

## Women in the Homestead Agroforestry-Contribution to Sustainable Development

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### ABSTRACT

The study was conducted to assess women's role in homestead agroforestry and to explore their relationships with the selected parameters. Total 225 respondents were selected randomly for the study. Homestead agroforestry is the combination of multi components including plants, animals and human habitats in the tiny pieces of land. All of these were maintained by household member's especially female members with the view to household consumption and surpluses for distribution & sale. Women are almost fifty percent of the society. The role of women entrusted from dig to cooking of final recipe in the homestead agroforestry. Women were devoted in contributing to the homestead agro forestry through their direct involvement as physical labour and intellectual for decision and management. They played an important role in domestic duties including homestead production & management (vegetables, trees, fruits, livestock, poultry birds and fishes), as well as post-harvest processing, decision making and technology adoption. In organizing inputs (seeds, seedlings, mulching materials, compost, dung, others implements) for homestead agro forestry, women paid more attention on it. Women were taken decision deliberately on planting of fruit trees, growing of vegetables, rearing of poultry birds and small scale live stocks). On the other hand, both women & men were responsible for fish farming and animal husbandry. Management (watering, feeding, pest management and harvesting) was the common routine works of women. In conserving biodiversity, rearing the young and introduction of new species in the homestead agro forestry women were played significant role. Women were also produced seeds, preserved and used for next year production. They were given significant contribution in managing family by using and selling homestead agro forestry produces during crisis. Major problems were recognized regarding role of women in homestead agro forestry including societal attitude towards women, dominating tendency by the husband and little control over resources.

**Keywords:** Homestead agro forestry; versatile; traditional recipe; indigenous knowledge;

### INTRODUCTION

Homestead is the home and very adjacent lands occupied by the family for their living and provide support as the ground for homestead agroforestry. Homestead agroforestry is the subsistence system and potential production area in Bangladesh, especially for the rural poor people. Homestead production system, which is popularly called homestead agroforestry or home gardening (the integrated production of crops, trees, and/or livestock in the household's residence and its surrounding areas), has been playing an important role in the rural economy of Bangladesh since time immemorial, and providing various essential products and services to millions of rural households.

Homestead agroforestry is the combination of multi components including plants, animals and human habitats in the tiny pieces of land. Plant includes trees, shrubs, and herbs, growing in or adjacent to the homestead or home compound. All of these are planted and maintained by household member's especially female members with the view to household consumption; they have considerable ornamental value and provide shade to people and animals. It is also known as multipurpose agroforestry. It is also known as subsistence agroforestry. It aims at meeting the basis needs of small family having less holding and very little capacity for an investment. The form of agroforestry is very wide and denoted by very common terms using, homestead agroforestry (Leuschner and Khaleque 1987), mixed-garden horticulture (Terra 1954), homegarden (Ramsay and Wiresum 1976; Millat et al. 1996), Javanese homegarden (Soemarwoto et al. 1985), and homestead forest (Motiur et al. 2005). Homestead forests of Bangladesh constitute multi-storied vegetation of shrubs, bamboos, palms and trees that produce materials for a multitude of purposes, including fuel, shelter, structural materials, fruits, fodder, and medicines (Dauglas 1981). Bangladesh holds a total of 399585 hectares of homestead land with 0.03 ha per household, with marginal, small, medium and large household having an average 0.01, 0.02, 0.04 and 0.07 ha of total cultivated land respectively (BBS, 2006).

Homestead agroforestry be capable to maintain sound ecological basis for increased crop and animal productivity, more dependable economic returns and greater diversity in social benefits on a sustained basis. Agroforestry is a collective name for land use system and technologies where woody perennials (trees, shrubs, herbs bamboo etc) are deliberately used on the same unit of land management as agricultural crops/ or animals in some form of spatial arrangement or temporal sequence.

Population pressure and subsistence economy have forced the households to utilize all the sites of a homestead as individual production units. The homestead agroforestry provides multiple products to the household and meets the diversified needs including food, nutrition, and energy securities, producing a wide variety of fruits, vegetables, and tree products. It also contributes to household income and saving through sales of vegetables, fruits, and other tree products, and to the creation of employment opportunity particularly for the women. Collectively, homestead production system contributes a lot in firewood and bamboo requirement of the country. Agroforestry is not a new concept; the people have been practicing agroforestry traditionally in the form of home gardens. Homestead agroforestry is an age old practice. Several researches showed that the people practicing agroforestry in their own small homestead and the income from agroforestry helps them to reduce their poverty, maintain their socio-economic needs and sustain their livelihoods.

