ORIGINAL ARITICLE

Women Farmers' Participation in Participatory Agricultural Extension and Research: The Case of West Gojjam Zone, Amhara Regional State, Ethiopia

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Abstract

The different constraints and opportunities of women farmers in agricultural extension and research have not been well studied in Jabithenan and South Achefer woredas of Amhara Region, Ethiopia. Thus, this study was conducted in the study areas on the constraints and opportunities of women's participation in participatory agricultural extension and research. Both quantitative and qualitative data were collected. A systematic sampling technique was employed for the selection of respondents. The data were analyzed using descriptive statistics and thematic analysis. The results indicated that women's credence that husbands are heads of the family and are knowledgeable and women's incompetence in the eyes of the community and their belief that women are naturally born for household chores had affected their participation. The results also indicated that weaknesses of the organizations of "one-to-five" and "women's-development-groups", lack of enforcement of community rules for couples participation in knowledge transfer events, expensiveness of agricultural inputs, shortage of draft oxen, women's under-representation in kebele administrations were the major constraints of women's participation in agricultural extension and research. Regarding opportunities, the result indicated that government land proclamation and growth and transformation strategies addressed all female-headed households and 30 -50 % of married women. Furthermore, wider extension service coverage through established kebele level agricultural offices enhanced their participation in participatory agricultural extension and research.

Keywords*: development agent, extension services, model farmers, one-to-five, technology, Women's-development-groups*

Introduction

Women represent over half of the agricultural labor force in Sub-Saharan Africa. Their substantive contribution to agriculture and their vital role in ensuring family food security have been widely documented. In Africa, specifically south of the Sahara region, more than 60% of all employed women work in agriculture (Meinzen, 2019).

Similarly, in Ethiopia, rural women take the leading role in agricultural activities, making up to 60-80% of the labor force (CSA, 2008). Similarly, women play a significant role in the country's agriculture. They are responsible for a large part of the labor in producing cereals, pulses, and livestock, particularly small ruminants and poultry. However, most of the work done by women tends to be economically "invisible." Consequently, their essential role is not translated into equality of opportunities, especially in getting access to

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productive resources such as improved seeds, vital output markets to sell their goods, and services such as training compared to their male counterparts (ATA, 2013).

Women farmers in Ethiopia are principally disadvantaged since they have limited access to productive assets including irrigation water, credit, extension services, and rural institutions putting them in difficult situations to implement innovations (Mulema et al., 2016). The disadvantage (marginalization of women) is attributed to a serious lack of understanding of gender and its implications for development. Because of this, development efforts for a long time have been carried out with the assumption that development that benefits men will automatically benefit women. In Ethiopia, men are expected to participate in the extension services and pass on the information and knowledge gained to their wives. However, in practice, there is often little "trickle across" (Berhanu Kuma et al., 2006). Husbands may not allow their wives to participate in training that involves overnight stay outside of the household. The men neither do share knowledge and skills gained from training events with their wives (Mamush Lemma and Epherem Tessema, 2016).

In terms of access to different channels of extension services and the quality of these services, there are systematic and significant differences between female and male heads of households and plot managers. Female farmers are less likely to get extension services through various channels and are less likely to access quality services than their male counterparts (Regasa et al., 2012, p. 15). In line with this, Shenkut Ayele et al. (2008) have posited that women farmers have little access to modern technologies that contribute to the limited improvement of agricultural production. Nahusenay Abate (2017) also indicated that despite women's crucial roles in the agriculture sector, they had been marginalized for so long. They have limited access and control of agricultural products, extension services, and information. In all the above studies, the different constraints contributing to women's under-representation in agricultural extension services and Farmers Research and Extension Group/FREG[3] have not been dealt with.

In the 2016, 2017, and 2018 annual reports of the Amhara National Regional State Bureau of Agriculture, it was indicated that only 27.8% of women farmers in the region have been trained on different agricultural packages compared to that of 50.5% of their male counterparts. Likewise, only 6.14% of women farmers vis-à-vis 20% of men farmers had taken the training on crop husbandry. The bureau's three fiscal years gender mainstreaming performance had been far below its annual plans (reaching 100% female-headed households and 50% married women).

Similarly, from the five years (2016 - 2020) annual reports of the Amhara Agricultural Research Institute/ARARI, it can be understood that on average 11,545 (13.35%) women vis-à-vis 74,953 (86.65%) men have benefited from the gains of participation in FREG experiments/trials, field days and trainings organized jointly with respective agricultural development offices. Likewise, the annual reports of Bahir Dar University Capacity Building Up of Evidence-Based Best Agricultural Practices Project (2016 - 2019) revealed that on average 24,603 (11.52%) women vis-à-vis 189,009 (88.48%) men have participated in pre-extension-demonstration, scaling up, and field days. Nevertheless, the various con-

3 FREG is a group of farmers (20-30) involved in joint problem identification, experiment/trial designing/planning, execution and monitoring and evaluation in the process of technology generation, evaluation and transfer. It is a participatory research approach comprising of extension part whereby farmers participate in pre-extension demonstration, participatory variety selection and participatory technology evaluation.

straints contributing to women's lower participation in agricultural extension services, and FREG and the strategy to be adopted to improve their participation have not been shown. Furthermore, despite rural women's significant involvement in agricultural production, they rarely enjoy extension services or have little contact with extension service providers. All the different constraints contributing to their minimal participation have not been well studied in the region and incorporated in many of the research reports. Thus, this study was conducted to find out the socio-cultural, economic, political, institutional and organizational constraints hindering and the opportunities enabling women farmers to participate in agricultural extension services and participatory agricultural research through participation in FREG. After a thorough study of the constraints, gap-filling recommendations have been suggested to administrators, development practitioners, researchers, development agents, and others working to improve women farmers' participation in agriculture for the betterment of their livelihoods.

