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Women in agriculture - perspectives and constraints in sustainability of homestead gardening

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ABSTRACT

Homestead gardening contributes to household food and nutrition security by providing direct access to diverse foods that can easily be accessed and consumed by a family irrespective of their socio-economic status. lt can also be a source of livelihood security for rural women in less developed countries, especially for women involved in agriculture. However, in spite of its many benefits, the adoption levels and sustainability of the concept of homestead gardening eludes success in Assam, India. The perspectives of women and constraints in adoption of homestead gardening in rural areas are unknown. Therefore, this study analyses these factors using a detailed survey of 200 women from two different districts (Dhemaji- 100 no.s; Nalbari- 100 no.s) from two agro climatic zones of Assam using random sampling method. Age, education, training, farm size, and income influenced the adoption of homestead gardening. Women involved in homestead gardening increased household food production and income which helped them to contribute in decision making and could improve the status of women in the society. The constraints in both the districts were mainly included unavailability of quality seeds/structured kitchen garden. In both the districts non-availability of pesticides, manure and lack of extension contacts was the major constraint. The technical constraints were lack of knowledge about recommended seeds. In Dhemaji district lack of major insect pests and diseases identification were the minor issues. Lesser priority to homestead gardening than other revenue generating activities was minor constraint in Nalbari districts.

Key words: *Women, Agriculture, Constraints, Sustainability, Homestead gardening*

Introduction

In underdeveloped and developing countries, women's participants in agriculture especially, homestead gardens and benefits to food security are widely acknowledged. In farming communities, women play a crucial role in increasing agricultural efficiency and food sustainability (Agarwal, 2013; Aly and Shields, 2010). The focus of research and development all over the globe has recently been on women's participation access to productive resources, and decision-making responsibilites in agriculture and related industries. In many developed nations, the gender gap in the sector of agriculture ha been generally caused by different roles playes played by men and women's roles and access to resources at the community and household levels. Changes in agricultural productivity are influenced by the population's recent increase, changing consumer habits, and climate change. A homestead garden is a space close to a habitation where crops are year-round grown for consumption and for sale

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(Keatinge *et al.,* 2012). Rural women in developing nations are frequently engaged in homestead gardening to riase household consumpton, income, employment, and socio-economic status. A field that offers potential for women's involvement in entrepreneurship is effective homestead gardening (Mahmudul *et al.,* 2003). To increase the pofit and negotiating power of rural women. It is important to comprehend the dynamics of homestead gardening. In order to understand the decision to adopt homestead gardening, women's contribution to household income as a result of homestead gardening, responder socioeconomic characteristics, as well as problems and issues facing rural women engaged in homestead gardening, this study was carried out. The most essential benefit of homestead gardens is that they directly improve household food security by expanding food product availability, accessibility, and consumption. In both rural and urban areas, homestead gardens are kept up to so that fresh plant and animal food sources are readily available. Food products from homestead gardens significantly increase the family's continuous nutritional and energy needs (Bushamuka *et al.,* 2005). As already mentioned, homestead-based food production gives good source of nutrients and potential for unskilled farm women, a great opportunity to generate revenus. Furthermore, there are no earlier studies that have only evaluated the decision making pattern of homestead, there are no earlier studies that have only evaluated the decision making pattern of homestead agricultural activities. So, it is important to understand that rural women carry out the current homestead agricultural methods. It is also crucial to evaluate the decision making pattern and how this will contribute to the empowerment of women. With this in mind, the current study is intended to evaluate the participation of women in homestead gardening. Also, this study tries to assess the variables that affect the respondents' families' overall revenue through homestead gardening. Also, this study aims to evaluate how women's participation in alterning status in the decision-making of the chosen homestead gardens, specifically, how homestead gardening creates employment for women and how women participate in household decisin-making. This research should help us better understand how profitable homestead farming is, how it affected family income, and how women's standing in homestead decision-making is evolving.

Materials and Methods

Study design

The research design is a mixed methods combining quantitative and qualitative methods; framed in two successive orders (Fredriksson *et al.,* 2016). Firstly quantitative method was used through cross-sectional interview schedule based on random sampling selecting the households, typically the female adult-participating in the nutrition intervention and the agricultural components especially the homestead gardening. Secondly qualitative methods were used through structured open end interview.

Site selection and sampling

Two districts were selected from two agro climatic zones or Assam namely Dhemaji-100 no.s and Nalbari-100 no.s considering the North bank plain zone and lower Brahmaputra valley zone.

