

**PARTICIPATORY GENDER ANALYSIS OF SORGHUM PRODUCTION,  
PROCESSING AND UTILIZATION IN KONSO WOREDA, SEGEN  
PEOPLES ZONE, SOUTHERN ETHIOPIA**

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## Acronyms

FGD	focus group discussion
FHH	female-headed household
MHH	male-headed household
MMT	million metric tons
MT/Ha	metric ton per hectare
KWCTDO	Konso District Culture and Tourism Development Office
KWFEDO	Konso District Finance and Economic Development Office
KWFNRDO	Konso District Farm and Natural Resource Development Office

## Executive Summary

Sorghum is the staple food crop of Konso woreda and is said to be an ancient crop in this area of Ethiopia. It forms the basic diet for people living in Konso, and farmers' preference for sorghum is due to its drought-resistant characteristics. In Konso, sorghum grain is consumed in different forms of food items like *cheqa*, *kurkufa*, *genfo* and *qita*. Only two improved sorghum varieties have been introduced in the district, and around 95% of farmers use local varieties. Food security is an important issue in Konso's farming communities, as the area experiences high food shortages from April to August every production year.

Labor division in Konso is considered egalitarian (Watson, 1998). Men and women often work together in the fields, but the main labor burden falls on women. To determine labor burdens as well as record perspectives from each gender, the research team utilized qualitative data collection and analysis methods. Sex-segregated focus group discussions helped both genders to feel free to share their perspectives on gendered culture in the woreda, without pressure from others. Data were analyzed using pair-wise ranking, proportional pilling and direct matrix ranking.

Results indicated that, in addition to the household chores, working on the farm was the responsibility of the Konso women. Women played key roles and completed major field management and sorghum production activities, except for plowing using oxen and fertilizer application. Results also indicated that social and cultural biases limited access to and control over resources for women in female-headed households (FHH). These cultural biases also prevented women from participating either in community decision-making or agricultural extension trainings.

As a result of this study, the research team concluded that an improved sorghum value chain is necessary for Konso woreda, with nutrition education about sorghum and sorghum-related foods provided to households in the district. Konso farmers – particularly female farmers – should receive training in agronomic practices, and extension experts should ensure that trainings and extension services are be gender-sensitive and inclusive to women.

## 1. Introduction

Konso woreda is characterized by rugged and stony soil, and its main agricultural area ranges from elevations of 1400 to 2000 meters above sea level. Sorghum remains the staple crop of the Konso, due to its drought-resistant characteristics. A wide spectrum of varieties has been found and at least 24 cultivars are named and distinguished by farmers (Engels, 1990). Sorghum forms the basic diet of the Konso: seeds are ground, and the flour either made into a beverage called *cheka* or formed into balls, called *kurkufa*. Traditionally, sorghum is harvested twice during the season, leaving secondary shoots to mature.

This study showed that labor in Konso was split between genders. Men were responsible for activities like terracing, building, maintaining houses, fencing (mainly houses), and dispute settling; women were responsible for collecting water, carrying, spreading manure, looking after children, cooking, grinding, collecting firewood and brewing beer. Men and women often worked together in the fields, digging, sowing, weeding, harvesting, scaring birds, looking after animals and washing clothes. However, the main labor burden fell on the women (Watson, 1998). However, nearly 100% of women in polygamous marriages and FHHs reported a lack of inclusion from extension services, telling focus groups that they were “not part of any extension services [or] trainings including sorghum-related technologies.” Other focus group participants agreed, with 90% of MHHs and 100% of FHH and polygamous households reporting that women did not receive sorghum production-related trainings. They also agreed that women were not included in agricultural extension training.

For this study, the research team consisted of six members, supported by the Arbaminch Agricultural Research Center. In addition, the team received qualitative data collection and analysis method training from SMIL project coordinators at the Melkasa Agricultural Research Center. The Gender Analysis team for Konso woreda included experts in socio-economics, agronomy, plant breeding, post-harvest technology, nutrition, and agricultural extension.