Materials and Methods

Description of the study areas

The study was conducted in Jigayelmdar and Abchikli Kebeles of Jabitehnan and South Achefer Woredas of West Gojjam Zone of the Amhara Region, respectively. Jabitehnan is one of the fourteen woredas of West Gojjam Administrative Zone. It is located 180 km south of the regional capital, i.e. Bahir Dar, and 350 km north of the country's capital, Addis Ababa. The administrative center of the woreda is 'Finoteselam'. The total area of the woreda is estimated to be 1,169.54 km or 116,954 ha. The woreda is divided into 37 rural 'kebeles', and one of them, namely 'Jigayelmdar', is selected as one of the research sites. Similarly, South Achefer Woreda is one of the fourteen woredas of West Gojjam Administrative Zone located 60 km away from Bahir Dar town in the southwestern direction and 505 km away from Addis Ababa on the road to the regional capital. The town of the woreda is named 'Abchikli'. The total geographical area of the woreda is about 118,228 ha. It is divided into 18 rural and 2 urban kebele administrations (CASCAPE, 2015).

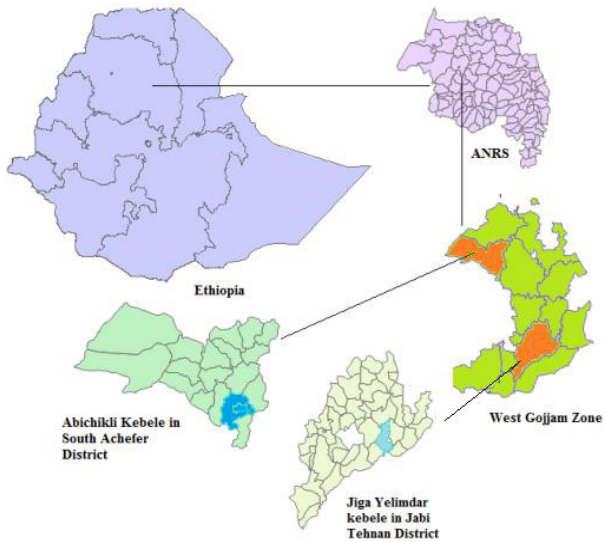

Figure 1: Location map of the study areas.

The kebeles in the woredas were purposively selected mainly for their potential in crop and livestock production. Moreover, they were selected as they had been intervention areas of research centers (Adet and Andassa), NGOs (Engine), programs and projects (AGP, Cascape) that had been collaboratively working with ARARI.

Research methods

A mixed research approach was employed for this study. Therefore, a semi-structured questionnaire was used to generate quantitative data from respondents, while focus group discussions (FGDs) and key informant interviews (KIIs) were used to solicit qualitative information from discussants on the constraints, and opportunities (benefits) of women's participation in agricultural extension services and FREGs. The latter two were used to increase the validity of the data collected through a quantitative survey.

Sample size and sampling techniques for quantitative and qualitative studies

The sample size for the quantitative study was determined using Yamane's (1967) mathematical formula, which takes into account the total number of samples (households) required for the study. The total sample size was 190 (both Female-Headed-Household/ FHH and Women in Male-Headed-Household/WMHH). The sample size for each kebele was determined proportionally using the total number of households in the kebeles (814 households in Jigayelmdar and 1917 in Abchikli) and the aggregate number of households of the two research areas (2731).

$$n = \frac{N}{1 + N(e^2)}$$

Where:
n = Sample size used in the research;
N = Household (HHs) number in both kebeles assuming that women in all HHs are affected by the issue;
e = Level of precision or Sampling of Error which is 5%;

The sample size was determined based on the above formula. However, 35 samples were taken to increase the accuracy of the data the quantitative study would generate. Thus, a total of 225 samples from the two kebeles (75 women in MHHs and 42 in FHHs in Jigayelmdar kebele and 72 women in MHHs and 36 FHHs in Abchikli kebele) were taken considering the total HHs in the kebeles using a systematic sampling technique. Twenty-two women survey participants from MHHs and FHHs were selected for FGDs in the two study areas. Eleven FGD participants were selected from each kebele based on Dawson's (2007, p. 86) recommendation. The ideal number of participants in FGDs is nine or eleven, where odd numbers work better than even numbers as it is harder for people to pair up in breakaway conversations (Dawson, 2007, p. 86). Moreover, two subject-matter specialists (SMSs) from each woreda and three development agents (DAs) from each kebele were selected as key informants based on their roles and responsibilities in the research and extension system. Similarly, two socio-economists from Adet and Andassa research centers were considered as key informants.

Data Analysis

Descriptive statistics such as percentage, frequency, mean and standard deviations were used to analyze the quantitative data. In contrast, thematic analysis was used to analyze

and describe the cases raised during the FGDs and KIIs. The data collected through the semi-structured interviews (FGDs and KIIs) were used to increase the validity and trust-worthiness of the quantitative results.

Results and Discussions

Socioeconomic condition of women farmers

Among the respondents, 65.3% were women in married households (WMHHs) while 37.3% were divorced, widowed, or separated (FHH). All the respondents were Orthodox Christians. What is more, the majority (73.3%) of them couldn't read and write (Table 1).

Table 1: Marital status, educational level, and religion of respondents

	Frequency (n)	Percentage (%)
Marital Status of Households		
Married Women (MHH)	147	65.3
Divorced, Widowed, Separated (FHH)	78	34.7
Educational level		
Can't read and write	165	73.3
Can read and write	10	4.4
1-4	22	9.8
5-8	22	9.8
9-10	4	1.8
11-12	2	0.9

From table 2, it can be construed that the mean age and family size of the respondents in both research domains are 37.9 and 5.0, respectively. The average farm size of the HHs is 1.5 hectares and the maximum average livestock holding for cattle and chicken is 4.4 and 6.2, correspondingly. Likewise, the average family size and mean HH farm size for male-headed households/MHHs and FHHs are 5.4 and 4.2 and 1.5 and 1.4, respectively. Besides, the average number of cattle and chicken holding of MHHs and FHHs is 5.4 and 2.3 and 6.9 and 4.9, respectively.