Data collection

The qualititative analysis was done through structured open end interview. Firstly, the socio-economic profile of the farm women were analysed on production and resources - assets ownership, land holdings, family income, food procurement, devision of labor and roles. Additional autonomy. Secondly factors associated with sustainability of homestead garden, food sources - own production, purchased, or gifted were analysed. Climate change and biological systems during 10 years were recorded

Semi-structured interviews

A quantitative approach for recording the decision of sale and purchase of goods, control over income, and access to and control over resources and benefits and uses of income related us intra-household decision-making, marketing of goods and post-harvest activities was emplored. Data collection was undertaken at the participant's homes intending to make participants feel comfortable and minimizing the use of their time. Mutual rapport was established from the previous interactions with the participants. After each interview, responses were systematically reviewed and were checked for accuracy.

Statistical analysis

Microsoft Excel and statistical analytical package

SPSS are used to process all collected information.

Results and Discussion

There are mainly two seasons in India namely Rabi season and Kharif season. The homestead gardeners produce different vegetables in these two seasons throughout the year. In rabi season, the respondents cultivated different vegetables mainly been, bottle, bottle goard, Brinjal, Chilli, Green bean, Ladies' fingers, Tomato, turmeric etc. In Kharif season, cabbage, capsicum, carrot, cauliflowers, fenugreek, garlic, lady finger, pea radish, tomato and chili. They also plant different fruit trees including litchi, guava, jackfruit, mango, papaya, banana, star fruit, pineapple, sugarcane, jujube and atlas etc. their homestead area.

The socio demographic variables selected for the research study were as age, educational qualifications; income of the family size, occupation, marital status and the data was presented in Table 1.

From Table 1 it was reported that the age of 30 respondents were between 21-25 years in Dhemaji district and 35 of the respondents were between 31-35 years in Nalbari districts. Majority of the farm women in both the districts were married. 36 respondents studied till primary school in Dhemaji district and 30 respondents studied till intermediate in Nalbari district. Majority of the respondents in both districts had nuclear family type with 1-4 members with agriculture being there man occupation. The farm size of majority of the respondents was small holdings with 1-2 hectares with family income of up to 50,000 in both the districts. From the above table it can be concluded that the households socio demographic variables greatly affect the socio-

Table 1. Socio-demographic variables of Families in both the districts (n=100)

Sl. No.	Age (yrs)	Dhemaji Number %	Nalbari Number %	Sl. No.	Marital status	Dhemaji Number %	Nalbari Number %
1.	21-25	30	17	2.	Single	4	2
	26-30	25	27		Married	88	92
	31-35	26	35		Widow	8	6
3.	Education qualification	Number %	Number %	4.	Family type	Number %	Number %
	Illiterate	14	3		Nuclear	62	55
	Primary School	36	14		Joint	28	36
	Middle School	12	22		Extended	10	9
	High School	21	11				
	Intermediate	12	30				
	Graduates	5	20				
5.	Family size	Number %	Number %	6.	Occupation	Number %	Number %
	Small family (1-4 members)	51	45		Agriculture	70	50
	Medium family (5-6 members)	35	45		Labour	10	2
	Large family (≥6 members)	14	10		Service	5	18
					Small business	2	15
					House wife	3	2
					Any other	10	13
7.	Farm size	Number %	Number %	8.	Family income	Number %	Number %
	Marginal holding (up to 1 hectares)	2	5		Up to 50,000	95	85
	Small holding (1-2 hectares)	58	50		50,000–1,00,000	5	15
	Semi-medium holding (2-4 hectares)	30	26				
	Medium holding	3	15				
	Large holding (10 hectares or above)	7	4				

economic status, nutritional security and economic empowerment of households. Vijayalakshmi *et al.,* (2020) stated that the primary factor influencing the socioeconomic position of the homes and the different activities related to the security of women is economic income.

Effect of homestead gardening on lack of watering or irrigation, destruction by free animals, frequent exposure of plants by pest and diseases, lack of capital, poor soil quality, seeds shortage, lack of extension contact, limited family labour, shortage of manure and fertilizers are shown Table 2.

From table 2 it can be concluded that majority in both the district had lack of watering or irrigation facilities. The percentage of destruction by free animals was significantly higher in Nalbari district than Dhemaji district. 100% of the respondents in both teh districts had lack of capital, Poor soil quality, Seeds shortage Lack of Extension contact, Limited family labour, shortage of manure and fertilizers. Khairnar *et al.,* 2015 stated that due to lack of water ing or irrigation facilities, the firm woman may lose their crops, and the annual income falls leading to adverse effect in decision making patterns.

Table 4 reported that the R value in the table represents correlation and R square value represent degree of ditermination. the degree of ditermination shows the extent how their decision making pattern was influenced with the occupation.