Lots of household benefits derived from homestead agro forestry. It ensures basic needs of rural poor household in regular basis. It acts as the sources of regular curries, energy (firewood) fodder for domestic animals and for shelter (housing). All of the activities are led by women mostly alone, in few case men have provided driving force and in some extent through combined efforts too. There is a vital relationship among women's contribution, socioeconomics of homestead agroforestry and sustainable development. Despite the central role of women in the development process, development project continue to be considered without concern of their consequence on women or the role of their accomplishment. Women have customarily played vital roles in homestead agroforestry production and use it for sustainable development.

## OBJECTIVE

The main objective of this study was to investigate women's contribution to the homestead agroforestry and its related activities. The study also emphasized on i) to elicit people perception on homestead agro forestry; ii) to know how women contributes physically in every component of homestead agroforestry; iii) to identify women's involvement with homestead agroforestry components; iv) to assess women's role in organizing inputs for farming; v) to know how women participate in decision making process; vi) to make link between the management of Homestead agroforestry and women's role; vii) to know women's role on uses of homestead produces; viii) to find out problems related to women's participation in homestead agroforestry; and finally ix) to recommend solutions in recognizing women's role in homestead agroforestry and overcome the problems.

## METHODOLOGY

The study was conducted in three upazilas including Bagatipara, Singra and Natore sadar Upazila under Natore district to observe the women contribution in homestead agroforestry systems for sustainable development and to explore their relationships with the homestead agro forestry. The study was conducted in three phases. In the first phase, details information about the study areas was collected. In the second phase study site, study population and consultation and data collection were done. In the last phase data validation, data management, data analysis and final report was made. Two hundred twenty five respondents were selected randomly for the study. A structured personal interview schedule was used for collecting data using semi-structured pre tested questionnaire during the period from April 2013 to July 2013. Selected characteristics of the farmers, namely age, family size, farm size, homestead size, annual income, as well as knowledge on homestead agro forestry. In addition, 3 Focus Group Discussion (FGDs) were conducted in three Upazila.

All of the socioeconomic data and homestead production related questionnaire were developed for the survey focusing socio-economic status of the study area and homestead production related (production cost, inputs, sources of inputs, technical support, consumption and marketing of the homestead products) information. The interview was made or designed based on three category: widow/women headed family, Nuclear family and extended family having wife, husband and two/three children (grand father and mother, elderly person), interested family, rural agro based family ( Trees, vegetables, poultry and livestock) and having own homesteads.

After preliminary & socioeconomic survey the parameters of potential value for the study were reviewed. Based on the family types of respondents were categorized in to three groups as follows:

- i. Sample-1: 25 Widow or women headed family with children;
- ii. Sample-2: 100 Nuclear family (50%women) consisting husband-wife with children;
- iii. Sample3:100 Extended family (50% women) consisting husband-wife, brother-sister, father-mother and children.

After data collection it was checked for reliability and validity. Data were analyzed using MS-Excel and presented in tabular form for ease perception.

## 4. RESULTS

### 4.1 Population dynamics

The population dynamics related to respondents with their characteristics which were studied described as follows:

#### 4.1.1 Family, homestead and farm size

The family size of the study population varied from 2-13 with an average of 4.53 (Table 4.1.1). The homestead size of the respondents varied from 0.01-0.54 hectare with an average of 0.22 hectare. Land owned of the respondents ranged from 0.4-2.5 hectares with an average of 0.453 hectare in the study areas.

4.1.1 Family and land holdings

Parameter	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Household members	3.5(2-5)	4.6(4-8)	5.5(5-13)	4.53(2-13)
Homestead	0.12 (0.01-0.24)	0.25 (0.015-0.48)	0,28(0.020-0,54)	0.22(0.01-0.54)
Land holdings	0.49(0.45-.97)	0.42(0.4-.95)	0.45(0.43-2.5)	0.453(0.4-2.5)

N= number, figure in parenthesis indicates minimum to maximum value

#### 4.1.2 Age and Education

The adult age of an individual is one of the significant indicators to make up his/her personality (Smith and Zope, 1970) play an important role on homestead agro forestry. According to study data the age of the respondents ranged from minimum 25 years to the maximum 62 years with an average of 38 years (Table 4.1.2). The highest education level of the respondent was graduation and having few with no education (illiterate).