Table 2: Demographic and socioeconomic variables in West Gojam Zone.

	MHH (N=147)	FHH (n=78)	Total (total=225)
	Mean	Mean	Mean
Mean age	-	-	37.9
Mean family size	5.41	4.20	5 .00
Mean household farm size (ha)	1.52	1.41	1.50
Mean livestock holding(TLU)			
Cattle	3.55	0.20	3.75
Sheep	0.59	0.97	1.56
Goat	0.06	0.08	0.14

Chicken	0.18	0.29	0.48
Bee colonies	0.55	0.14	0.40
Equines	0.24	0.09	0.33

Note: Tropical livestock unit (TLU) is a livestock index to compare the herd size across the different livestock species to produce a single number that indicates the amount of livestock owned from the number of different livestock that the household is raising: 0.7 for a cattle, 0.2 for a pig, 0.1 for sheep or goat, and 0.01 for a chicken or duck (Njuki et al. 2011)

Disparities between FHH and MHH in extension services

Like any other part of the region, the extension services in the woredas included the facilitation of the provision of inputs, improved seeds, credit, training, experience sharing visits, and house-to-house advisory services. Moreover, farmers were given a chance to participate in demonstration field days organized at farmers' training centers (FTCs) and on the farmer's field where they make themselves familiar with the technologies under experimentation. Cognizant of this, trainings were provided at FTCs; experience-sharing visits were conducted within and outside the kebeles. Inputs and improved seeds were distributed by cooperatives to the farmers through farmers-development groups and DAs. Also, credit was arranged by the kebele and woreda offices of agriculture per se and in consultation with cooperatives. Also, house-to-house advisory services had been given directly by DAs.

The FGD result revealed that both women in MHHs and FHHs did not fully utilize the agricultural extension services rendered by the kebele offices of agriculture. Unlike their male counterparts, women often fail to participate in training, demonstration field days, and experience sharing visits because they are given less attention than men by DAs. This corroborates the study results by Cohen and Mamush Lemma (2011) that show the bias of extension service delivery toward men stems from the belief that men are the decision-makers and women are marginal farmers. Nonetheless, discussants indicated that FHHs were treated better than married women. Married women were receiving technologies and inputs through their husbands while FHHs did by themselves like that of their male counterparts. Compared to FHHs, only small proportions of married women used agricultural extension services and utilized them less frequently, mainly due to socio-cultural reasons, illiteracy, lack of confidence and self-worth, DAs, and SMSs (experts) biases towards male farmers. It was indicated that women have been culturally hindered from using the agricultural extension services equally with men. Consequently, it was male farmers who in most cases were invited for trainings, experience-sharing visits, and demonstration field days.

According to SMSs in Abchikli, goals are set every year to enhance women farmers' participation in agricultural extension services. However, they had not so far been achieved and attempts had not been made to identify the root causes of the failure and their possible solutions. Despite this fact, this study discovered that married women's disinterest in attending training; undervaluation of their contribution, and the conception that the change they bring is insignificant have affected their participation in agricultural extension services. Likewise, women's belief that their spouses' participation is enough and has nothing to do with the trainings; husbands' refusal to let their wives attend trainings and/or meetings has limited women's participation in agricultural extension services.

Male farmers were familiar with DAsas they spend much of their time on the farm, neighborhood, public meetings, and/or even in the local pothouses. Men were always at the front position in the extension system since they were seen as the head of the family; hence, they participated in the trainings, experience sharing visits, and field days. The stereotype that women are born for domestic work has adversely affected their right to use agricultural extension services. Thus, from the SMSs point of view,it can be deduced that wives' participation was negligible compared to men and even with FHHs. This result conforms to the research results of Chalachew Tarekegne and Mulunesh Dessie (2020) that show women who are widowed and divorced actively participate in the training services rendered by DAs whilst other women farmers who are husbanded and bachelorettes are ignored.

Likewise, the key informants have underscored that FHHs benefit the least from the services compared to men and sometimes are marginalized practically. This finding corroborates the research result of Azanaw Abebe et al. (2017) which depicts that FHHs were worse than men in terms of education and participation in meetings, trainings, field days, and demonstrations among others. In FHHs, women are seen to have easy access to agricultural extension services and information; however, they have barely been involved in different extension services.

Constraints affecting women's participation in agricultural extension services

Socio-cultural constraints of women's participation in agricultural extension services

The descriptive statistics results indicated in table 1 and 3, such as illiteracy (73.3%); women's low self-esteem; their credence that husbands are heads of the family and are knowledgeable (contrary to the new FDRE family code Article: 50 which depicts joint management of family) (92.4%); the community's belief that women are incompetent and are naturally born for household chores (88%); lack of self-worth of women, their belief that they are born for bearing, and raising children, as well as doing all other domestic activities (76.9%) have contributed significantly for the discriminatory extension services. Over 72% of the respondents have confirmed that the gender insensitiveness of most DAs and researchers, and their preference to work with men whom they believe are assertive, fast, and easy to work with have contributed to the unfair treatment of women in agricultural extension services and FREGs. Besides, lack of cooperation and sharing of responsibilities between husbands and wives (64%) and the acting of men as heads of the family having all decision-making authority (63.6%) were also the socio-cultural constraints that contributed to inequitable extension service delivery.

On the other hand, the KII results showed that it was difficult for male DAs to deliver extension services to women farmers in the kebeles in the previous years. This problem stems from society's tradition that discourages the opposite sexes from working together with freedom. This finding agrees with the results of Cohen and Mamush Lemma (2011, p.18), which states that elsewhere, DAs face cultural barriers in advising women farmers since local customs may prevent married women from interacting with men other than their husbands.