From R value it was clear that there was a strong relationship between the dependent and independent variable that the decision making pattern according to the occupation the R-value and R^2 value 0.812 (0.712) for Dhemaji district and 0.865 (0.723) for Nalbari district, which shows that 71.2% of decision making pattern occur on the basis of occupation in Dhemaji district and 72.3% of the changes occur in Nalbari district. The relationship between the decision making pattern with individual variables shows through their t-value and its significance. Th at the relationship between variables shows that there is a perfact relationship between decision making factors such as home related decisions, agriculture/allied related decision, purchase of assets, access to decision about credit and types and quality of food and farm size at 1% level. Thus, from the regression analysis it was clear that the occupation have impact on the decision making pattern in both the districts.

Null hypothesis Ho: There was no significant rela-

Table 2. Factors associated with sustainability of Nutrition Garden intervention in Assam

Sl. No.	Indicator (type of decisions)	Decision level (% of respondents)			
		Dhemaji		Nalbari	
		Yes (%)	No (%)	Yes (%)	No (%)
1.	Lack of watering or irrigation	70	30	90	10
2.	Destruction by free animals	45	55	89	11
3.	Frequent exposure of plants by Pest and diseases	100	0	90	10
4.	Lack of Capital	100	0	100	0
5.	Poor soil quality	85	15	90	10
6.	Seeds shortage	100	0	100	0
7.	Lack of Extension contact	100	0	100	0
8.	Limited family labour	100	0	100	0
9.	Shortage of manure and fertilizers	100	0	100	0

Table 3. Indicators and decision making pattern

Sl. No.	Statements	Decision making pattern					
		Dhemaji			Nalbari		
		Women Alone (%)	Jointly (%)	Men Alone (%)	Women (%)	Jointly Alone (%)	Men (%)
1.	Home related decision	40	10	50	30	25	45
2.	Agriculture/Allied related decision	20	15	65	45	20	35
3.	Purchase of assets	5	17	78	40	5	55
4.	Access to and decisions about, credit	10	25	65	23	18	59
5.	Types and quality of food	60	30	10	55	25	20

Table 4. Relationship between sustainability of decision making pattern with occupation

Variab	Dhemaji				Nalbari			
	R	R^2	T-Value	Sig.	R	R^2	T-Value	Sig.
Home related decisions			4.011	.003**			4.231	.002**
Agriculture/Allied related decisions		5.001	.003**			4.012	.003**	
Purchase of assets	.812	.712	5.695	.000*	.865	.723	5.396	.003**
Access to and decision about, credit			4.265	.000			5.963	000**
Types and quality of food		4.986	.001**				4.903	.002**

Table 5. Comparison between decision making pattern of Dhemaji and Nalbari district

Variable		Mean	F-Value	Sig.
Dhemaji	Home related decisions	1.42 ± .06	35.281	.001*
	Agriculture/ Allied related decision	2.31 ± .08		
	Purchase of assets	2.48 ± .07		
	Access to and decision about, credit	1.55 ± 08		
	Type and quality of food	2.04 ± 0.9		
Nalbari	Home related decisions	2.13 ± .08	32.007	.000*
	Agriculture/ Allied related decision	1.42 ± 0.6		
	Purchase of assets	2.44 ± .08		
	Access to and decision about, credit	2.48 ± 07		
	Type and quality of food	2.31 ± .08		

Values are expressed in mean ± SE (Standard Error)
*=Significant at 1% level

tionship between independent variable and dependent variable.

Table 5 showed that the significance values is 0.001 and 0.000 at 1% level, and there is statistically significant difference between the means of decision making pattern among Dhemaji and Nalbari district. From mean it was clear that in both district (Dhemaji and Nalbari) women were most involved in purchase of asset, Access to and decision about credit, and types and quality of food. Thus, the result showed that there was a statistical difference between home related decisions making pattern between both the district. The power of female participants on family decision-making capacity was assessed on the basis of socio-demographic variables of living standards, which are generally governed by males. Indicators and decision making pattern of Women, men and both are indicated in Table 5.

Majority of the decisions related to Agriculture/ Allied related decision, Purchase of assets and, Acces to, and decision about, credit in Dhemaji district were taken by men only and was significantly higher than Nalbari district. The women involved in agriculture faced challenges like lack of capital, poor soil quality, Seeds shortage, lack of extension contact, limited family labour, Shortage of manure and fertilizers which directly affects the family income leading to adverse affect in the decision making pattern. Home gardens provide a variety of environmental benefits while also meeting social, cultural, and economic requirements. The importance of improving and developing local food systems has grown in the face of a worldwide food crisis and soaring food prices. Household women encounter numerous challenges that compromise their welface. Hence an attempt was made to assess women involvement on changing status in decision making of the selected farm households, and involvements of women in household decision making process.

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