4.1.2 Age and education

Parameter	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Age	34(25-55)	40(28-60)	39(30-62)	38(25-62)
Education	Illiterate-Secondary	Illiterate to Higher secondary	Illiterate to Graduation	Illiterate to Graduation

N= number, figure in parenthesis indicates minimum to maximum value

### 4.1.3 Annual income

Annual income from the homestead agro forestry of the respondents ranged from BDT 4500 to 32000 with an average BDT 25313. Total incomes of the respondents were varied from BDT60000 TO BDT 4500000 with averaging BDT 120369.

4.1.3 Annual total income and income from homestead agro forestry

Parameter	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Income from homestead	BDT 20425 (6000-30000)	BDT 25116 (5000-40000)	BDT 30399 (4500-32000)	BDT 25313 (4500-32000)
Total income	BDT 90517 (60000-240000)	BDT 115270 (62000-320000)	BDT 155319 (75000-450000)	BDT120369 (60000-450000)

N= number, figure in parenthesis indicates minimum to maximum value

## 4.2 Women in homestead agro forestry

### 4.2.1 Understanding of Homestead Agro forestry

The common understanding on homestead agroforestry is to grow something in the homestead combining forest trees and agricultural crops simultaneously or sequentially. Very simply definition was given by the respondents mentioning combination of multi components (Table 4.2.1) where trees, vegetables and livestock are raising. It holds an interdisciplinary approach to land use, necessitating the combination of social, ecological and economic factors sustaining rich biodiversity.

Table 4.2.1 perception on homestead agroforestry

Understanding	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Combination of multi components	25(100)	86(86)	89(89)	200(89)
Trees with Vegetables in the homestead	25(100)	80(80)	90(90)	195(88)
Trees with Vegetables and livestock in the the homestead	20(80)	60(60)	80(80)	160(71)
Trees with vegetables, cattle, poultry and fish	15(60)	42(42)	65(65)	122(54)
Trees with fruit trees, cattle, poultry, vegetables and fish	3(12)	15(15)	21(21)	39(17)

N= number, figure in parenthesis indicates percentage value

### 4.2.2 Component of the homestead agro forestry

Component means part of the whole system. In case of homestead agro forestry, the respondents were mentioned ten broad components including tress, fruit trees, poultry, vegetables, cattle, spices, Bamboo, nursery, fish and flower production respectively (Table 4.2.2). In every homestead most of the components were present only except few of them. Fish culture was scarce and found only in the limited number homesteads. Mini nursery was

found in few homesteads for purpose of own use and marketing of surplus. The inclusion of new component is the inspiration of women.

Table 4.2.2 Component of Homestead Agroforestry

Component	Widow/ women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Tress	25(100)	100(100)	100(100)	225(100)
Vegetables	25(100)	95(95)	98(98)	217(96)
Fruit trees	25(100)	100(100)	100(100)	225(100)
Cattle (Cow goat etc)	20(80)	80(80)	90(90)	195(87)
Poultry (Chicken, duck)	25(100)	100(100)	100(100)	225(100)
Spices	15(60)	50(50)	60(60)	125(56)
Fish	3(12)	10(10)	12(12)	25(11)
Flower	2(8)	8(8)	10(10)	20(9)
Nursery	5(20)	20(20)	22(22)	47(21)
Bamboo	10(40)	30(30)	32(32)	72(32)

N= number, figure in parenthesis indicates percentage value

#### 4.2.3 Women role in selecting component of Homestead Agro forestry

Women are not housewives only. Women are the key person in the homestead agroforestry. Homestead agro forestry is the regular bread of rural family economy. Every component is adding with the link of women's soft hand to contribute lots in family cash income. Based on immense need, women usually increase the number of components. After building new house, women start to plant trees (both fruits and timber) with poultry and livestock then gradually increase several components based on scope. Women's contribution is very lofty in projects that are measured to be women's realm, such as local fruit and vegetable products and processing. Local fruits and vegetables are important to women because they involve minimal inputs in the form of labour, which women can provide. 72% women alone play important role in selecting agro forestry component (Table 4.2.3). To the introduction of new component or new species women usually inspired by the neighbours and try to add gradually. After eating fruits usually women collected quality seeds and used for regeneration of good varieties that entrusted horticultural component.

