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Asian Journal of Plant Science and Research, 2017, 7(4):41-54

ISSN : 2249-7412
CODEN (USA): AJPSKY

The Role of Women in the Management and Utilization of Home Garden: The Case of Dale District, in Southern Ethiopia

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ABSTRACT

AThe study was conducted in three Kebeles in Dale district, Southern Ethiopia, namely: Tula, Debub Mesenkela and Debub Kege, to describe and analyze the different roles of women in home garden management and utilization. A multi-stage sampling technique was adopted to select sample households and the methods that were employed for data collection were questionnaire survey and home garden visit and measurement. Ninety (90) households were interviewed and data were analyzed in descriptive manner by using SPSS version 16. In the study area, the average land holding of male headed households was higher than female headed households. The home gardens provide numerous economical and ecological services. Male headed household allocated larger area for cash crops while female headed households allocate for food crops. The study have explicitly shown that in male headed household land preparation, seed preservation for major crops, planting activities (sowing), application of organic fertilizer, watering and harvesting participation of men was higher than women. Women do the planting activity for fruit and vegetables, manuring, harvesting, storage, transportation and marketing of home garden products except for cash crops. In female headed household women was participated in all activities. Most of the decision in male headed households regarding the production and marketing of vegetables (72%) and root crops (75%) is done by women. Men alone decided 85% in cereal and pulse, 62% in cash crops, 92% in fodder and forage, and 60% in livestock particularly in large animals. But in female headed household's decision on consumption and marketing of all products were made by women. Therefore, the study recommends increasing the benefits from home gardens, access to resources, education, extension, information, training, credit service and appropriate technologies need to be improved. Policies and strategies need to be developed to enhance the benefits of home gardens to both female and male headed households.

Keywords: Agroforestry, Gender role, Sidama zone, Southern Nations Nationality Peoples Region

INTRODUCTION

Ethiopia is the third most populated nation in Africa. Agriculture in Ethiopia is the prevailing area utilizes division contributing about portion of the GDP and 90% of national fare profit [1]. This division is ruled by smallholders whose cultivating is considered as the reason for the national financial advancement. The significance of smallholder based agribusiness for an expansive based improvement exertion in sub Saharan Africa, for the most part in Ethiopia, has been underscored for by Djurfeldt et al. [2]. Study undertaken by Gawaya showed that woman in sub Saharan Africa; including Ethiopia performed over half of the rural action and delivering around 60-70% of the food in this region [3]. However, they give most of the work in farming creation, their get to and control over gainful assets is incredibly compelled because of disparities built by patriarchal standards [4].

The participation of women in different activities is variable. According to Ranjan and Hedija [5] the major portion of women's labor force in the production system is invested in weeding, harvesting, household animal care, marketing, post-harvest handling, etc. Harrowing and weeding, in particular, are considered as women's activities [5]. Women are also active in livestock production. Their traditional role of housekeeping has been extended to collect firewood, fodder, and working on farms. In addition to their active engagement in agriculture and livestock production including home garden, women are responsible for all household tasks.

Home gardens are an agroforestry component which is made out of trees, bushes and herbs in relationship with yearly and lasting horticultural harvests and little domesticated animals inside the house mixes [6]. Typically, the entire tree-edit creature unit is seriously overseen by family work. It offers a down to earth reaction to the accompanying difficulties: enormous corruption and exhaustion of backwoods assets; the rustic vitality emergency; ideal use of effectively rare land and ecological change and scene improvement. In this manner, the improvement and support of home gardens ought to be one point of the general approach with respect to common asset protection and administration. Most home garden agroforestry frameworks in Ethiopia are economically more viable than other land use systems because of the high-value cash crops comprised in them [7].

In Ethiopia, there is a strict division of labor by gender in agriculture including in home garden. This division might be founded on sorts of exercises or kind of harvests developed by men and women [4]. Management activities in home gardens are highly gender based and women are mostly responsible for home garden management. Men and women in the family units have diverse parts and targets. Sex undertakings, needs, interests and obligations in agriculture are typically contrast by sex and starting with one family unit then onto the next. In most societies, particularly in male headed household men and women differ in the activities they undertake, in access and control over resources, and in participation in decision making. The division of labor and decision making possibilities of women in home garden management such as digging hole, pruning, watering, weeding, fencing, species selection, seed selection, storage techniques, pest control techniques and their contribution on forest conservation is not well studied.

Women in the agricultural sector in Ethiopia already face many socio-economic, educational and legal obstacles in realizing benefits of their effort. They likewise need proper and usable data that could help them with their cultivating exercises. They require data on an extensive variety of subjects, including rural generation, preparing, showcasing, exchange laws and the normal asset base. Therefore, this study aimed at uncovering the role of women in male headed household in the management and control of home garden practices. The outcomes of the study will be used in formulating future policies and strategies at the local level to empower women and make them beneficiaries of their labor. It will as well be used to have a better understanding of the kind of training which is required for women in the area. And finally it makes mindfulness among the general public and outcasts on the pretended by women and give due regard to their commitment. The general objective of this study is to describe and analyze the different roles of women in home garden management and utilization in Dale District.

