	70	73.7		
High (68-100)	12	12.6		

A. Selected Characteristics Of The Rural Women

Table 2: Salient features of the respondents' selected characteristics

Characteristics (Measuring units)	Range		Respondents			Mean	Sd. Dev.
	Possible	Observed	Categories	No.	%		
Age (Year)	Unknown	16-60	Young (≤ 30)	50	52.6	31.15	8.91
			Middle-aged (31-50)	43	45.3		
			Old (≥ 51)	2	2.1		
Personal education (Year of schooling)	Unknown	0-12	Illiterate (0)	45	47.4	3.66	3.95
			Primary education (1-5)	23	24.2		
			Secondary education (6-10)	22	23.1		
			HSC (11-12)	5	5.3		
Family size (Number)	Unknown	2-13	Small (up - 4)	37	38.9	5.14	1.93
			Medium (5-6)	44	46.4		
			Large (above 6)	14	14.7		
Farm size (Hectare)	Unknown	0.01-5.59	Landless farmer (< 0.02)	9	9.5	0.67	0.88
			Marginal farmer (0.02-0.2)	22	23.1		
			Small farmer (0.21-1)	45	47.4		
			Medium farmer (1.01-3)	17	17.9		
			Large farmer (>3)	2	2.1		
Area under homestead (Hectare)	Unknown	0.004-2.024	Marginal (≤ 0.02)	21	22.1	0.12	0.23
			Small (0.021-0.06.)	29	30.5		
			Medium (0.07- 0.12)	26	27.4		
			Large (>0.12)	19	20		
Annual household income (in '000' Tk)	Unknown	20-238	Low(≤ 50)	49	51.6	65.59	43.83
			Medium (51-100)	31	32.6		
			High (>100)	15	15.8		
Family cooperation	0-16	2-11	Less (≤ 6)	72	75.8	4.72	2.34

(Score)			Medium (7-11)	23	24.2		
			High (12-16)	0	0		
Daily time allocation for homestead waste management (Hour)	Unknown	0.50-3.00	Short (≤ 0.98)	2	2.1	1.59	0.55
			Medium (0.99-1.99)	45	47.4		
			Long (2-3)	48	50.5		
Exposure - agricultural information (Score)	0-45	8-28	Low (≤ 15)	66	69.5	15.23	4.44
			Medium (16-30)	29	30.5		
			High (31-45)	0	0		
Perception of IPNS (Score)	0-20	12-20	Less favorable (≤ 7)	0	0	17.97	2.27
			Moderately favorable (8-14)	7	7.4		
			Highly favorable (15-20)	88	92.6		
Awareness of environmental degradation (Score)	0-12	8-12	Less (≤ 4)	0	0	10.54	1.17
			Moderately (5-8)	7	7.4		
			Highly (9-12)	88	92.6		
Seasonal variability of involvement in waste management (Score)	0-240	42-168	Poor (≤ 80)	22	23.2	110.63	31.39
			Moderate (81-160)	68	71.5		
			Good (161-240)	5	5.3		
Decision-making ability in family (Score)	0-30	10-28	Less (≤ 10)	1	1.1	21.35	2.59
			Medium (11-20)	39	41		
			High (21-30)	55	57.9		

B. Relationship between the selected characteristics of the women and their participation in homestead waste management activities

Among thirteen characteristics of the rural women, their personal education, farm size, annual household income, family cooperation, daily time allocation for homestead waste management activities, exposure to agricultural information and seasonal variability of involvement in waste

management showed significant and positive relationship with their extent of participation in homestead waste management activities. While the rest of the characteristics viz. age, family size, area under homestead, perception of IPNS, awareness of environmental degradation and decision making ability in family did not show any significant relationship with their extent of participation in homestead waste management activities. (Table 3).

Table 3: Correlation between the selected characteristics of the women and their participation in homestead waste management activities.

Dependent variable	Independent variables (Selected characteristics of the respondents)	Computed 'r' value
Participation in homestead waste management activities	Age	0.012
	Personal education	0.325**
	Family size	0.133
	Farm size	0.254*
	Area under homestead	0.187
	Annual household income	0.237*
	Family cooperation	0.234*
	Daily time allocation for homestead waste management	0.312**
	Exposure to agricultural information	0.347**
	Perception of IPNS	0.190
	Awareness of environmental degradation	0.141
	Seasonal variability of involvement in waste management	0.705**
	Decision-making ability in family	0.175

* Significant at the 0.05 level of probability

** Significant at 0.01 level of probability

IV. CONCLUSIONS

Findings of the study may be concluded that personal education was found significantly correlated to participation in homestead waste management activities meaning that, a person having higher education level is likely to have higher participation in homestead waste management activities. Education can bring desirable changes in human behavior which ultimately helps in her participation in homestead waste management activities.

Daily time allocation for homestead waste management was found significantly correlated to participation in homestead waste management activities which means person having higher daily time allocation for homestead waste management will have higher participation in

homestead waste management activities. Exposure to agricultural information was found have to significant relationship with participation in homestead waste management activities which indicates that a person with high communication exposure is able to changes his/her participation in homestead waste management activities. Seasonal variability in involvement of waste management showed significant relationship with participation in homestead waste management activities.

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