Table 4.2.3 Role of women in selecting Component of Homestead Agro forestry

Role	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Women	25(100)	60(60)	78(78)	163(72)
Men	0(0)	30(30)	15(15)	45(20)
Both (women & men)	0(0)	10(10)	7(7)	17(8)

N= number, figure in parenthesis indicates percentage value

#### 4.2.4 Women's contribution in organizing inputs for homestead agroforestry

Inputs required in the homestead farming is very minimal in quantity but it should be expected in diverse numbers including seeds, compost, fencing materials, mulching materials, trellis materials, all sorts of implements, materials for pest control, harvesting, collection, marketing, storage & preservation. All sorts of inputs mostly organized or gathered by the women. This is basically deemed on situation and needs for particular aspect. Seed usually required when she plan for sowing or planting then she organized it herself accordingly. The

main component of compost is cow dung also collected by women from cattle house to compost field. At the same time women managed kitchen wastes and crop residues in preparing compost. Making trellis and fence for vegetables, women organized all the inputs either from own homestead or from neighbours. In producing fruits women take lead role in organizing all of the materials. Among the study respondents, only few men were playing role in organizing inputs for homestead agro forestry. Exceptionally few households were doing it through combined efforts (Table 4.2.4).

Table 4.2.4 Role of women in organizing inputs for Homestead Agro forestry

Role	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Women alone	22(88)	39(39)	59(59)	120(53)
Men alone	0(0)	38(38)	32(32)	70(31)
Both ( Combined)	3(12)	23(23)	9(9)	35(16)

N= number, figure in parenthesis indicates percentage value

#### 4.2.5 Preparation for homestead agro forestry

Every tinny space and pocket in the homesteads was known by the women. They knew well where to plant vegetables? Where to plant fruits? Where to grow climbers? Or and where to rare livestock or poultry. Selection and preparation of land is the furthestmost very common activities for women in the homesteads. From digging to forking and pit preparation is very common to women in the homestead agro forestry. Women usually prepare land with the help of spade, fork and hoe for homestead agro forestry production. They are preparing land by adding compost, keeping weeds away and finally go for sowing or planting with desired varieties. After cleaning and washing of fish, women poured water to the vegetables/trees pit to supply nutrients. Women eventually better informed about preparatory works. Land preparation, addition of homemade compost, pit preparation and sowing of seeds in the great extent was done by women where as men were actively involved in adding chemical fertilizer and planting of trees (Table 4.2.5). Self generated activities are the path way to sustainable development which is managed by women themselves.

Table 4.2.5 Women in land preparation

Activity	Widow women headed family n=25			Nuclear Family n=100			Extended Family n=100			All N=225		
	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Land preparation	2(8)	23(92)	0(0)	20(20)	70(70)	10(10)	25(25)	65(65)	10(10)	47(21)	158(70)	20(9)
Adding compost	3(12)	21(84)	1(4)	5(5)	80(80)	15(15)	8(8)	75(75)	17(17)	16(7)	176(78)	33(15)
Adding fertilizer	5(20)	18(72)	2(8)	6(6)	35(35)	5(5)	5(5)	45(45)	5(5)	11(5)	98(44)	12(5)
Pit preparation	0(0)	25(100)	0(0)	10(10)	70(70)	20(20)	10(10)	80(80)	10(10)	20(9)	175(78)	30(13)
Planting	2(8)	22(88)	1(4)	4(4)	40(40)	20(20)	4(4)	45(45)	5(5)	8(36)	117(52)	26(12)
Sowing	0(0)	25(100)	0(0)	10(10)	80(80)	10(10)	3(3)	60(60)	10(10)	40(18)	165(73)	20(9)