MATERIALS AND METHODS

The study area

The study was conducted in Dale district and it is situated at 317 km south east of the capital, Addis Ababa and 42 km south east of regional city, Hawassa. The district is bordered by Menasha district in the north, Aleta Wondo District in the south, Shabadino district in east and Loka Abaya in the west. Mean annual rain fall in the area varies from around 1100 mm to 1877 mm and the mean annual temperature ranges from 18°C to 25°C. The elevation ranges between 1100 to 1800 m above sea level and the slopes ranges from nearly flat to moderate slope. Agriculture is the principal source of livelihood for most of the population in Dale district. Of the total land size of the area, 96% is under cultivation for growing both annual and perennial crops while the remaining area is forest land (3.21%), grazing land (0.37%), settlement (0.23%) and uncultivated land (0.20%). Livestock population of the district is large with the main livestock species of cattle, goats and sheep.

Sampling method

In the present study, a multi stage sampling technique was employed. The first stage was classification of the kebeles based on intensity of home garden management. Then 26 kebeles were found to manage home garden intensively from 36 kebeles. Three home garden agroforestry systems practicing Kebeles were selected out of 26 randomly using lottery system. The three kebeles are Tula, Debub Mesenkela and Debub Kege (Figure 1).

In the second stage before selecting households to be included in the sample, home garden agroforestry system practicing households of each selected kebeles were collected from Development agents. In this study, the sample size was determined by taking into consideration the representativeness of the sample (5%) and the cost involved. Five key informants from each Kebele were purposively selected based on their age, knowledge about home garden and social position. These key informants defined wealth groups of residents in to three categories as poor, medium, and rich following the criteria farm size they own, amount of annual income obtained (particularly from cash crops), number of livestock they hold and the amount of labor involved in agriculture. Based on the key informant's criteria and the Keble's record we selected households (Table 1).

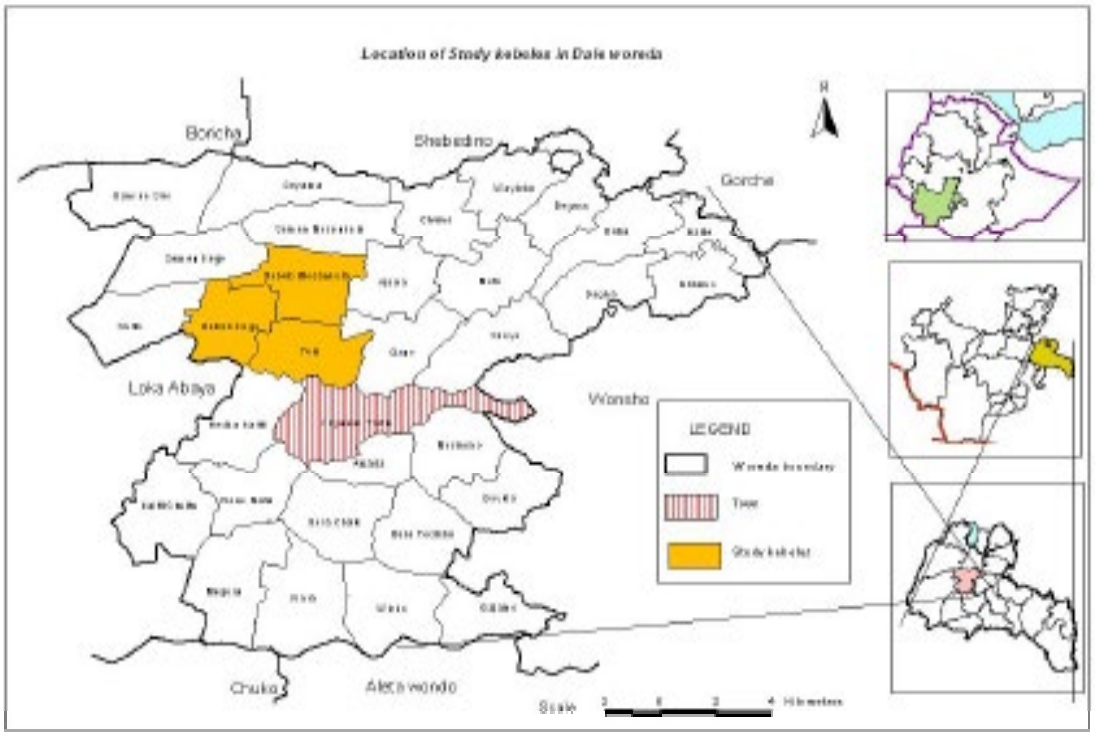

Figure 1: Map of the study area (Source: SNNPR, BoFED, 2012)

Table 1: Number of male headed and female headed households in wealth group

Type of household	Poor	%	Medium	%	Rich	%	Total
MHHs	15	33.3	15	33.3	15	33.3	45
FHHs	15	33.3	15	33.3	15	33.3	45
Total	30		30		30		90

In the third stage stratified random sampling method was used based on gender of household head. Selection was made randomly from the categories of male and female households based on their wealth status (poor, medium and rich) in each kebele. Consequently, the survey was administered on 90 households and data collected from respondents were analyzed. Appointments were made with the farmers through the agricultural extension agents to be available for interview.