This qualitative result is further confirmed by Drucza and Mulunesh Tsegaye (2018, p. 7-8) and Mamush Lemma et al. (2018) that due to their gender bias and/or limited gender capacity, male extension agents often fail to invite women in MHHs to discussions during home visits. Husbands also do not invite their wives to discussions when DAs visit their

homes. Moreover, they may not allow their wives to participate in extension events even if women are purposefully invited. In connection to this, Mr. Solomon Matentu, a subject matter specialist at Jabitehenan woreda agricultural office strengthened the idea as follows:

> *A husband makes sure that his wife is not talking to a male development agent in his yard. Coming out from the house, a husband asks to whom his wife is talking; if he notices that she is talking to a man in this case – a male development agent, he would immediately dismiss her and take over the conversation. But if the development agent is a female, he would let his wife keep on her discussion.*

Nevertheless, with the elapse of time and attitudinal change of farmers, the problem has become less serious and as a result, its adverse effect has been declining though still persistent.

Table 3: Socio-cultural reasons contributing to discriminatory extension service (N = 225)

Reasons	Percentage & no. of respondents replied
	Yes (%)
Lack of cooperation, and sharing of responsibilities between the couples	64 (144)
The community's belief that women are incompetent and are naturally born for domestic chores	88 (198)
Most development agents are not gender-sensitive and they prefer to work with men whom they think are assertive, fast, and easy to work with	72.4 (163)
Lack of self-worth of women and their belief they are born for bearing, and raising children, and doing all other domestic activities	76.9 (173)
The act of men as head of the family having all decision-making authority	63.6 (143)
Women's low self-esteem, their credence that husbands are heads of the family and are knowledgeable	92.4 (208)
Busyness with domestic activities	30.7 (69)

Only 3 of the 7 reasons, i.e., lack of announcement, inattention of DAs to women and the biases towards men; women's busyness with domestic activities; DAs doubt about the success of female farmers appear to have contributed significantly to the failure of women in attending demonstration field days. Forty-four percent (44%) of the respondents have said that DAs were partial and did not render equal extension services to both men and women, and this conforms with the research results of Regasa et al. (2012) and Ragasa (2014), and Akter et al. (2020, p.4). The findings of these authors revealed that women's access to extension services is significantly lower than men's across most developing countries in Africa, Asia, and Latin America while the rest of the respondents affirmed that DAs and SMSs provide equal extension services to all farmers indiscriminately (Table 4).

Table 4: Reasons for women's failure to participate in demonstration field days (N=225)

Reasons	Percentage & no. of respondents replied
	Yes (%)
Refused because of lack of awareness or old age or debilitated health	6.2 (14)
Lack of announcement, inattention of development agents to women (married women or FHH); and their biasness towards men	44 (99)
Busyness with domestic activities	30.7 (69)
Husbands' participation suffices*	6.8 (10)
Husbands' disinterest to permit wives to leave the house and attend field days*	5.4 (8)
A Mistaken belief that participation infield days will not make a difference	3.6 (8)
Development agents doubt the success of female farmers	25.8 (58)
Others	3.6 (8)

Note: questions in asterisk (*) were only forwarded to married women who were 147 in number

Institutional & organizational constraints of women's participation in extension services

Institutional and organizational constraints play a significant role in slowing down the participation of women in agricultural extension services. Despite the pivotal roles the networks of "one-to-five"[4] and "development groups"[5] play, these organizations were not strong as that of men's groups. Over 83%, 74%, 47%, and 40% of the respondents confirmed that the weakness of these organizations is attributed to the lack of diligence of women members to attend meetings on the pretext of workload; lack of commitment of leaders of the organizations; the unwillingness of husbands to let their wives attend meetings and the minimal support of kebele cabinets, DAs, and researchers to the one-to-five, women's-development groups and FREGs, respectively (Table 5). This research result conforms to the finding of Cohen and Mamush Lemma (2011, p. 24), which affirms that many rural women are illiterate and unused to expressing ideas publicly in a male-dominated society, and husbands often discourage their wives from participating in public meetings.

4 "One-to-five"is a small group of farmers consisting of a model farmer as a chairperson, a secretary, and 3 other members whereby they plan, execute and evaluate their activities; learn from each other and acquaint themselves with new technologies and/or best practices every three days in a week.

5 A "Development group" is a large group of farmers consisting of 20-30 members or 4-6 one-to-five groups having a chairperson and a secretary whereby plans and activities of one-to-five groups are evaluated and members make themselves familiar with new technologies and/or best practices once in a week

Table 5: Reasons for the inefficiency and ineffectiveness of the organizations of one-to-five, women's development groups, and FREGs (N = 225/212).

Constraints	Percentage & no. of respondents replied
	Yes (%)
Women members are not diligent to attend meetings on the alleged reason of workload	83.8 (186)
Leaders of the organizations are not committed	74.3 (165)
Husbands are resistant to let their wives leave for organizational meetings	47.0 (104)
Kebele cabinets, DAs, and researchers support to the organizations of 1 to 5, development groups and FREGs is minimal	40.0 (89)
Others	23.9 (53)

As far as key informants (SMS) are concerned, institutional setup, regular and modular trainings[6] are given at farmers' training centers depending on their nature and urgency. Trainings on different pressing issues of agriculture were usually shorter than modular training programs. Furthermore, FTCs were sites of field days whereby different agricultural technologies were demonstrated to farmers. However, the centers had not been functioning as such based on the establishment of their purposes because of the shortage of teaching aids, facilities, budget, and accredited trainers (DAs). The failure of many DAs to pass through the center of competence has been recognized as one of the reasons for the inefficiency of FTCs; hence, they provided short training that covered a day or two. In terms of attendance of training, it is men who were at the forefront, FHHs followed, and married women were the least beneficiaries of trainings organized by woreda/kebele offices of agriculture and/or research centers. This result also harmonizes with the finding of Mamush Lemma and Epherem Tesema (2016), which emphasizes that, culturally, the man is the head of the HH and is assumed to be primarily responsible for all the agricultural activities. Also, in a HH set-up, the man would come forward to receive training from extension agents even if the wife might have played a significant role in specific commodity development activities.