## **2. Research Methodology**

Among sorghum-producing kebeles in Konso woreda, three clusters, or neighborhoods, (Fasha, Karat Zuria and Arifeyide) were selected: from each cluster, one kebele was selected due to its sorghum production potential and inclusion of agro-ecology. The kebele's included in this report are: Kamele kebele from Fasha cluster, Arifeyide kebele from Arifeyide cluster and Sorobo kebele from Karat Zuria cluster. Sorghum producers in selected kebeles were grouped into three strata, based on household head and marriage type, namely: male-headed households, female-headed households<sup>1</sup> and polygamous marriage households. Among each of these subgroups, 90 heads of households from each kebele were selected for participation on focus group discussions; equal numbers from each type of household participated. Each subgroup participated separately in focus group discussions. Qualitative data were collected from FGD participants using a pre-prepared check list. One of strengths of this gender analysis field work is that sex-segregated FGDs helped women and men to feel free to share their perspectives on gendered cultural and social stereotypes, resulting in rich data collected on gender values, attitudes, and stereotypes, shaping gender relations and helping, explain why women have much lower status and decision-making power in this region.

In addition to primary data collected via FGD, the research team interviewed experts from the Konso District Farm and Natural Resource Development Office, Women and Youth Affair Office, Tourism and Culture Development Office, and kebele-level extension and development agents. The collected data from these interviews were combined with primary data collected from FGD participants.

Finally, collected data were analyzed using pair-wise ranking, proportional piling and direct matrix ranking. Maize grain was used as tool for proportional piling material in all selected kebeles.

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<sup>1</sup> Female headed household (FHH) is defined as a household in which a male decision maker is absent. FHH is one in which the woman owns the land and makes all decisions (e.g., widows, divorced women, and single mothers).



### 3. Results and Discussion

#### 3.1. Description of the Study Area: Konso Woreda

Ethiopia's Konso woreda is one of the five districts in the Segen People's Zone, occupying an area of 650 km<sup>2</sup> and located at 595 km south of Addis Ababa. The woreda is bordered by the Segen River in the east and south, the great plains of Gumide and Lake Chamo in the north and the Gidole Mountains and the Woito Valley in the west. Its main agricultural elevations range from 1400 to 2000 m above sea level. Konso woreda is densely populated and growing rapidly. The pressure for land is increasing, resulting in marginal lands to be used for agricultural production, and problems are resulting from an overstressed farming system. The erratic climate and harsh conditions make agriculture in the region very difficult. The region's temperature varies from 15°C to 33°C, and rainfall distribution follows a bimodal pattern. The average total annual rainfall is only 551 mm, with annual rainfall variation between 300 mm and 900 mm. The rains are split into two rainy seasons: the big rains are concentrated at the end of February until May, and the small rains occur around October and November.

Farmers in Konso woreda practice an integrated crop-livestock system. The most striking features of the agricultural system are multiple cropping and the integration and utilization of tree species. Konso farmers are known for their use of stonewall terracing. The terraces cover hillsides over hundreds of kilometers and over an elevation of 700 m. The main function of the terraces is to maximize water retention and infiltration, while preventing soil erosion. In addition to growing crops, Konso farmers keep cattle, goats, sheep and sometimes chickens and donkeys. Cattle are either kept in pastures in the lowlands or in uncultivated areas near the periphery of the villages. The largest number of livestock is kept in stables located in the homesteads. Konso farmers hand-feed livestock and use manure on the fields as fertilizer. The animals are fed stalks of sorghum and maize or the leaves of trees planted in part for this purpose (KWFNRDO, 2017).

Traditionally, the Konso practiced monogamy, but now Konso men can have three or four wives. However, only about 10% of men have enough wealth to support more than one wife. The Konso socio-economic system divides society into two groups: *Ententa* and *Xauta*. Generally, the *Ententa* are farmers and the *Xauta* are artisans, including hide workers. Membership in *Ententa* and *Xauta* is ascribed at birth; however, in recent times there has been some social mobility

between the two. Hide workers scrape cattle, goat, and sheep hides and primarily produce bags, bedding, and birthing and burial sheets. A few hide-workers make ritual clothing, and in the past, some made shields (Weedman, 2004).