Data collection

Data were collected from primary and secondary sources. Primary data were collected from sample households and key informants. Data were collected by using questionnaires and farm inventory. Secondary sources refer to information that was collected from the District and Kebele offices of agriculture. These gave information on the general land use of the areas, the major crops, marketing and consumption patterns, etc., and the challenges faced in agriculture.

Data analysis

The qualitative and quantitative data that were collected in this study were analyzed. The qualitative data collected through interview and physical observation were summarized and presented in the form of descriptive statistics. The quantitative data that were obtained through survey were analyzed by means of SPSS (Statistical package for social sciences) version 16. Statistical analysis including frequency, percentage and mean comparison were used to analyze the quantitative data.

RESULTS AND DISCUSSIONS

Demographic and socio-economic characteristics of the respondents

Age of the respondents

The age of the respondents ranged from 25-80 years. Number and percentage distribution of farmers according to their age group is shown in (Table 2). The majority of the respondents were in the middle age category for both female

Table 2: Demographic and socioeconomic characteristics of households

Characters.	N	Minimum	Maximum	Mean	SD
Farm size (ha)	90	0.19	1.25	0.72	0.5
Family size (no.)	90	2	7	5	2.5
Age (years)_	90	25	80	52	27
Education (level)	40	Illiterate	Reading and writing	0	-
	48	Grade 1	high school	5.5	-
	2	-	12^{+3} (Diploma)	10^{+3}	-

headed (81.1%) and male headed households (66.4%). For female household heads the average age was about 41 years while the mean for male headed household was 42.

Family size

It is the size of the family of the respondent measured in terms of total number of members in the family including aged persons and children. The average family size of sample households was 6 people per household whereas the minimum and maximum household size was found to be 2 and 7 people per household, respectively. For female household heads the size of family was smaller than male headed households (Table 2).

Education

Education refers to the level of formal and non-formal education and measured in terms of ability to read and write and enrolment in primary, secondary schools or above. Most of the sample household heads (50%) have attended their primary education (grade 1 to 4) while 22.2% of sample household heads are illiterate (Table 2). There was a significance difference between education level of male and female headed households at significant level ($p<0.05$) between male and female household heads indicating that male household heads were more educated than female household heads.

Off farm activities

The results indicated that in the district off-farm activities for male headed households were; petty trading (33.3%), wage labor (26.7%) and safety net from government (33.3%) secondary sources of household income. For female headed households, petty trade (38%), wage labor (20%) and safety net from government (42%) contributed as secondary sources of income.

Agricultural extension services

Poor men as well as women meet obstacles to access to credit and agricultural extension service. But women both in male and female headed households have less access to credit than men. The findings from this study show that the household interviewed had never received credit although credit is considered in the study area to be one of the important services. None of the women reported to have received agricultural extension service. A male DA provides advice to women in female heads of household; in MHHs the husband is regularly considered the head even on women's activities such as home gardening and poultry rising. In general, MHHs and FHHs in the study area have little access to credit and agricultural extension service. Little or lack of access to agricultural credit and extension services are seen as serious constraints facing the rural poor and women in their efforts to reduce poverty through increased agricultural production.

Access to and control over assets or resources

In the study area, almost all female headed households had access to land acquired by different means. The customary social practices and standards in the investigation region women are denied from legacy and dependably from father to child or, without men in the family, to close male relatives. A study by Kippie indicates that women are excluded from inheriting family land in Gedeo people [8]. More than one-half (67%) women in female headed household has own the land from their husband. Possession is the ability to control and advantage from it and to exchange and access to arrive, which means the capacity to make utilization of land for creation, handling and bringing home the bacon out of it [9]. None of respondents purchased agricultural land. When asked who controls land, the majority of the women (100%) in female headed households who had land, said they had full control over their land. In male headed households some women (the wives) have access to land but the land is fully controlled by men. Women in a household can access and enter men's territory of land use through marriage (Table 3).

Management practices and utilization of home gardens in Dale district

Farm size and composition

The size of home gardens in the study area varied widely. For male headed households the average size of land holding

for the rich category was 1.25 ha while the land holding for medium, and poor was 0.57 and 0.2 ha respectively (Table 4). For female headed households the average farm size for the rich category was 0.95 ha while the land holding for medium and poor was 0.33 and 0.19 ha, respectively. Male headed households have generally larger farms than female headed households. The mean farm size of male headed households was 0.70 and for female headed it was 0.44 ha (Table 4). The land size difference between the FHHs and MHHs could be due to cultural factor in which women are excluded from inheriting family lands. From interview, the culture does not allow women to own and control land. Women do not have land ownership or they are excluded from inheritance right but they had access through marriage. From this study the average family size of 6 people is accommodated in a mean land holding of 0.57 ha, showing higher population density this is 982 persons/km^2. This is in concurrence with CSA [10] and Kippie [8] they detailed that homegarden agroforestry has bolstered populaces of 500-1000 man for each square kilometer in SNNPRS for a considerable length of time and the capacity of the frameworks to bolster such a substantial populace has been because of the coordinated enduring harvest base frameworks where trim assorted qualities and high efficiency of Enset added to strength and sustenance security [8,10,11].

