SCOPING STUDY 2018
Gender & social equity in wheat research for development (R4D) in Ethiopia

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<th>DESCRIPTION</th>
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<tr>
<td>ATA</td>
<td>Agricultural Transformation Agency</td>
</tr>
<tr>
<td>ATVET</td>
<td>Agriculture technical and vocational training</td>
</tr>
<tr>
<td>BMZ</td>
<td>Federal Ministry of Economic Cooperation and Development</td>
</tr>
<tr>
<td>CIMMYT</td>
<td>International Maize and Wheat Improvement Center</td>
</tr>
<tr>
<td>CSA</td>
<td>Central Statistical Agency</td>
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<td>DAP</td>
<td>Diammonium phosphate</td>
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<tr>
<td>EDRI</td>
<td>Ethiopian Development Research Institute</td>
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<tr>
<td>EEA</td>
<td>Ethiopian Economic Association</td>
</tr>
<tr>
<td>EEPRI</td>
<td>Ethiopian Economic Policy Research Institute</td>
</tr>
<tr>
<td>EIAR</td>
<td>Ethiopian Institute of Agricultural Research</td>
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<tr>
<td>ETUS</td>
<td>Ethiopian Time Use Survey</td>
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<td>FHH</td>
<td>Female-headed household</td>
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<td>GoE</td>
<td>Government of Ethiopia</td>
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<td>IFPRI</td>
<td>International Food Policy Research Institute</td>
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<tr>
<td>IVS</td>
<td>Input Voucher System</td>
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<tr>
<td>MHH</td>
<td>Male-headed households</td>
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<td>MoANR</td>
<td>Ministry of Agriculture and Natural Resource Management</td>
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<td>MoFED</td>
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<td>MoWCA</td>
<td>Ministry of Women and Children Affairs</td>
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<tr>
<td>MoWCSA</td>
<td>Ministry of Women, Children and Social Affairs</td>
</tr>
<tr>
<td>NPC</td>
<td>National Planning Commission</td>
</tr>
<tr>
<td>PADETES</td>
<td>Participatory Demonstration and Training Extension System</td>
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<tr>
<td>R4D</td>
<td>Research for development</td>
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<tr>
<td>SNNPR</td>
<td>Southern Nations Nationalities and People Region</td>
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<tr>
<td>WDA</td>
<td>Women’s Development Army</td>
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<tr>
<td>WHEAT</td>
<td>CGIAR Research Program on Wheat</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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1. Introduction

Agriculture is one of the main sources of income for women in Ethiopia; yet women are disadvantaged compared to men.¹ According to the 2011 Ethiopia Demographic and Health Survey, more than half of women (56%) engaged in the agricultural sector were unpaid workers, and 65% of women were working for a family member.² Traditional gender norms link women to household work, contributing to the general societal perception that farming is “a man’s job.”³ This cultural perception remains strong, even though numerous agricultural tasks, such as weeding, harvesting, grinding, and storing, are deemed “women’s work.”⁴ Consequently, women’s work in agriculture continues to be invisible to researchers and to the extension agents⁵ that deliver technical scientific knowledge.

Unlike for other staple cereals, Ethiopia relies on a significant proportion of imported wheat to meet domestic demand.⁶ Wheat imports vary between 25 and 35 percent, depending on the size of the harvest and other factors.⁷ The Government of Ethiopia (GoE) has announced its plans to become self-sufficient in wheat production and to stop importing substantial amounts of wheat by the year 2021. GoE has also committed to the Sustainable Development Goals (SDGs) that have a number of gender and food security indicators, such as “zero hunger” and gender equality. All of the goals aim to “leave no one behind” and deliver more equitable development outcomes.