N= number, figure in parenthesis indicates percentage value

#### 4.2.6 Management of Homestead agro forestry

Wide array of options are required for homesteads management. Management tools evoke few common practices which one usually led by women folks in rural homes. Women took parts in managerial activities of homestead

agro forestry through their eagerness and own responsiveness. Usually, they were used to keep them busy with household activities. In addition to that they engage themselves happily with management activities of homestead agro forestry including trellis preparation, watering, mulching, fertilizing, managing pest, harvesting, cutting of unwanted branches & twigs, artificial pollination and making fence to protect crops from enemies (Table 4.2.6). Monitoring of homestead is the key concern of women. In preparing trellis, women collect branches of bamboo and trees and finally built that provide support to the vine crops. In managing pest notice was made by women and took necessary actions using nature friendly homemade biopesticides.

Table 4.2.6 Women in Homestead Agroforestry management

Activity	Widow women headed family n=25			Nuclear Family n=100			Extended Family n=100			All N=225		
	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Trellis preparation	0(0)	25(100)	0(0)	30(30)	60(60)	10(10)	35(35)	55(55)	10(10)	65(29)	140(62)	20(9)
Watering & mulching	0(0)	25(100)	0(0)	10(10)	70(70)	20(20)	25(25)	65(65)	10(10)	35(16)	160(71)	30(13)
Manuring	2(8)	22(88)	1(4)	20(20)	65(65)	15(15)	22(22)	68(68)	10(10)	44(19)	155(69)	26(12)
Monitoring	0(0)	25(100)	0(0)	2(2)	90(90)	8(8)	5(5)	85(85)	10(10)	7(3)	200(89)	18(8)
Pest Management	0(0)	25(100)	0(0)	5(5)	85(85)	10(10)	15(15)	70(70)	15(15)	20(9)	180(80)	25(11)
Harvesting	0(0)	25(100)	0(0)	10(10)	80(80)	10(10)	12(12)	78(78)	10(10)	22(10)	183(81)	20(9)
Pruning	5(20)	20(80)	0(0)	25(25)	65(65)	10(10)	28(28)	52(52)	20(20)	58(26)	137(61)	30(13)
Pollination	0(0)	25(100)	0(0)	15(15)	80(80)	5(5)	30(30)	60(60)	10(10)	45(20)	165(73)	15(7)
Fencing	0(0)	20(80)	0(0)	5(5)	40(40)	5(5)	10(10)	30(30)	10(10)	15(7)	150(67)	15(7)

N= number, figure in parenthesis indicates percentage value

#### 4.2.7 Livestock is the leading component in the homestead agro forestry

The homestead agro forestry is serving to the rural poor from breakfast to dinner with frequent snacks in every single day. Women are highly confident with every components of homestead especially the livestock production including milk, meat, eggs and ghee & butter is serving through the spoon to mouth for rural nutrition and economy in regular basis. In managing and rearing livestock, women's role is inevitable for every breath. Usually women play an important role in livestock rearing through taking care, feed preparation & rationing, milking, hatching, looking after about health, bathing and cultivation and collection of fodder from homesteads and fields. In case of widow & women headed family cent percentage women are taking care about livestock rearing and management. In both nuclear & extended family, women were paid more attention on these issues (Table 4.2.7). Eggs collection and breed improvement through local hatching process were closely monitored by women. Women observed cattle population very closely during feeding, bathing and take in and out of the houses and noticed sickness or abnormality for necessary actions.

Table 4.2.7 Women in livestock and poultry rearing

Activity	Widow women headed family n=25			Nuclear Family n=100			Extended Family n=100			All N=225		
	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Feed rationing & Feeding	0(0)	23(92)	2(8)	32(32)	58(58)	10(10)	33(33)	47(47)	20(20)	65(29)	128(57)	32(14)
Fodder cultivation	1(4)	22(88)	2(8)	12(12)	55(55)	31(31)	22(22)	56(56)	22(22)	35(16)	133(59)	55(24)
Milking	0(0)	25(100)	0(0)	18(18)	67(67)	15(15)	20(20)	67(67)	13(13)	38(17)	159(71)	28(12)
Hatching	0(0)	25(100)	0(0)	1(1)	92(92)	7(7)	3(3)	87(87)	10(10)	4(2)	204(91)	17(7)
Treatment	0(0)	25(100)	0(0)	15(15)	70(70)	15(15)	18(18)	65(65)	17(17)	33(15)	162(72)	32(14)
Bathing	0(0)	25(100)	0(0)	15(15)	75(75)	10(10)	20(20)	68(68)	12(12)	35(16)	168(75)	22(9)
Take in & out of the house	0(0)	25(100)	0(0)	25(25)	65(65)	10(10)	28(28)	52(52)	20(20)	33(15)	142(63)	30(13)
Care taking	0(0)	25(100)	0(0)	25(25)	70(70)	5(5)	32(32)	54(54)	14(14)	57(25)	149(66)	19(8)
Fencing	0(0)	25(100)	0(0)	10(10)	70(70)	15(15)	18(18)	62(62)	20(20)	28(12)	157(70)	32(14)