Utilization of home gardens

Home gardens are proposed essentially for family utilization and there is private relationship of woody perennials with yearly and enduring products and perpetually domesticated animals, inside the mixes of individual houses, with the entire yield tree-creature unit being overseen by family work [12].

Information obtained from the household survey indicate that the contribution of trees which are best for fuel wood, shade, soil fertility improvement, medicine, fodder, construction and other purposes are well known by household members. The multi-purpose nature of trees is the primary criterion for selection of trees by households managing home garden agroforestry systems. Trees which are best for fuel wood, shade, soil fertility improvement, medicine, fodder, construction and other purposes are well known. The multi-purpose nature of trees is valued by women. Although a number of trees can be used for the same purpose, preferences for selecting them depend upon several factors such as suitability for fuel wood, fast growth, ease of management, ease of establishment.

Composition of home gardens managed by male headed and female headed households

Food crops

Vegetables: The present survey indicated that eight types of vegetables were grown in the study area. Of these 95.5%, 86.6% and 84.4% of households were growing kale, potato and hot pepper respectively. The total production of vegetables in male headed households was lower than female headed households because lower production area for vegetable production. From the result female headed HHs was highly dependent on vegetable crops in home garden as compared to male headed HHs. Among the vegetables significant difference ($p<0.05$) was observed in kale production between female and male headed households (Table 5).

Root and tuber crops: For the root crops the households interviewed were growing five species. Of these, 98.8 % and 90% households were growing sweet potato and taro respectively. In male headed households' total production ($P<0.05$) and production area of root and tuber crops was higher than female headed households (Table 5). Values in the same row having different superscript differed significantly at $P<0.05$

Cereal and pulse crops: All the households interviewed were growing three types of cereals and pulse crops. Of these five varieties, 100% households grow maize, 98.8% grow common bean and 20% grow Teff. The results indicated that

Table 3: Means of land acquisition by the sampled household

Household Head		Method of land ownership in %			
		Own	Inherit	Rent	Total
MHHs	Male	44	22	11	77
	Female	23	0	0	23
FHHs	Female	67	29	4	100

Table 4: Land holding of MHHs and FHHs in wealth category

Wealth category	MHHs	FHHs
Rich	1.25	0.95
Medium	0.58	0.3
Poor	0.2	0.19
Mean	0.7 ± 0.52	0.44 ± 0.35

the amount of maize produced by male headed households was significantly larger than female headed households at significant level (P<0.05) (Table 5).

In fruit products: All of the households grow banana and avocado for consumption and market. 96.6% grow Casmir, 72.2% grow guava, 61% grow papaya, 55.5% grow mango and few (13%) grow orange in the area. There was no significant difference observed in fruit production between male and female headed households (Table 5).

Cash crops

The households grow three types of cash crops. Of these 88.8% households grow coffee, 63.3% grow khat and 24.4 % grow sugar cane. Total production of khat in male headed households was lower than female headed households in Table 5. Regarding coffee, male headed households produce more than female headed households. The reason for these could be associated with the difference in farm size they hold.

Livestock production

The sample households rear large cattle, small ruminants and poultry. Of these 88.8% households rear cows, 94.4 % rear poultry, 72.2% rear ox, and 30% and 27.7% have sheep and goat, respectively. From the result the number of cow, ox, sheep and goat in male headed households is greater at significant level (P<0.05) than that of female headed households. But the number of poultry was smaller in male headed households (Table 5). Similar result was found by Pedersen that female headed households owned more chickens because of unlike large animals, which are owned and controlled by men, chickens are directly accessible to women. This is mainly because men tend not to attach much value to chickens [13].

In general, five types of products were identified in the study area (Table 6). In terms of area of production, male headed households' allocated large area for the production of root crops (35%), cash crop (22%) and cereal and pulse crop (18%) production. On the other hand, in female headed house hold larger proportion of the area was allocated for vegetable (34%) and cash crop (19%) followed by root crops (18%).

From this study female headed households allocate their farms more for food crops that is consumed than marketed products. This is concur with Akhter et al. who uncovered that women assume a key part in homegarden management and they in charge of a substantial piece of sustenance generation [14].

The role of women in managing home garden and controlling home garden products

Workload

Land preparation: All men participate in land preparation for all type of production in home garden (Table 7). Men have higher contribution to land preparation than women and this might be because land preparation is an energy draining exercise that is better handled by men. The result was also in agreement with FAO who reported that in crop production it is usually the men who plough the crop fields while the women do the majority of the other work including fertilizer and pesticide application and harvesting [15,16]. The same case was reported by Aregu et al. that men are typically responsible for the heavier manual tasks such as land preparation and tillage with oxen [17]. According to Tewodaj et al. in some Southern parts of the country rural women even do not allow engaging in ploughing, sowing and hoeing activities due to cultural norms [18].