The Konso are organized in nine clans: *Keertitta*, *Arkaamayta*, *Sawdatta*, *Paasanta*, *Tookmaleeta*, *Eelayta*, *Ifalayta*, *Tikissayta* and *Mahalayta*. Except for the *Keertitta* clan, which has two chiefs, each clan has its own chief. The clans are exogamous; males of the same clan consider themselves as brothers and the females as their sisters. This prohibits men from marrying women from their own clan. A clan chief does not marry from the land administrators, which makes the marriage of clan chiefs different from that of the common people. Konso villages are not clan-based (Ongaye, 2013).

### **3.2. Participation of Women and Men in Sorghum Production**

The agricultural cycle in Konso depends on rainfall. Both agro-ecology surveys showed that land preparations were based on the first rainfall in January or February. Sowing coincided with the start of the big rains from the end of February to mid-March. At that time, farmers broadcasted cereals (sorghum and maize) and pulses in a seed mixture, and an extensive period of weeding and scaring off birds followed. Harvest took place from May onwards: the first harvest was roots and tubers, then cereals and pulses, and finally sorghum in mid-September. The harvested grain was stored in granaries and selected heads were hung in the houses for next season's seed.

Farming in Konso is said to be men's work, but this is not reflected by current labor practices in the region, as main labor burden falls on the women (Watson, 1998). The survey showed that Konso women play a large role in farm work and they participate in digging, planting, weeding, harvesting, transporting and storage activities. It was only during crop storage that men had the relatively greater share. At this stage, the women assisted the men by carrying the product while the men arranged for the grain to be stored (Yilma, 2002).

**Table 1. Activities and Labor Contribution by Gender for Sorghum Production**

Activities	Labor contribution by gender			
	Women (%)	Girls (%)	Men (%)	Boys (%)
Plowing using oxen	0	0	64	36
Digging using double-bladed hand hoe	28	12	38	22
Sowing	25	0	43	32
Weeding	21	29	19	31
Fertilizer application	0	0	62	38
Bird-scaring	0	69	0	31
Harvesting	17	34	19	30
Transporting harvest grain from field	19	41	17	23
Threshing	66	34	0	0
Winnowing	66	34	0	0

*Source: 2017 survey result*

As study results indicated, working on the farm was a responsibility of the Konso women (Table 1). In the morning after fetching water, tending the cattle and serving breakfast in the home, the women went to the field for weeding and dug until late afternoon after which they collected firewood and fodder for the cattle and returned home to prepare dinner for the family (Table 2). Women played key roles and oversaw field management and sorghum production activities, except for plowing using oxen and fertilizer application, which were activities completed only by men (Table 1). Even during value-adding post-harvest processing, women played a major role in sorghum farming: all threshing and winnowing were women's responsibility. A similar study conducted by Ogato *et al.* (2009) in the Ambo district indicates that females play a more significant role than males in manual weeding, threshing and transportation of farm produce.



Figure 1. Girl and boy scaring birds from crops in Konso



Figure 2(a) Konso woman fetching sorghum stalks and (b) transporting sorghum from the field

Despite the active participation of women in Konso agriculture, extension programs in this woreda were not inclusive of women. This limited women's participation in new production technologies, such as fertilizer application. However, this study found that both genders played equal roles in planting, soil conservation and management, application of fertilizers and herbicides, storage and marketing of farm produce.

FGD participants indicated that Konso women were physically “very strong and hardworking” and could carry and transport grain from the fields to the granary. On average, Konso women carried from 50 to 80 kg and, when transporting sorghum to granaries, traveled distances up to 40 km. Around 60% of sorghum transporting was done by females (Table 1). In a similar study (Addis, 2000), researchers found that, while females in Ethiopia contribute to agricultural production and productivity results indicate that societal and cultural biases limit the access to and control over resources for women in FHH. These resources were crucial for female farmers to effectively and efficiently meet their strategic and practical needs.