From table 6, it can be construed that about 86.8% of the respondents have affirmed that the increased involvement of the private sector in extension services provides farmers with a variety of crop technologies and breeds of livestock as well as knowledge transfer. This descriptive statistic result complies with the report of Maiangwa et al. (2010, p. 90) that indicated public extension is one source, but not necessarily the most efficient. Although extension can improve the productive efficiency of the agricultural sector, the virtues and limitations of alternative mechanisms have often been considered in assessing the cost-effectiveness of delivering information. Likewise, 61.2% of survey participants underlined that increasing the number of female extension workers and researchers helps to tackle cultural barriers thereby promote women's participation in extension and/or research undertakings. This result is consistent with the report of FAO (2011) that the past failures of government extension services to reach women farmers and the cultural bias which has, in many countries, prevented women from actively participating in extension services. This is because the agencies for these services have been predominantly dominated by men – only 15% of extension workers were women. Added to this result, Ragasa et al.

6 Regular trainings which are shorter than 3 months: a day, or two days; modular trainings for 3 consecutive months are given for farmers having a 4th grade education during the dry period where the trainees will be rewarded with a certificate at the end.

(2012) have further affirmed that, in Ethiopia, MHHs are about 5 times more likely to be visited by DAs (mostly men) than female heads of households.

On the other hand, increasing female extension workers and researchers is very essential as women can freely talk and discuss with them without fear (65.3%) and could be understood easily (55.0%). This result conforms to the findings of Tewodaj Mogues et al. (2009) which revealed that increasing the number of female extension workers helps to make use of their different insights and perspectives to fully address the unique and pressing challenges of both female and male farmers in the region and particularly the specific needs of rural women.

Table 6: Institutional and organizational disinhibitions for participation (N = 225/212).

Disinhibitions	Percentage & no. of respondents replied
	Yes (%)
Increased involvement of the private sector in extension widens farmers options	86.8(184)
Increasing female extension workers and researchers help to tackle the cultural barrier and promotes women farmers' participation in extension services	61.2(134)
It is possible to freely talk and discuss with female extension workers and researchers without fear	65.3(143)
Female extension workers and researchers understand women's problems better than their male counterparts	55.0(121)
Female extension workers and researchers are treated as daughters or sisters	8.9 (20)

According to the key informants, the unjustifiable intervention of superiors in the tasks of DAs and the absence of community rules and bylaws that direct husbands and wives to appear to training venues and field days together have affected their participation in agricultural extension services. This qualitative result is supported by the study findings of Makuma et al. (2020) that revealed the adoption of supportive bylaws and their effective implementation are crucial in promoting sustainable crop and livestock intensification extension services. Moreover, the inefficiency of government extension services and the inadequate involvement of the private sectors in all areas of extension services have been pointed out by the key informant interview participants as institutional constraints affecting women's partaking in agricultural extension services. This research output complies with the report of Maiangwa et al. (2010, p. 90-92) that indicated public extension is one source, but not necessarily the most efficient.

Economic Constraints of Women's Participation in Agricultural Extension Services

Economic constraints are among the other impediments that affected women's participation in participatory agricultural extension services. As shown in figure 2, respondents indicated that expensiveness of inputs (83.3%), draft oxen problem (82.1%), low income (71.8%), and shortage of land (62.8%) were the economic constraints that affected women farmers' participation in agricultural extension services. This research finding is consistent with Boserup's (1970) study findings as cited in Fenet Belay and Alemayehu Oljira (2016) which show that most African women are active actors in agricultural production.

Hence, their relation to factors of production such as land, agricultural inputs, labor, and services like agricultural extension and credit is a critical factor in their ability to produce food and generate income for themselves and their families.

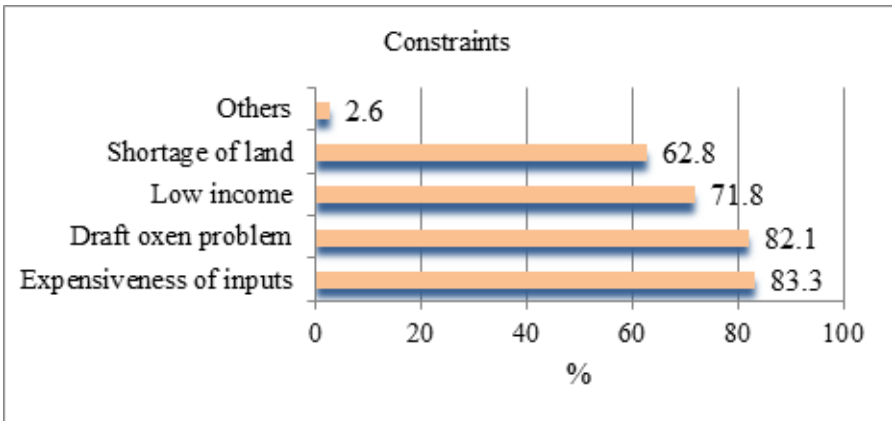

Figure 2: Economic constraints affecting FHHs participation (N = 78)

To cope up with the draft oxen shortage, over half of the female-headed households (FHHs) (52.4%) confirmed that they entered into sharecropping to receive 1/2 or 2/3 or 1/3 of the product depending on their consent (often weak bargaining power) with the other contracting parties. Likewise, 47.6% of the respondents pointed out that FHHs rent out land to get money for a living or purchase draft oxen. In comparison, 43.1% of the respondents affirmed that FHHs engage in oxen-sharing (when they have only one ox) or borrow a pair of oxen in exchange for labor (Figure 3).