Table 5: Statistical result for average production (Kg) of major crops in surveyed households

Type of crops	Household heads	
	MHHs	FHHs
Education and age		
Age	42 ± 7 [b]	41 ± 11 [b]
Educational level	1.7 ± 0.9 [a]	0.67 ± 0.6 [b]
Crops		
Kale	189 ± 25 [b]	400 ± 63 [a]
Sweet potato	662 ± 52 [a]	348 ± 77 [b]
Maize	1083 ± 164 [a]	510 ± 215 [b]
Coffee	1017 ± 188 [a]	317 ± 142 [b]
Avocado	399 ± 102 [b]	671 ± 170 [b]
Banana	712 ± 97 [b]	481 ± 87 [b]
Animals		
Cow	5.3 ± 1.5 [a]	2.5 ± 0.4 [b]
Poultry	7.8 ± 3.1 [a]	21 ± 4 [b]

Table 6: Ranking of home garden products according to production area

Crop type	MHHs			FHHs		
	Mean area (ha)	Area (%)	Rank	Mean area (ha)	Area (%)	Rank
Vegetable	0.07	10	5th	0.15	34	1st
Root crop	0.245	35	1st	0.08	18	5th
Cereal and pulses	0.126	18	3rd	0.075	17	3th
Cash crop	0.154	22	2nd	0.083	19	4th
Forage	0.105	15	4th	0.052	12	2nd
Total	**0.7**	**100**		**0.44**	**100**	

Table 7: Gender division of labor for major crops, fruit, tree and animal (in frequency) N=90

Activities	Vegetable			Root crop			Cereal &pulse			Cash crop			Fruit production			Tree production		
	MHHs		FHH	MHHs		FHH	MHHs		FHH	MHHs		FHH	MHHs		FHH	MHHs		FHH
	M	F	F	M	F	F	M	F	F	M	F	F	M	F	F	M	F	F
Land preparation	100	31	56	100	0	44.5	100	11	22	100	56	33	100	55	22	100	11	33
Seed preservation	33	100	100	22	67	100	100	78	66	15	89	44	55	33	33	X	X	67
Planting	50	50	50	100	56	100	98	2	55	50	50	100	84	92	88	98	89	55
Manuring	0	100	100	93	22	100	98	80	100	98	53	100	0	100	100	22	55	100
Watering	67	31	100	93	67	100	98	80	100	98	53	100	44	100	100	98	89	100
Weeding	69	100	100	100	22	55	100	27	55	100	44	67	55	100	100	100	44	100
Harvesting	47	100	100	93	87	66	100	20	77	100	50	56	89	11	55	0	0	0
Storage	58	100	100	67	98	33	73	100	100	89	100	88	33	100	100	0	0	0
Transporting	58	100	89	67	98	100	73	100	100	89	100	100	100	22	67	0	0	0
Marketing	0	96	100	78	93	100	84	95	100	100	68	100	22	100	100	0	0	0
Pruning and pollarding													0	0	0	99	100	89
Thing and felling													0	0	0	71	0	0

Seed preservation package: Preservation of seeds for planting is handled by both men and women, but there are preference for certain type of crop seeds. For vegetable seeds it is 100% by women and 33.3% by men, while for cereals it is 100% by men and 78% by women (Table 7). Thus men generally have higher contribution in seed preservation than women for major crops like root crops, cereal and pulse, and women for vegetables and fruit trees. Similar result was found by Mbwele et al. that men are more likely to consider yield, suitability for arrange of soil type and easy of storage) [19]. Women role are frequently reported in maintaining household seed banks that store and preserve field and home garden crop verities [20]. It is the same finding with Amri and Kimaro who reported that rural women play key roles in most of the seed production activities [21].

Planting activities (sowing): In the study area planting is largely the responsibility of men because of the cultural division of labor. In planting of root crops all men and 55.5 % women, cereal and pulse crop production all men and 8.88% women, fruits 83.8% women and 95.5% men, in tree production all men and 89% women had contribution (Table 7). This agrees with Audu who indicated that planting is mostly done by men because they find it easier since the planting is done with the feet in case of seeds. Men wear trouser and so they find it easier to move on the ridges and plant with their feet [22].

However, the wives do the planting activity for vegetables, fruit and trees seedling than the husbands; this is because area for production of vegetable is small and intensity of land preparation was low. The present study agree with Galfato reported that women plant fruit and fuel wood tree species and manage it more than men in home garden agroforestry in Wondo Genet and Borcha districts of Southern Ethiopia [23]. According to Kiptot and Franzel, planting of trees is attractive to men because of the commercial benefits they get from selling poles, timber and fuel wood while women are interested in fuel wood for domestic use. Since woodlots are practiced to generate cash men dominate over the managements [24].