Figure 3(a) Konso women digging with double-bladed hoe and (b) with single-bladed hoe

**Table 2. Reproductive Activities and Gender Labor Contribution**

Reproductive	Labor contribution by gender			
	Women (%)	Girls (%)	Men (%)	Boys (%)
Food preparation	66	34	0	0
Washing utensils	66	34	0	0
Washing clothes	0	100	0	0
Child bearing and child rearing	69	31	0	0
Cleaning house	66	34	0	0
Building and maintenance	0	0	53	47
Fetching water	37	63	0	0
Collecting fire wood	0	100	0	0
Committee meetings	37	0	53	0
Care for elderly/ill	100	0	0	0
Participating in weddings	20	22	31	27
Participating in funerals	27	13	43	17
Involvement in village meetings	40	0	60	0
Involvement in NGO projects	44	0	56	0
Involvement in political activities	40	0	60	0

*Source: 2017 survey result*

In addition to a large percentage of agricultural work, women in Konso almost single-handedly performed the household chores (Table 2). Women's household duties included fetching water, collecting fire wood, preparing food, and serving the family. On a typical day, women worked in the fields and collected firewood and livestock fodder on the way home. They brought water from the wells and started to prepare dinner. After serving dinner, they performed the remaining tasks (washing utensils, cleaning house, etc.) in the house. The women were always the last to sleep among the household.



Women in Konso spent more than 13 hours a day performing household activities, but men spent around eight hours a day (Table 3). Because agricultural activities were seasonal in this area, the work burden of each gender varied within the cropping season. During the off-season, the workload of both men and women decreased, and they spent few hours on field work. The domestic role of women continued throughout the year, however. In Konso, females began working from an early age: at an average of four or five years old, girls fetched water using small- or medium-sized gourds, looked after livestock (especially goats and sheep), and collected firewood and animal fodder. Once the girls were older than age 13, they joined the other women who did more strenuous agricultural work.

**Table 3. Work times for Productive vs. Domestic Activities by Gender**

Women		Men	
Activity	Time in hours	Time in hours	Activity
Productive <sup>2</sup>	5	7	Productive
Domestic	9	0	Domestic
Productive <sup>3</sup>	7	0	Productive
Domestic	8	0	Domestic
Productive <sup>4</sup>	7	9	Productive
Domestic	8	0	Domestic

*Source: 2017 survey result*

### 3.3. Access, Control and Household Decision-making

Gender roles in the surveyed areas within Konso woreda were constrained by an uneven distribution of resources and opportunities between women and men. When resources were scarce, women (from FHH and polygamous households) indicated that they were at a greater disadvantage than their male counterparts because they did not have access to productive resources or training on sorghum production technologies.

Due to strong beliefs and taboos, women did not participate in village-level decision making, because in Konso, decisions are made in a meeting place called the “*Mora*”.<sup>5</sup> There continues to be a commonly-held belief that a woman younger than age 45 can be rendered sterile if she

<sup>2</sup> according to FHH

<sup>3</sup> according to women in polygamous marriages

<sup>4</sup> according to MHH

<sup>5</sup> The cultural space of Konso, located at the center of the main central enclosure and at different locations within the walls, and sometimes outside the walls. Paths from all gates lead to these *Moras*. A *Mora* is paved to form a public area where the men gather to govern the village life.

passes through the *Mora*. This prevented many women from participating in community-level decision making, and such beliefs guaranteed only male decision-makers at the community level. In addition, community works like terrace making, well building, wall maintenance, and *Mora* and house constructing were largely the activities of men. For community planning and development, women were involved only in preparing and providing food and drinks for male workers. Although women had little input when it came to community decisions and development, decisions about household resources, (sorghum) consumption, sorghum production, land allocation, and input use were made jointly by women and men.



Figure 4. Example *Mora* in Konso woreda

### 3.4 Importance of Sorghum in Konso Woreda

The major crops grown in all households in Konso woreda included sorghum, teff, maize, finger millet and common bean. According to data from this survey, sorghum was by far the most preferred crop. According to FGD participants, sorghum grain was used in different forms of food items (Figure 5): about a third of sorghum grain was used to make *cheka* (made from a mixture of sorghum, water, maize and finger millet)<sup>6</sup>, 28% of sorghum was used for *kurkufa*

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<sup>6</sup> *Cheka* is kind of alcoholic beverage prepared from sorghum, brewed in each household about once a week in large quantities. Villagers visit the brewery in order to buy and drink the beverage because it is difficult to make in small quantities; if it is not drunk quickly, *cheka* ferments further and loses its flavor.