The Federal Ministry of Economic Cooperation and Development (BMZ) funded a research development project, “Understanding gender in wheat-based livelihoods for enhanced WHEAT R4D impact in Afghanistan, Pakistan and Ethiopia.” The aim of this research project is to help take stock of the current situation regarding the integration of gender and social equity in WHEAT research for development (R4D) in Ethiopia, and to identify and conceptualize opportunities for strengthening this integration. This scoping study report summarizes four outputs from this project and explores the following questions:

- How are gender and social equity issues around WHEAT R4D currently being addressed?
- How should gender and social equity issues be addressed in future WHEAT R4D in Ethiopia?

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² Ibid., 50.
The report begins with a summary of a literature review of 92 articles from peer-reviewed and secondary/gray literature. The following research questions are answered:

- How does the world look, and work, for men and women in households that rely predominantly on growing wheat?
- How do gender relations shape livelihoods in terms of nutrition, food security, and agriculture?

Next is an overview of the policy analysis results. Seven pivotal policies were subjected to a critical feminist analysis while twenty-two other policies and legislation were reviewed along with regional and international commitments to contextualize the results. The policy analysis asks two questions:

- What is the quality of Ethiopia’s agriculture and gender policies as viewed through a feminist lens?
- How can the heterogeneous needs of women working across the country in the agricultural sector be enshrined in policy?

A data mining activity follows and explains that the reason the agriculture literature and policies fail to substantially address gender may be related to the way agriculture research is undertaken. The objective of the data mining component is to find out if identity (sex, religion, age, location, marital status, education level, and ethnicity) has any bearing on wheat productivity and efficiency; and how effectively is gender and social equity integrated into WHEAT R4D survey instruments? By considering the sampling strategy and size and the division of labor question from two surveys, recommendations are made for adopting an intersectional approach to survey development.

The final section presents results from a country-level stakeholder analysis. In Ethiopia, stakeholders are defined as all those agencies that have a role to play in mainstreaming gender and social equity in WHEAT R4D (and therefore agriculture more broadly). The following questions guide the analysis:

- What is the current thinking and understanding by stakeholders about gender equality and social equity in R4D?
- Who are the main actors driving change?
- What promising practices and methodologies exist?

The report concludes that there is a need, and plenty of scope, to improve gender and social equity in WHEAT R4D and in the agriculture sector generally.

In this study, gender is understood as a social construct that refers to relations between and among the sexes, based on their relative roles and responsibilities. Gender is an intersectional analytical category that is co-constituted along with other categories such as age, ethnicity, religion and so on. Thus, gender is one social category that can shape economic, political, and social opportunities and constraints.
2. Literature review

Wheat is important to Ethiopia’s food security. Wheat and wheat products represent 14% of the total caloric intake and 20% of the total protein intake in Ethiopia. Additionally, wheat naturally contains significant levels of the micronutrients calcium and iron. In terms of the gross value of production of cereals in Ethiopia, wheat is ranked roughly equal fourth with sorghum, coming after teff, enset, and maize. Wheat is predominantly grown by subsistence farmers under rain-fed conditions and cultivated by approximately five million households.

In terms of productivity, female farm managers produce 23.4% less per hectare than male farm managers; female farm managers own less land, rent less land, and have fewer hours to allocate to agricultural production than male farm managers. The type of headship and the marital status of women matters. Married female managers are not significantly less productive than male managers, but non-married female managers are 30.2% less productive than male managers, with widowed females facing the most disadvantage. Women’s access to agricultural extension, cooperatives, and farmers’ credit services is lower than men’s, despite recent efforts made by the government. However, credit access (not just availability) from a gender perspective is under-researched. These inequalities interact to prevent women from acquiring the necessary technical skills to scale-up their agricultural activities, limiting their opportunities for advancement.

Literature shows that the poorer nutritional status of women is related to gender inequality, food insecurity and poverty in Ethiopia. Women’s education and empowerment, the wealth of the household, and diversity of production can all lead to improvements in the nutritional health of women and children. Therefore, interventions that increase women’s economic empowerment in the agricultural sector will contribute to improved child and female nutrition. Moreover, those who are well nourished are more productive. Gender-sensitive adoption studies show there is a gender gap and argue that women’s empowerment (including access to knowledge) is positively

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11 Ibid.
14 Ibid. p12
correlated with the adoption of improved crop varieties\textsuperscript{16} which bring higher yields. Empowering women farmers will increase productivity and greatly benefit Ethiopia.