Application of manure and watering: Application of manure for vegetables, fruits, cash crops and trees is mainly handled by women. This agrees with Freedman and Wai, who concluded that the major contribution of women is higher to seed preparation, collection and application of farmyard manure [25]. Soil fertility of home gardens is maintained

Table 8: Gender division of labor for livestock production (in frequency) N=90

Activities	Livestock production		
	MHHs		FHH
	M	F	F
Feeding animal	100	100	100
Health care	100	100	100
Milking	100	100	100
Cleaning shed	100	0	100
Processing	1000	0	100
Marketing	100	55	100
Slaughtering &herding	100	0	0
Breeding	100	22	100

Table 9: Decision making of household members in different products of home garden

Product type	MHHs			FHHs
	Men	Women	Both	Women
1. Crops				
❖ Vegetable	13%	72%	15%	100
❖ Root crop	24%	41%	35%	100
❖ Cereal and pulse	85%	0%	15%	100
❖ Cash crop	62%	17%	21%	100
❖ Fodder tree	92%	2%	6%	100
❖ Fruit tree	18%	75%	7%	100
❖ Tree production	100%	0%	0%	100
2. Livestock production				
❖ Large ruminants	13%	72%	15%	100
❖ Small ruminants	24%	41%	35%	100

by manure of livestock and kitchen waste and it's the responsibility of women [23]. Men have the experience in fertilizer application and prefer to do it alone or together with the family to minimize losses due to over application or theft. Men usually participate in watering of different crops with values of 66.6% for vegetable, 93% for root and tuber crops, 98% for cereal and cash crops (Table 7).

Weeding: Weeding is mainly done by family labor including the husband, wife and children, although the participation of the children is often limited when they go to school. However, men focus on weeding of root and tuber crops, cash crops, vegetables and cereals and pulse but women do weeding for fruit trees (Table 7). In general, in Africa women contribute 70-90% of the labor required for weeding and weeding occupies farmers more than any other farm operation [26]. The results confirm previous findings that in most areas of the country weeding is considered as women's task [17,27]. Similar result found by Audu [22] that women dominated in farming activities such as weeding and harvesting because these activities require less energy and light implements.

Harvesting: Harvesting of home garden product is mainly done by men followed by family labor. Men harvest vegetable (46.66%), root (93.3%), cereal and pulse crop (100 %) and cash crop (100%) (Table 7). Participation of women for harvesting was very low except for vegetable. The husbands and wives do the harvesting together to do the work faster and to lessen the burden for cash crop. African women and men usually carry out distinct agricultural tasks. On average, African women are responsible for 60% of all harvesting, 70% of all weeding and 90% of processing; men's labor exceeds women's only in turning the soil and clearing the fields [28].

Storage and transportation: Most of the storage of products is done by women (Table 7). The main reason for this is that the wives have experience in knowledge of the storage area and condition suitable for different crops. Food processing and storage is an area where women's participation is considerably higher than men's [29]. Audu [22] reported that farming activities in which women dominated were weeding (54.2%), harvesting (57.5%) processing (66.7%), storage (58.3%) and marketing of farm produce (74.2%). Similar to storage activity, most of the transportation of products within the farm and to local markets is done by women.

Marketing: Home consumption was the principal purpose of home gardening. Marketing of the home garden surplus products is mainly done by women in vegetable (95.5%), root and tuber crops production (93.3%), in cereal and pulse crops (95.5 %) and in fruit (100%). Men participate more in selling cash crops and tree products (Table 7). Generally,

marketing of home garden surplus products is almost entirely done by the women. The main reason for this is that the crop in small amount is mostly taken to the market at market day when the women want to buy small commodities such as salt, food and light oil and sugar for household consumptions. The present results show that men play very little role in the marketing of home garden products except for cash crops. This result is in line with the findings Audu [22] in Nigeria women dominated in the marketing of farm produce and this is because there are more women in the food market as a result of those who come to buy farm produce for their domestic uses. Woman-to-woman interactions result in better transaction and as such most men often consign their farm produce to their wives to sell.

Tree management practices: According to respondents the major source of seedlings is the natural regeneration. The common management practices employed are transplanting of seedlings, pollarding, lopping, pruning, thinning and tree feeling. The result of this study revealed that at household level there is a division of labor in decision and management of trees.

For all of the households thinning, lopping, pruning, pollarding, thinning and felling the tree is mainly done by men in male headed household and the reverse is true for female headed households (Table 7). The reason is the fact that men are the ones mostly involved in tree production because they are the owners and decision maker of the product. The present study agree with Galfato [23] reported that land preparation, pruning and planting species are done by men, while watering, fertilizing, weeding, and fencing were mainly done by women. Similar result was found by Akhter et.al [14] who noted that majority of the women are involved in dead-branch collection and most men are involved in collection of fallen and standing trees in Bangladesh.