N= number, figure in parenthesis indicates percentage value

#### 4.2.8 Income ownership and uses of homestead agroforestry produces

Homestead agro forestry generates income through rural employment for the poor especially for women by putting extra labour to maintain several components and extending new areas of employment. Women do almost everything in the homestead but they have limited access in market, cash income from homestead produces and eventually no control of utilization and decision making process on such incomes. Men alone have the power to spend it and lead the decision (Table 4.2.8). Women have privileged rights in using homestead agroforestry produces for own consumption through multi and tasty recipe. The entire recipe usually developed by women alone. Women have the freedom on preparation of delicious recipe and use of homestead agroforestry produces for own consumption. Usually the income from homestead agro forestry used for purchasing books, pens and papers for children education especially in the lean period.

Table 4.2.8 Income ownership from Homestead Agroforestry and control over it

Role	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Women alone	25(100)	0(0)	1(1)	26(12)
Men alone	0(0)	88(88)	82(82)	170(76)
Both ( Combined)	0(0)	12(12)	17(17)	29(13)

N= number, figure in parenthesis indicates percentage value

#### 4.2.9 Who make decision for homestead agro forestry?

Men and women habitually have different goals for planting trees, rearing livestock and growing of vegetables. Men are rationally interested in timber trees and cattle for commercial point of view where as women are more leaning to vegetables, fruits fire wood and poultry for livelihood developments. In every aspect of homestead production, women usually contributing great including production, harvesting, consumption or distribution and seed production & preservation (Table 4.2.9). Men usually demonstrated dominating role in marketing of homestead agro forestry produces. Women are better informed on environmental sustainability as because they are heavily sufferers from environmental degradation. In the homestead agroforestry, women generate environmental incomes but they have no or limited access to spend it. Women are also more responsible for after care and harvesting of fruits and vegetables.

Table 4.2.9 Decision on Homestead Agro forestry production, harvesting and marketing

Activity	Widow/ women headed family n=25			Nuclear Family n=100			Extended Family n=100			All N=225		
	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Production decision	0(0)	25(100)	0(0)	12(12)	78(78)	10(10)	43(43)	47(47)	10(10)	55(24)	150(67)	20(9)
Harvesting decision	0(0)	25(100)	0(0)	19(19)	41(41)	40(40)	32(32)	48(48)	20(20)	51(23)	114(51)	60(28)
Consumption or distribution	0(0)	25(100)	0(0)	12(12)	73(73)	15(15)	20(20)	67(67)	13(13)	32(14)	165(73)	28(13)
Seed production & preservation	0(0)	25(100)	0(0)	1(1)	92(92)	7(7)	3(3)	87(87)	10(10)	4(2)	204(91)	17(7)
Marketing	0(0)	22(88)	3(12)	55(55)	20(20)	25(25)	60(60)	23(23)	17(17)	115(51)	65(29)	45(20)

N= number, figure in parenthesis indicates percentage value

#### 4.2.9 Problems in homestead agro forestry

Few problems were identified by the respondents including inappropriate technical know how, less information, inadequate improved variety, limited access in finance, scarcity of high value fruits and lack of

market information and environmental sustainability (Table 4.2.10). They have no enough knowledge on diverse variety.