(starch staple meal), 20% was used to make *genfo* (starch staple meal), and the remaining 18% was used for *qita* (unleavened bread)<sup>7</sup>.

In addition to its use in common foods, sorghum stalks, leaves and heads were used as fuel sources (sorghum stalks were key fuels for cooking and heating purposes), animal feed (leaves and thin stalks provided nutrition year-round for livestock in the area from its green to dry stages), house construction (sorghum stalks were a component of house construction materials), and house cleaning (sorghum heads remaining after grain harvest were used as house cleaning materials).

As shown in (Table 4), sorghum fields represented between half of the total planted area (Figure 4). A comparison of crops' importance in terms of producer preference using pair-wise ranking showed that sorghum was the most-preferred crop, followed by maize, teff and common bean.

**Table 4: Area Coverage in Konso Woreda by Different Crops**

Crops grown	Proportions of area coverage (%)		
	FHH	Polygamous Marriage	MHH
<b>Sorghum</b>	50	32	35
<b>Teff</b>	9	19	19
<b>Maize</b>	25	18	14
<b>Finger millet</b>	8	10	12
<b>Common bean</b>	8	21	20

*Source: 2017 survey result*

When examining crop preferences in polygamous households, the women surveyed reported that sorghum was the crop with the highest acreage percentage. The amount was less than that described by FHH, however, with a reported 32% of total area (Table 4). Maize (18%), common bean (21%), teff (19%) and finger millet (10%) followed. Pair-wise ranking analysis results for these households showed that sorghum was the most preferred cereal crop, followed by teff and maize. Survey results for MHH were similar to those of polygamous marriage households: sorghum had the highest proportion of area coverage (35%), followed by common bean, teff, maize and finger millet (Table 4). The MHH pair-wise ranking analysis results show that sorghum was the most important cereal crop, and teff was the second, followed by maize.

<sup>7</sup> proportional pilling results





Figure 5(a) *Kurkufa* made from sorghum and (b) Konso woman drinking *cheka*

### 3.5. Responses of Farmers on Sorghum Production Trends

According to FHH and females in polygamous households, sorghum production trends of area were increasing. Respondents said that “sorghum is our major food crop, and it is [a] drought-resistant crop. Therefore, we allocate large land area for it and relative to other crops sorghum yields [are] high per unit area.” Also, farmers in Konso district intercrop four crops in the same plot of land using different proportions. According to respondents from FHHs and females in polygamous households, the intercropping proportions are: 47% sorghum, 30% maize, 12% common bean and 11% finger millet (Table 5).

In contrast, MHH focus group participants reported that sorghum production trends for the area decreased due to many factors, including: rain fluctuation and shortage, striga infestation, decreasing soil fertility, and reduced land allocation (because boys who get married received plots of land from family and holdings for elder family members were reduced as a result). Both district farm and natural resource office experts agreed with MHH opinions: sorghum production was decreasing due to the aforementioned constraints.

**Table 5. Intercropping Land Proportions, Based on Household Type**

Household type	Crops	%	Household type	Crops	%
FHH and Polygamous Marriage	Sorghum	47	MHH	Sorghum	50
	Maize	30		Maize	27
	Common bean	12		Common bean	13
	Finger millet	11		Finger millet	10

*Source: 2017 survey results*

### 3.6. Use of Sorghum Technologies by Farmers

Until the 2009-10 E.C. crop production season, only three improved sorghum varieties (Gubye, Abshir and Gembella 1107) were planted in Konso woreda. According to focus group participants, around 95% of farmers used local sorghum varieties, and they explained that each variety had its own local name. Sorghum variety Gembella 1107 was referred to as a “local” variety, because it has been used for so many years, but experts described Gembella 1107 as an improved variety. Both FGD participants and local experts agreed on the variety’s long existence in Konso, but still they did not know when Gembella 1107 was first introduced. Some of the other local varieties listed by FGD participants were: *Tishikera*, *Kembota*, *uuota*, *Sulayta*, *Koyira*, *Sulayta*, *Kodhano* and *Atikera*; farmers preferred specific varieties for different uses, as well as for food consumption. For example, the *uuota* land race sorghum variety was preferred for house construction due to its large stalk size and strength.