Livestock management: Both male and female equally participate in feeding animals and caring for animal health (Table 8). The results from the Table 8 indicated that women in both male and female headed households completely (100%) participated in milking, cleaning animal shed and processing milk, whereas men involve in marketing of large animals, slaughtering, herding, and breeding of animals.

A similar result on gender differentials in Ada, Lume and Gimbichu districts, central highlands of Ethiopia Negash et al. confirmed that women were mainly responsible for collecting fodder and cleaning animal sheds in animal production [30]. The results from Younas et al. indicated that livestock management has always been considered to be the sole responsibility of women [31]. The same author noted that women take responsibility for cutting fodder, cleaning sheds, milking dairy animals, processing animal products and looking after the health of the herd. Their participation is 31%, whereas, in milking, milk processing it is about 58% and in preparing dung cakes is 90%. A vast majority (90%) of women are involved in shed cleaning and 85% in collection of farmyard manure. Watering is also performed by 69% of women. Men however, share the responsibility of taking care of sick animals. It is evident that the women are playing a dominant role in the livestock production and management activities [32].

Women are more involved in livestock production especially in small ruminants and poultry. Women are involved in poultry production for two main reasons: First, when compared to larger livestock, poultry do not require much investment. According to Todd poultry requires little initial investment and generates quick and frequent returns, something which fits well with the types of day-to-day expenditures food stuff, schoolbooks etc. that women smallholders face as the main household caretakers [33]. Second, poultry are kept at the homestead. Poultry keeping is, thus, an activity that the women can undertake without having to leave the household, where they will usually be occupied by domestic duties such as cooking, cleaning and caring for children [34].

Control of product

In vegetable products: The present study indicated that in male headed household's decisions related to vegetable consumption and marketing within home gardens is mainly taken by women (Table 9). Women made most decisions regarding consumption and marketing. Similar result found by Bajaracharya reported that in vegetable production, women take 90% of decisions, whereas in fruit production men make most decision [35].

In root crop products: The present study indicated that decision on root crop consumption and marketing is made by women. Women play a major role in making decision of Enset product (88.8%) on how much to consume for household and sell for market (Table 9). According to Joyce 71% of respondents indicated that the decision on root crops is made by men, 19 per cent by women and 10 per cent decision was made jointly [36]. Studies in southern Ethiopia [8,37] have also indicated that Enset is women's crop. From this study, it was evident that women mainly made decision in the production and management of root crops, that may be due to their involvement in its production and management.

In cereal and pulse crop products: The study indicated that in male-headed households, the decision on cereal and

pulse crop production, management and utilization made mainly by men (85%) and both gender men and women (15%). Women do not make decisions on cereal and pulse crops in male headed households (Table 9). This result is similar to the previous study of Joyce [36] who reported that males made decisions in maize (54%), legumes (37%) and sorghum (60%) in most households, followed by decisions made jointly and then decisions made by women.

In cash crop products: Men are the main decision makers in the management and utilization of cash crops that grow in the home gardens the benefit goes to the family but the income not use equally in the family. This result agreed with Agarwal who reported that cash income that is controlled by men is not often shared equitably in the family and is spent for personal consumption, gambling and liquor, while most of the income controlled by women is spent to meet family's basic needs [38]. Men made most decisions (62%), women (17%) and both men and women (21%) for market and consumption (Table 9). Similar to the current result, Kippie indicated that in Gedeo, women have a monopoly in deciding over food crops, whereas men have a monopoly in deciding over cash crops such as coffee. This was also in agreement with Epaphra in Tanzania who found that in cash crops women participate only in harvesting (51%) and storage (38.2%) and men dominate the control and decision making power of selling cash crops (66%) [39]. According to Doss [4], the reason for this was women are responsible for feeding the family and thus prefer to manage subsistence crops for household consumption while men are responsible for providing cash income. The dominance of men in the cash crop production could also be due the fact that men culturally control the economy.

In livestock production: In livestock production and management men were responsible in making decisions in large animals like cow (78%) and women had no contribution on deciding about large ruminant and both men and female jointly decided (22%)for large ruminant livestock types (Table 9). Similar result was found by Kechero (2008) that men owned more cattle, sheep, goats and equine; on the other hand, small animals like chicken were mainly owned by women compared to men [40]. On the other hand, women were more responsible in making decisions in poultry production (85%) than other type of livestock. This finding agrees with the findings of Dessie and Ogle in Ethiopia, over 60% of families kept chickens with women being the major owners and managers and controlling the limited cash income from sales [41].

In fruit and tree products: From the surveyed households women are main decision makers for the management, consumption and marketing of fruit plants (Table 9). In male headed households participation of women in decision making in respect to fruits was about 75%. The result indicated that men were deciders on trees planted in and around home garden. Because of the differential access to and control of land, women may not have control over tree planting and management. This is due to women in the study area are culturally responsible for fire wood collection and they also harvest fruit like avocado for household consumption and sell in local markets. Therefore, they decide from which tree, when and how to collect fire wood and fruits. But they are restricted from harvesting fuel wood of high value timber trees. They collect branches for fuel when trees are harvested for timber. This result agrees with idea [4] that both men and women may have separate rights to different parts of the tree (its leaves, branches, fruits, timber or roots) and any benefits from their harvesting, sale or use. A study in central Kenya by Kiptot and Franzel [24] reported that women share responsibility for managing *Grevillea robusta* plantings with the men benefiting from pole and timber production and the women using branches for fuel.