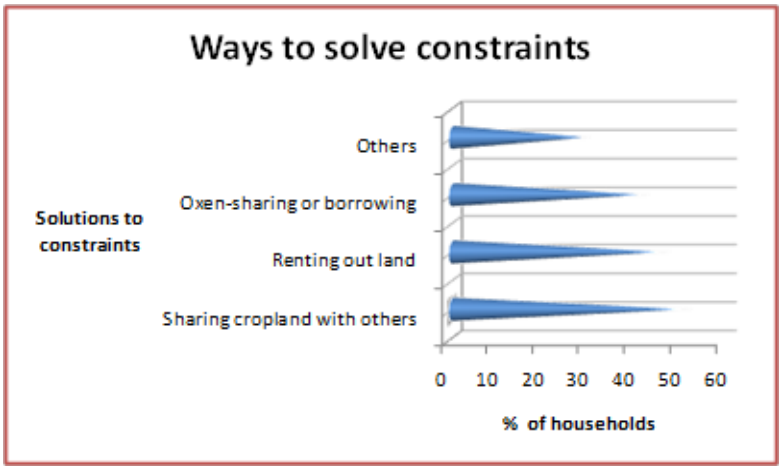

Figure 3: Ways of farming and livelihoods of female-headed households (N = 78)

As per the FGD discussants, the expensiveness of inputs, low income, and shortage of land were the barriers to the use of agricultural technologies and other inputs. In contrast to poor farmers, economically better-off farmers can buy improved varieties, breeds, and other chemicals that boost up their productivity either from cooperatives, government, or private traders.

According to the key informants from the offices of Jabitehenan and South Achefer Woredas of Agriculture, there were no many FHHs who are economically strong. The majority of them suffered from pecuniary constraints; thus, they were not able to hire labor, rent land, buy draft oxen, and other inputs to adopt improved technologies. Thus, as a coping strategy, those FHHs who had plots of land but no draft oxen or owned a single ox borrowed the draft cattle either from their relatives or neighbors. Likewise, FHHs who were short of draft oxen, and/or family labor, or money to hire labor rented out their land for money to a resident farmer (s) who did not have land nor needed additional land for extra production. On the contrary, very few of the FHHs who had money rented in the land to produce the food, they require for their family's sustenance. On the other hand, some of them entered into a contract of sharecropping (farmers who did not have land but only labor and/or draft oxen shared in and those who had land but not labor and/or draft oxen shared out) where they shared/apportioned the final harvest with the other contracting party (farmer) based on the terms of their agreement. This research result conforms to the findings of Mulu Debela and Workneh Abebe (2017, p. 83), who asserted that low resources endowments were the main features that characterize female-headed households of the poor and these meager resources could not enable them to generate sufficient livelihood outcome-food security.

Similarly, the key informants emphasized that land is the most important resource for agricultural production. Crop and livestock husbandry is inconceivable without land. Women who lost their land-use rights by the fraudulent acts of their egoistic husbands upon dissolution of their marriage, or breached by institutions entrusted with land administration or ordinary courts, did not think of participating in participatory agricultural extension services. Women who were landless but relatively keen to involve in agricultural extension services/FREG could not do so as land is the major constraint for the adoption of technologies. Besides, those women who had a small land size did not take part in agricultural extension services/FREG and thereby adopted the available technologies or the technologies (varieties) that are not their priorities. The qualitative result is consistent with the findings of Askale Teklu (2005, p. 14) that gender disparities in land access and tenure security impact most on FHHs. These households tend to be more impoverished and more disadvantaged than HHs headed by men.

Political Constraints of Women's Participation in Agricultural Extension Services

Over three-quarters of the respondents (76%) revealed that the attention given to model farmers, most of whom were men and politically active members of the regional ruling party, had narrowed the chance of other farmers especially women to have a leadership position in a farmers' development group or to participate in FREG. About 90% of the respondents have condemned the precedence given often to model farmers as they believed that non-model-farmers also have the motivation and the commitment to participate in agricultural extension services through "one-to-five", "farmers-development-groups" and FREG thereby adopt technologies. Over 90% of the respondents have also confirmed that the priority that had been given to model farmers contrary to the policies and legal frameworks for equal treatment of citizens has jeopardized women's participation in agricultural extension services and FREG. In addition, government policies and strategies that have been in effect over the past 28 years haven't been fully implemented to make them active participants and beneficiaries of agricultural development endeavors (Table 7).

Table 7: Political constraints affecting women's participation in agricultural extension services and Farmers Research and Extension Group

Constraints	Percentage & no. of respondents replied
	Yes (%)
The excessive attention and priority given to the political active model farmers narrowed the chance of women farmers to participate in farmers agricultural extension groups despite:-	76 (171)
Non-model farmers are also committed to adopting different technologies and learn about modern techniques of production.	90.1(201)
There is a policy/legal framework at present that all farmers need to be treated equally irrespective of their sex, wealth, status, etc.	98.2(218)
Policies and strategies (women's entitlement to land; new research; participatory extension system put in effect; women farmers are given policy attention; availability of credit services; etc.) that have been in operation over the past 28 years have not been strictly implemented.	96.4(217)

The descriptive statistics result is also supported by the KII findings in such a way that the extreme focus on model farmers who are usually men and the less attention on other non-model farmers; women's under-representation in leadership (kebele administrations) and their minimal participation in civil societies and political organizations have directly or indirectly hampered their partaking in agricultural extension services and FREG. By the same token, the lack of support of local political leaders; the less commitment of women's political organizations and civil societies to work with women have been found out to be the indirect political impediments to their participation in agricultural extension services as well as FREG.