Both men and women agreed that the main cultivation tool in use for sorghum farming was a double-bladed hoe. To a certain extent, farmers also used oxen. Due to the steep slopes and small terraces in the study area, ploughing with oxen was challenging. While both men and women utilized the double-bladed hoe for plowing purposes, it was only male farmers who utilized oxen to cultivate the fields. Almost all focus group participants used the broadcast method to plant sorghum; around 58% of those surveyed used inorganic fertilizer, and approximately 42% of farmers used no fertilizer for sorghum production. Sorghum intercropping was common in Konso, and farmers sowed sorghum (36%), maize (27%), common bean (23%) and finger millet (14%) in the same plot of land.

All FGD participants of surveyed agro-ecologies expressed their interest in using improved sorghum varieties that would suit their agro-ecologies and mill type. According to FGD

participants, two of the most urgent constraints on improved sorghum technology and variety utilization were financial shortage and fear loss due to rain fluctuation.

### **3.7. Availability of Sorghum for Food and Coping Mechanisms**

As reported by FHH respondents, women did not participate in sorghum production training, attend any field days and demonstrations, and extension workers did not visit them. While approximately 90% of FHH received business advice from Omo microfinance agents, only an approximate 10% had access to credit. Male-headed households had access to extension information and training. Nearly 100% of FGD participants articulated that they did not consider themselves food secure, and they experienced high food shortages from April to August. To offset these shortages, they:

- Received financial loans from neighboring peoples to buy food items from market, especially sorghum;
- Sold livestock and purchased sorghum from the market;
- Used their safety net income as an alternative source for food item purchases;
- Received government food aid when available;
- Collected firewood from the forest and sold it in towns like Karat and Dhogato;<sup>8</sup>
- Worked as laborers for other farmers or for construction work in Karat and Dhogato; and
- Used root crops like cassava as alternative food sources.



Figure 6. Konso women fetching firewood to town

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<sup>8</sup> Market locations in Konso woreda

## 4. Discussion

### 4.1. Identified Gender Factors in the Sorghum Value Chain

*Konso woreda excluded women from agricultural extension.* The provision of agricultural information, training and advice is one method to tackle the barriers women face in agricultural production. Participation in extension activities helps women learn new or improved production techniques. This in turn helps women farmers achieve an improved income, promotes their standing in the sector and increases their overall food security. Konso woreda agricultural extension systems did not include women in their programs.

*Insufficient production and price fluctuation affected all households in Konso woreda.* Problems such as lack of access to new sorghum varieties, rain fluctuation, or striga infestation prevented both MHH and FHH from producing surplus sorghum. This led to regional food insecurity. In local markets, sorghum prices fluctuated in accordance with the forces of supply and demand. During harvesting season, the price fell, and sorghum was available in their granaries. During the off-season, the opposite was true: residents had no sorghum in their granaries and found themselves unable to afford it. Many experienced hunger and starvation.

*Women in Konso did not have the same access to rural markets or microfinance credit as their male counterparts.* Credit helps producers to invest in production activities, which filled the capital shortages gap and facilitated surplus production and food security. In the case of Konso's FHH and polygamous marriages, women had no access to credit, even from the Omo microfinance agent in the kebele administration. In addition, women were not allowed to sell assets like cattle, sheep, goats and other cash crops. As a result, female farmers were economically subordinate to male farmers and had to wait for male decision-makers to approve certain household expenses.

*Konso women had very limited roles in community-level decision making, due to widely-held cultural taboos and beliefs.* Because community decisions were made only in the *Mora*, a place believed to render women under the age of 45 sterile, all decisions were made by an overwhelmingly large male majority.