The unpaid labor burden of women hinders their involvement in agriculture. Rural women work between thirteen and seventeen hours a day (more than twice that of men) and most of this time is spent on household activities such as fetching firewood, collecting water, and preparing food.\textsuperscript{17} The 2013 Ethiopian Time Use Survey (ETUS) found major gender differences in the average time spent on productive and non-productive activities and on paid and unpaid work.\textsuperscript{18} In 2014, 94\% of rural women were involved in extended earnings-related activities\textsuperscript{19} (up to 6 hours per day) compared to 59\% of men (up to 4 hours per day).\textsuperscript{20} Despite women’s involvement in home and farm-based agriculture, only men are considered to be “farmers.”

There is a gendered division of labor in rural areas that varies by location and crop. Women tend to concentrate their efforts on the production of staples for consumption and other food crops that can be easily sold locally e.g., within a village or local marketplace. In contrast, men tend to concentrate more on cash crops, such as coffee, teff, and khat.\textsuperscript{21} Marketing and sales are mainly done by men along with land preparation.\textsuperscript{22} Sometimes women can sell their vegetables, but their degree of control over that income remains debatable.\textsuperscript{23}

Some studies suggest that increasing resources controlled by women (including land) and access to extension services will promote increased agricultural productivity.\textsuperscript{24} However, other researchers argue that women are greatly constrained by cultural and gender norms, and this

\textsuperscript{17} CSA (2014).
\textsuperscript{19} Ibid., 8. Non-System of National Accounts (SNA) (earnings-related activities) production (or extended SNA) within the general production boundary includes domestic and personal services produced and consumed within the same household, including cleaning, servicing, and repairs; preparation and serving of meals; care, training, and instruction of children; care of the sick and elderly; transportation of members of the household or their goods; as well as unpaid volunteer services to other households, community, neighborhood associations, and other associations.
\textsuperscript{20} Ibid., 43.
\textsuperscript{22} Ibid. p57
cannot be solved by merely increasing women’s access to inputs and extension services. A study from 2017 confirmed that providing women farmers with irrigation technologies alone is unlikely to confer on women full rights over the technology. Women’s contribution to and benefit from agriculture is a complex issue that highlights the difficulties posed to women by local customary norms.

Broader social relations and economic forces shape and constrain farming and food practices. The life of a wheat farmer might usefully be portrayed as a mosaic where multiple economic forms, coping strategies, local preferences, and extra-local forces cohabit and compete. Farmers are consumers, social actors, husbands and wives, fathers and mothers, as well as livelihood providers. Farmers use resources flexibly, and scarcity of resources can prompt cooperation as well as conflict; they possess environmental knowledge and skills; they share, learn, and teach through social networks. The literature review shows that complex relationships (e.g., between land, seeds, how food tastes, and the well-being of people) are framed by farmers not only in terms of production but also social coherence, cultural values, gender, attitudes, “happiness,” and interactions with the environment. Farmers value many factors outside of productivity that may indeed affect productivity. The existing core agriculture literature lacks this context-specific information, favoring macro data instead.

Research that uses participatory and ethnographic methods, provides the most telling information on the lives of farmers in Ethiopia. It shows that farmers have competence, skills, and experience; but they frequently lack interconnectedness, opportunity, visibility, and audibility. What is required is more anthropological-sensitive and feminist research that grasps the roles men and women play in the different stages of agriculture as well as other productive and income-generating activities. This would identify the way these roles have changed over the years; whether these roles affect men’s and women’s bargaining power within and outside the household; the differences in access to crops and varieties by sex and location; and when (seasonality) and where (e.g., inside or outside the compound and in what parts of the country) activities take place. Then programs can be designed to deliver equitable impacts for men and women.