Model farmers have been favorably treated and often given priority in terms of different types of extension services as well as FREG participation. This result is in harmony with the studies of Cohen and Mamush Lemma (2011, p.9) and Mamush Lemma and Epherem Tesema (2016) indicating that, in Ethiopia, DAs work through a network of farmers development groups whereby model farmers demonstrate improved production practices and techniques to other group members. Rather than having DAs advise individual farmers or members of farmer development groups on agricultural techniques, the model farmers report to the groups what they have learned from DAs. This discriminatory treatment has been the cause for the discontent of the majority of non-model farmers. They also have the desire to use the extension services, participate in FREG, and revolt against poverty like the model farmers as long as they are given equal opportunity.

As indicated in table 8, over 50% of the respondents have agreed that political organizations and civil societies helped women to be organized into a network of "one-to-five" and "development groups", and coordinate and mobilize female farmers during natural resources conservation and irrigation schemes development campaigns. As indicated in the same table, women were underrepresented in kebele leadership positions (82.4%). Besides, the political organization/wing[7] and civil societies[8] to which women were members received minimal and medium support from the respective woreda political leaders and kebele cabinet members (85.4%).

7 It is women's league of the party

8 They are women's associations and federation

Table 8: Advantages and levels of women farmers' political participation in political organizations and civil societies (N = 225/222).

Advantages	Percentage & no. of respondents replied
	Yes (%)
They help women in organizing them into a network of "one-to-five" and development groups and teach them how to boost up agricultural production	64 (142)
They help women to get fertilizer and improved technologies equally with men	16.7 (37)
They help women to get credit	14.9 (33)
They coordinate and mobilize the community during natural resources conservation and irrigation schemes development campaigns	50 (111)
They help in settling land-related disputes usually affecting women's right	27.9 (62)
There is no adequate representation of women in the kebele administration (leadership position) as compared to men	82.4 (183)
Low and medium support to women's political organizations and civil societies	85.4 (191)

The descriptive statistics result also conforms to FGD findings where participants revealed that women are inadequately represented in kebele administrations[9] and kebele council members were not also dedicated to the level expected to make them politically active participants in agricultural development endeavors. In line with this, the Women's League, Women's Association, and Women's Federation in the kebeles were expected to play pivotal roles in strengthening rural women's participation in education, health, and agriculture. Nonetheless, their contribution was minimal because of the lack of commitment of members and leaders. The FGD participants in the research areas especially in Abchikli were unaware of the existence of the aforesaid political organization and civil societies. This depicts how the political organization and civil societies were distant from women. Differently put, FGD discussants in the woreda were unacquainted with women's leagues and civil societies. This shows the ineffectiveness of the organs to embrace and work with many members based on the government's agricultural policy and political agenda. This contradicts the reports of Tewodaj Mogues et al. (2009, p.38) such that if women associations and leagues extend their reach to rural kebeles of the country or the region, women may become politically active to demand their respective rights such as equal treatment with men in the extension service and the like.

Opportunities and benefits of female farmers in FREG agricultural extension system

As indicated in table 9, by participating in agricultural extension services and FREG, women could get some advantages. Among the 41 FREG members, 90.2% of the respondents have pointed out that women farmers have gained familiarity (knowledge) of crop and livestock technologies and best agricultural practices through trainings. Over 95 % of the respondents asserted that they got technologies such as improved cereal, pulse, horticultural, and forage crops as well as poultry and chemicals (fertilizers and pesticides).

9 Cabinet members were the kebele administrator, manager, chairman of the ruling party, heads of administration and security, women's affairs, youth and sport, agriculture, health center, and the school

This complies with the research results of Yazie Chanie (2015) that the benefits of a participatory research approach include farmers' acquisition of new technologies tested and transferred. It also benefits farmers by raising the level of their awareness of technical and social skills. On the side of research, participatory research/FREG plays a paramount importance in utilizing farmers' indigenous knowledge for planning research and development endeavors. More so, over half (63.4%) and three-quarters (78%) of the respondents have stated that they got the chance for field day participation and advisory services in all disciplines of agriculture, respectively.

Table 9: Benefits of women farmers participating in Farmers Research and Extension Group (N=41).

Benefits	Percentage & no. of respondents replied
	Yes (%)
Knowledge on the crop, livestock technologies, and best agricultural practices through training	90.2 (37)
Inputs (technologies) such as improved maize, haricot bean, forage crops, chemicals, tef, finger millet, potato, and improved poultry	95.1 (39)
Field day participation	63.4 (26)
Advisory services in crop production, animal husbandry, and natural resources conservation	78.0 (32)
Others	2.4 (1)

Knowledge Transfer

FGD discussants asserted that despite their shortcomings, the extension system and participatory research approaches (FREG participation) have created knowledge transfer rooms through training, experience-sharing visits, demonstration field days, and house-to-house advisory services. FHHs and married women were trained and given bits of advice on how to plant and manage crops, rear livestock, use irrigation, et cetera. They were offered house-to-house extension services whereby their crops, livestock, and other agricultural activities were inspected, and recommendations were given forthwith. At this juncture, women farmers were somehow able to talk to DAs and share their problems. Married women did not participate in technology transfer events as such through trainings, conferences, field days, and extension services as that of FHHs and men. As far as SMSs in Jabitehnan woreda are concerned, FHHs were equally benefiting from credit services and tangible technologies like MHHs; nevertheless, their participation in knowledge transfer through training and demonstration field days was lower than their male counterparts.

The embracement of women into the organizations or networks of "one-to-five" and "farmers development groups" has been identified by the study as worthwhile for the exchange of knowledge, experience sharing, evaluation of farm activities, and lending hands. FHHs were teamed up into two development groups with married women in one hand and with men in another. Their grouping with men helps them learn from men's experiences and share that experience with married women. On the other hand, when women are organized with women based on their sex, they will not be shy; thus, they can openly talk and discuss with each other. The teaming of women in both groups contributes to the smooth flow of extension ideas and the transfer of knowledge amongst themselves.