Table 4.2.10 Problems of agroforestry

Problems	Widow women headed family n=25	Nuclear Family n=100	Extended Family n=100	All n=225
Lack of knowledge	22(88)	50(50)	39(39)	111(49)
Less access in information	12(48)	44(44)	54(54)	110(49)
Scarcity of improved variety	25(100)	90(90)	68(68)	183(81)
Limited information on high value fruits	10(40)	65(65)	49(49)	124(55)
Limited access in finance	15(60)	56(56)	52(52)	123(55)

N= number, figure in parenthesis indicates percentage value

## 5. DISCUSSION

Research indicates that the farmers practicing homestead agroforestry in their own small homestead and the income of agroforestry helps them to reduce their poverty, maintain their socio-economic needs and sustain their livelihoods. Agroforestry is not a new concept in the study area. The people have been practicing agroforestry traditionally in the form of home gardens, hedgerows and alley cropping. Homestead agroforestry is an age old practice. Homestead agro forestry is now most popular and is widely accepted in the study area because of its in socio-economic advancement and environmental sustainability.

Women are the breakthrough for homestead agro forestry but they have limited access into the market for the own produces. Women are superior in decision making concerning homestead activities only few decisions are executed by joint venture (Wife and husband). It has been reported that women provide most of the labour (cutting grass, manure application, feeding animals, milking, fetching water and even selling milk (Maarse 1995). Similar observations were in this study especially great contributions were recognized in the homestead agro forestry.

The production of homestead agro forestry provides breads to the household members for consumption and a surplus for distribution and market for cash income and to feed the urban people.

Actually it ensures the production of yields in sustainable manner through using resources efficiently. It also maximized the utilization of land both vertical as well as horizontal aspect. As per study report, homestead agroforestry is contributing one fourth of the total income of a family.

Recognition of women contribution to the homestead agro forestry is still lacking due to several reasons including gender discrimination, limited access to the resources, less counting in the decision making process and no or limited control over resources and cash incomes.

Reseracher found that lack of knowledge of agroforestry and the lack of capital are the main two reasons for not adopting agroforestry (Feder et al.,1988; Thapa 1998).

A homestead in Bangladesh is an integrated production system and a stable ecosystem that maintains the diversity of life as well as the biological wealth. It is the main source of food, fruits, vegetables, timber and fuel wood for the household and is a reliable source of household income. Shortage of fuel was common irrespective of farm size but it was more acute in the smaller farm categories.

The study revealed that the income derived from homestead agroforestry, women usually used that for the repayment of installment, cost for children education and meet the deficit in the crisis.

## 6. CONCLUSION AND RECOMMENDATIONS

Homestead agro forestry is almost less invested production systems where women contributed lots through their common eagerness and physical labour. It is also risk free production system and the markets for produces already exist.

The study demonstrated a number of important issues: i) women are mostly involved in homesteads management-related activities; ii) women are owned homestead agroforestry by involving themselves as labourer from production to consumption; iii) women are interested in looking to homegardens because they get considerable benefits as food security, income, health care, and environmental benefits; iv) women were found to be more responsive of homestead agroforestry management and refrained to motivating others (Spouse and neighbors) to conserve the agro-biodiversity. Findings suggest that increased involvement of women in a broad range of homegarden management activities is not only beneficial for their own socio-economic well-being, but also imperative for sustaining the livelihoods of their communities and for preserving agro-biodiversity substantially.

The following recommendations were made based on present study and its findings:

- Women are lacking from technical know how on advancement of homestead agro forestry knowledge. As a consequence the Department of Agricultural Extension (DAE), Department of Forest and other concerning organizations should provide appropriate training program to the women for dissemination of updated information related to homestead agroforestry technology.
- Likewise, several components grown/raise on the homesteads could offer a basis of earnings to households and rural communities. In malevolence of the colossal scope and prospects of the homestead agroforestry should be undertaken to increase their productivity.
- Site specific improved variety of high valued fruits, vegetables and livestock should be introduced to ensure benefits to the rural household especially to women.
- Village level homestead agroforestry information center should be established to disseminate improved technology to the women in regular basis.
- More research should be conducted to elicit best management practices for the homestead agroforestry produces.
- There is urgent need to adopt appropriate policy for homestead agroforestry in relation to gender specific and easy access to finance for women
- Small scale cottage industry is the immediate option for women to make them empower through homestead agroforestry production. Agro-based industry should be developed linking with market value chain option.

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