Different value systems must be considered during planning and research. Poor farmers typically do not compartmentalize their lives as readily as policymakers and implementers. On the contrary,

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http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/131375
farmers adopt—and live in—agro-ecological perspectives that bring together communities, the environment, science, politics, culture, and farming. Overall, the review finds that the scientific agricultural literature is lagging behind current practices as put forward by the United Nation’s Sustainable Development Goals (SDGs). Despite “research for development” programs, how researchers address the development aspects in low-income settings is inadequate, with the result that the agricultural literature does not take into account gender equality and social inclusion as much as the SDGs advocate. A more holistic approach to agriculture-related R4D is required, and one that considers all the SDGs. Targeting only the “mainstream” overlooks the rich diversity of Ethiopia’s people, climate, and (agri)culture.

Development and research are still separate endeavors. More mixed methods, employing interdisciplinary and applied research, is needed in agricultural science. Methods that enable women and other marginalized social segments to participate and be valued for the knowledge they contribute (feminist methods) are required. Any meaningful policy discussion regarding wheat, household food security, and livelihood choices would benefit enormously from the collection of local views on food, notions of healthy eating, dietary needs, and (agri)cultural change. This could help extension agents frame technical knowledge in terms of local perceptions, language and understanding and this would help spread agriculture advancements.

3. Policy analysis
This section presents the results from a critical feminist analysis of Ethiopia’s gender and agriculture policy landscape. Ethiopia has made significant gender commitments into consecutive national development plans: the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) (2005/06-2009/10); the Growth and Transformation Plan (GTP) I (2010/11 – 2014/15) and GTP II (2015/16-2019/2020). These plans have improved women’s lives in rural areas by increasing their access to services, knowledge, credit, and resources. However, agricultural policies in Ethiopia have integrated gender equality inconsistently throughout the years and there is a tendency to focus on women, rather than gender.

Ethiopia has a mixed record when it comes to applying international conventions on gender (and other human rights). The critical feminist analysis of Ethiopia’s policies shows that Ethiopian domestic policies are not well aligned to international and regional conventions. There are many contradictory views about women in Ethiopia’s policy space and the laws enacted are more progressive than the policies that implement them, in terms of women’s equality. Gender norms and socio-cultural factors are considered only superficially by the policies examined. Consequently, implementation of these laws and policies are confronted with local customary practices and norms but do nothing to address the need for changing these norms and practices.

According to stakeholders, the Ministry of Women and Children’s Affairs (MoWCA) has low capacity and this is evidenced by the policy regression on gender and lack of alignment with national and/or international treaties. However, this regression cannot be discussed without
reference to the Charities and Societies Proclamation (No. 621/2009)\textsuperscript{28} that decimated women’s rights organizations and prevented a women’s movement from building, something considered essential in the literature to advancing women’s rights.

The development direction set by the GoE influences agricultural policy making. Where women’s rights were once mentioned, and even the term gender used, the latest national policies and development plans only emphasize women’s inclusion and participation. Few solid gender targets are set. The Agricultural Sector Policy and Investment Framework (PIF) 2010–20 followed by the Growth and Transformation Plan (GTP) II 2015–20, are examples of policies with poorer results in terms of the integration of gender equality. Meanwhile, the National Action Plan for Gender Equality (NAP-GE) 2006–10 and the Gender Equality Strategy for Ethiopia’s Agriculture Sector (GESEA) 2017 are the policies that best mainstream gender, aim to empower and include different types of women, hold a structural understanding of gender inequality, and integrate regional and international gender equality commitments.