Gender of the household head also plays an important role in the productivity of smallholder farming systems. According to Ogato et al. in Ethiopia, in most cases, men are the heads of households and the principal decision-makers in the household although some consultation with women may take place [42]. But in female-headed households the division of labor for productive work has largely break up. The social construction of gender concerning reproductive work, however, has not changed; women continue to be viewed as responsible for household and reproductive work [4]. In the study area women in female headed household participated in land preparation, seed preservation, manuring and watering, harvesting, storage and transportation; marketing of the product they produce (Table 7).

Generally, the female-headed household is an increasingly common social unit. A result of heading their own households, women have assumed new roles. A historical process of women undertaking "male" tasks and working in "male" sectors in the absence of men has been reported for a number of societies [43]. The present study indicated that decision making process in home garden products were affected by gender; in male headed households, regarding vegetables, root crops, cereal and pulse, cash crop, fodder and forage, livestock, fruit and tree the decisions making regarding consumption and marketing was 31% by women, 50% by men and 19% both gender. But regard to decision making in vegetable, root crops, cash crop, cereal, fruit and tree production management and utilization in home gardens, female were the main decision makers in female headed households (Table 9). This is in agreement with Balaguru who indicated gender affects the decision-making process in agricultural production and household expenditure, as well as the management of food consumption within the farm households [44].

CONCLUSION AND RECOMMENDATIONS

Conclusion

The home gardens provide for households a lot of economic and ecological services in terms of food, fodder, firewood and medicine, cultural and aesthetic services and also maintain the fertility of soil. Farmers sold some cash crops, vegetables and fruits in the nearby market for income generation. The species raised in the home gardens ranges from trees to fruit trees, root crops, cash crops and livestock.

The study showed that home garden size and composition of components vary between male headed and female headed households. Male headed households had larger home garden than female headed households and this affects the total production of home garden products. In terms of land allocation, male headed households allocated large portion of their farm to root crops, followed by cash crops and cereals and pulse. On the other hand female headed households allocate more land to vegetable.

When it comes to division of labor in male headed household in farm activities, men focused on land preparation, seed preservation, sowing and planting while women did manure application and planting of fruit trees. Weeding is mainly done by family labor including the husband, wife and children but the participation of women in weeding is higher than men in fruit trees. Besides, most of the harvesting and storage of vegetables, root and tuber crops and cash crops is done by women. Marketing of home garden surplus products is almost entirely done by the women except for cash crops. Although women dominate in most of the production activities in the livestock production, they are less involved in major decisions made in the household. The results further indicate that both men and women are involved in on farm tree management, while women have higher contribution to transplanting of fruit trees and lopping especially for collection of twigs and leaves for fuel wood and fodder. But women in female headed household in the study area participated in land preparation, seed preservation, manuring and watering, harvesting, storage and transportation, in marketing of the product they produce.

Women in male headed household make decisions than men regarding how much should be consumed and marketed for vegetable and fruit. Men alone decided on 85% in cereal and pulse, 62% in cash crops, 92% in forage and 60% in livestock particularly in large animals. Women in Female headed households regarding to decision making in vegetable, root crops, cash crop, cereal, fruit and tree production management and utilization in home gardens female were the main decision makers in female headed households.

From the present findings it can be concluded that women play core role in management of home garden in the study area and there was difference among workload and decision making power between men and women in households. The results also indicated that there are variations in decision making between crop and animal types.

Recommendations

- Interactions among the components in a home garden are important in terms of environmental impact. Thus more studies and research on interaction among different components in a home garden are needed to understand the sustainability of the system.
- In study area home garden size of land and composition of components vary between male headed and female headed households. This leads to FFHs in study area they produce for subsistence, whereas MHHs they produce commercial product. This is because women in study area cultural taboo that hinder women's access to resources and benefits. Appropriate regulations should be identified to eliminate these cultural taboos and practices and government has to monitor how women are benefiting at grass root level.
- The result of this study shows that women play important role in the home garden managements activities. Giving due respect to their indigenous knowledge and encouraging them in more home garden activities, low interest credit facilities should be provided to them by the government and NGOs.
- Women dominate in most of the subsistence crop and in small ruminant livestock production. Strengthening the extension services along with the provision of inputs such as improved seeds of vegetables and provision of fruit tree seedlings based on the preference of households is required. These will play a significant role in raising the benefits and contributions to the household food security and income. Improved animal breeds and animal husbandry practices should be made available to improve the production from animals. In particular, intervention in modern poultry farming is necessary to increase women's income.
- Women may also discover that their decision-making role is reduced significantly with cash crop farming. There should be training and awareness rising for the husbands to educate them regarding women's decision on total farm products and household assets.

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