*In Konso woreda, men and women shared responsibilities.* There were clear patterns of “women’s work” and “men’s work,” both in the household and in the wider community. While there were cultural explanations of why this should be so, in many cases women’s jobs overlapped men’s jobs. The observed general pattern was that women had less personal autonomy, fewer resources at their disposal, and limited influence over community-level decision-making processes shaping their societies and lives. In general, females in Konso society were an over-burdened group because they performed the hardest part of field work as well as the totality of household chores. Male groups did not support the females.

#### **4.2. Priority Problems for Sorghum Production by Gender**

The problems farmers faced during sorghum production in Konso included rain shortages, striga infestations, the long maturity time for this crop, financial issues, birds, and other storage pests such as weevils and mice. Statistical analysis of male and female participants’ responses showed that the genders ranked the severity of these problems differently. FHH and females in polygamous marriages indicated that financial problems (lack of access to credit) was the largest problem they faced when producing sorghum. This was followed by rain shortage, striga infestations, and finally bird scaring. MHH participants’ responses indicated that among the listed sorghum production problems, rain shortage was the most significant problem, followed by birds, and finally striga infestations.

## 5. Conclusions and Recommendations

FDG results indicate that the gender division of labor in Konso varied on the basis of activity type. No females plowed with oxen, worked on house construction or maintenance, and they did not take part in decision-making at the community level. On the other hand, Konso males did not assist with either threshing or winnowing, nor did they take part in housekeeping or cooking. This indicates that there was a rigid gender division of labor in this woreda. However, in other farming activities like land preparation, weeding, harvesting, bird scaring and transporting, both males and females contributed, revealing that the gender division of labor in these farm tasks was flexible.

Agricultural extension services are important to enhance farm production and productivity, therefore increasing household income. The extension advice and trainings on crop production in Konso included: appropriately sowing at the appropriate time and season, the importance and use of improved sorghum varieties, and protecting crops from pests. While male farmers took advantage of this training, female farmers (both FHH and polygamous households) did not have an opportunity to participate, and they had no access to such services. The majority of these households believed that such services were not fully beneficial to both polygamous and FHH farm household.

Recommendations for Konso woreda based on team observations and FGD results:

- **Farmers should receive training in agronomic practices.** All FGD participants indicated that they planted local varieties of sorghum using broadcasting. Most varieties were late-maturing and low-yield. Therefore, a provision for training in agronomic practices with a full package utilization system is important to improve sorghum production and productivity in Konso. Farmers should be made aware of the cost and benefits of intercropping because almost 100% of the district's sorghum farmers sowed more than two crops in the same field.
- **Striga-resistant and early-maturing sorghum varieties should be provided to farmers.** According to MHH FGD participants and district experts, sorghum production decreased due to rain fluctuation and shortage, striga infestations, and land shortages.

While it is difficult to expand farm land, provision of sorghum varieties which can be produced by adapting to local problems is a logical solution.

- **Trainings and extension services should be gender sensitive and inclusive to women.** FHH and women in polygamous households reported that they were not part of any extension or credit service because trainings were held at *Mora*. Therefore, the scope of training should be gender-sensitive and should be held in a neutral location to encourage women to become active participants in extension services.
- **Women's workloads should be reduced through introducing labor-saving technologies.** Stoves, wheel barrows and other technologies should be made accessible to women to enable them to manage efficiently their multiple roles and responsibilities, both at home and in the field. However, the technologies need to be tested to ensure applicability within the context of regional needs.
- **Awareness should be created on gender equality and women empowerment.** Governmental and non-governmental organizations should continue to raise community awareness on gender equality and women's empowerment. This will enable women and men to understand their rights and be better able to promote and protect themselves.
- **Nutrition education and counseling should be provided to households.** During focus group discussions, all participants indicated that they did not know the nutritional value of sorghum because they consumed it only to assuage hunger. The nutritional value of local food items made from sorghum (*kurkufa*, *cheqa*, *genfo*, etc.) should be known and evaluated to help households understand their own food security.
- **A sorghum value chain should be created for Konso woreda.** All FGD participants reported that sorghum production was hand to mouth, and there was no surplus production. Those participating in FGD said they did not supply sorghum to market. A value chain should be developed to assist with sorghum price fluctuations.

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