Technology acquisition through agricultural extension services

The research result indicated in table 9 is substantiated by SMSs and DAs that FHHs had access to many improved kinds of cereal and livestock technologies through pre-scaling and scaling up undertakings (FREG and participatory agricultural extension services). According to this, women benefited from horticultural crops, the raising of poultry, and small ruminants. These are some of the activities that women received training, technical, material as well as financial support from agricultural offices, research centers, universities, NGOs, and projects as they are executed around the homestead and are delightfully taken up by women. These activities traditionally were thought to be the tasks of women; thus, the result complies with the finding of Cohen and Mamush Lemma (2011, p. 10) that horticultural production and the raising of poultry and small ruminants have been considered as part of "home economics" until quite recently, leaving women excluded from other kinds of extension advice, training, and credit.

Policy opportunities

From the KIIs, it is possible to envision that policy attention has been given to women farmers to make them active participants and beneficiaries of agricultural extension services. Plan for Accelerated and Sustained Development to End Poverty (PASDEP)aims to reach all FHHs and 30% of married women; GTP I and GTP II, on the other hand, aim to benefit all FHHs and 30% and 50% of married women respectively (ANRS Plan Commission, 2016, p.209). Following the land administration policy in 1996, women have been granted land use rights equal to that of their marriage partners. Thus, women in the research domains had land-use rights like that of their husbands but still, some women suffered from tenure insecurity. This result corroborates the study finding of USAID (2015) that shows the prominence of customary laws, norms, and practices, which is a result of traditional patriarchal systems, promotes the systemic discrimination of women. This is evident in key institutions where decisions over land use and land transactions are made, but also where the adjudication of land cases takes place. This finding also reveals that women are often discriminated against or excluded from legal land processes in Ethiopia despite the constitutional and regional land proclamations that guarantee equal use by both men and women.

Key informants also accentuated that the assignment of over three DAs and veterinary assistants in each kebele is advantageous to women. Despite some limitations (gender asymmetry in the number of DAs), the increased number of DAs helped to reach most farmers in the kebele and render agricultural extension services. The availability of a veterinary clinic in each kebele helped farmers get immediate treatment of their livestock and safeguard their animals from tiredness due to long-distance trekking. Then again, establishing kebele offices of agriculture has helped to improve the efficiency and effectiveness of the extension services whereby women benefited as community members. The offices have played paramount importance in improving the quality of the extension services, and wider coverage, and thus DAs, have been held responsible or accountable for any negligence and underperformance.

Moreover, SMSs have affirmed that the enforcement of the career structure and capacity building scheme for DAs is worth mentioning, for it increased their motivation and reduced staff turnover. This helped farmers indirectly as experienced DAs would not quit their job as such and the inspiration they have would serve farmers better. Moreover, the establishment of political and civil societies' movements in rural areas is another opportunity that somehow provides women farmers with the possibility of speaking out about

their problems and desires. Though not adequate, they also help in facilitating women's access to extension services. Because of this, the stereotype against them was rampant in the communities, yet it has been declining to some extent. This finding is consistent with the finding of Cohen and Mamush Lemma (2011, p.25) in such a way that women's association is an important vehicle for working around cultural biases to get women access to extension services.

Conclusions and Recommendations

The study was conducted to assess the socio-cultural, institutional, organizational, political, and economic challenges hindering and the opportunities enabling women farmers' participation in agricultural extension services. The findings of the study revealed that women's participation was affected by socio-cultural constraints such as women's lack of self-worth, community's doubt on women's capacity, and gender insensitiveness of DAs. The weaknesses of the networks of "one-to-five" and "women's-development-groups", absence of community rules and bylaws encouraging couples joint participation in different knowledge transfer events, and the unjustifiable intervention of superiors in the tasks of DAs were the major institutional and organizational impediments to women's participation in agricultural extension services and/or FREGs. Moreover, the expensiveness of agricultural inputs, shortage of draft oxen, low income, and shortage of land were the economic constraints that affected women's participation in agricultural extension and research undertakings. On the other hand, the excessive focus on model farmers, women's under-representation in kebele administration, and the less commitment of women's league, federation, and association to work with members have been discovered as political constraints that affected women's participation in both agricultural extension services and research undertakings.

About the opportunities and benefits, the study has revealed that female farmers have somehow been benefiting from the gains of participation in training, pre-extension demonstration, experience sharing visits, house-to-house advisory services, and different agricultural technologies and inputs. Thus, depending on the major findings of the study, it can be concluded that despite the different measures taken over the years to improve women's participation in agricultural extension services, quite a lot of them have not still been made active participants and beneficiaries of the services. Thus, many policy and administrative measures still need to be put in place so that gender mainstreaming would be part of the agricultural development and research plans of the Regional Bureau of Agriculture and the Amhara Agricultural Research Institute. Gender mainstreaming would enhance women's participation in agricultural extension services and farmers' research and extension groups thereby improve their economic benefit.

Based on the above conclusions, the following recommendations have been forwarded:

- Gender awareness training to both experts and farmers is important; strengthening adult education to assist illiterates in reading, writing, listening, and understanding farming is critical.
- Community rules and bylaws that direct and persuade joint participation of couples in events of knowledge transfer have to be enforced.
- Political parties and government organs have to be diligent to improve women's leadership roles in kebele administrations.
- For efficient extension services delivery, a guideline/directive has to be developed to evaluate and increase the effectiveness of a network of "one-to-five" and "development groups".

- The government should provide credit services either through various women groups, financial institutions, or cooperatives as women are financially constrained.
- Women-only training programs need to be organized with coaching and mentoring support. Their drudgery should be considered when scheduling training (particularly in the modular training for women with family labor shortages).
- The unjustifiable intervention of superiors restricting the freedom of DAs from deciding what is fit for farmers has to be limited.
- Policies that encourage private extension service providers to provide farmers with a menu of agricultural technologies (varieties of crops and livestock breeds, etc.) and inputs (fertilizers, pesticides, etc.) have to be put in place in addition to the government extension services.

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