None of the policies reviewed address the disparity in the unpaid workload between men and women. Although a number of policies, especially in the agriculture sector, mention the need to reduce women’s workloads, targets and indicators are not set, and programs are not developed. Consequently, many policies have added to women’s workload by mandating their participation. This observation is concordant with studies from researchers like Ogato (2013)\textsuperscript{29}, who argue that most agricultural development efforts have been gender neutral. Warner et al. (2015)\textsuperscript{30} also affirm, agricultural policies have disproportionately benefited male farmers and left female farmers in a disadvantaged position.

To achieve effective gender mainstreaming, the policy making process should include women, so they have a say in the direction of assistance they receive and, different types of women should be mentioned throughout the policy. Although a few policies mention female-headed households, this is often a synonym for all women. Very rarely are women understood as a heterogenous category. Women’s needs and citizenship should be more broadly understood than what is presented in the national development plans and gender policies. Women’s issues tend to be isolated to a separate section.

\textsuperscript{28} Article 14 (5) of CSP No. 621/2009 says that Foreign and Ethiopian Resident Charities are not allowed to work on human and democratic rights, religious, ethnic or gender equality, child rights and the right of disabled persons, conflict resolution and reconciliation, and supporting justice and law enforcement sectors. In effect this means that only local NGOs that do not receive more than 10% of their funds from foreign sources can discuss gender equality or women’s rights in Ethiopia.


All policies should include a comprehensive gender analysis within the formulation process to ensure that the strategies and measures proposed are consistent with the realities of the men and women they target. The approach to gender equality in policies should move to address the structural causes of inequalities, including at the intra-household and community levels. Overall, there is a need to recognize the existing power relations in society (and institutions) that contribute to the perpetuation of gender inequalities and to employ strategies to change these unequal relationships (i.e., involving men and women who represent different parts of the country, religions, and ages) and involving men in the struggle for gender equality.

The Charities and Societies Proclamation No. 621/2009 should be revised to allow for the promotion of women’s rights by foreign and domestic resident charities. There is need for a stronger domestic constituency and more grassroots activism on women’s rights to ensure Ethiopia has its own gender equality agenda that suits the nation. Active women’s movements help shape policies and keep MoWCA accountable for gender equality. Consequently, the role of the government-led Women’s Development Army (WDA) should be better defined and their power in local decision-making structures (especially those relating to agriculture) enhanced. The lack of a domestic women’s movement means the MoWCA is focused outward, reporting to the UN and regional bodies but with little capacity and time for domestic alignment and oversight.

Ethiopia likes to—and should—set its own development agenda. Therefore, using existing reform-minded agricultural policies, evaluating their impact on women, and taking these results to the MoWCA and the National Planning Commission could be a key strategy to effectively influence the next national development plan and gender policy. Using evaluation and evidence to shift mindsets and practice has worked with the development of Ethiopia’s Productive Safety Net Program (PSNP) when the technical and financial support occurs behind the scenes. Until then, Ethiopia’s gender and agricultural policies do not protect all women and do not help single women or FHH to cope with life’s risks.

Women do not just need to be integrated into agriculture policies, but agriculture policies should put women at the center. Gender norms and socio-cultural aspects (like the double work burden for women or the gender-labor divide) need to be considered and overcome in all agricultural interventions. Otherwise, policies run the risk of not only perpetuating gender inequalities but also reinforcing the subordinate position of women within families and communities. Improving the gender orientation of agriculture policies requires revamping MoWCA and all women’s affairs departments into gender departments. Addressing the root causes of women’s subaltern status is overdue, and this includes the different needs of different kinds of spouses and FHH involved in agriculture.

4. Data mining
This section explains that the lack of literature and policies that substantially address gender may be related to the way agriculture research is undertaken. Descriptive statistics, including estimation of mean, proportions, and production of charts, were used along with t-tests and chi-square tests to mine two surveys for information about gender in wheat growing households.
While not a large sample, the evidence suggests that agricultural surveys are not always gender responsive.

4.1 The International Maize and Wheat Improvement Center’s (CIMMYT’s) panel wheat dataset

In Ethiopia, a farm-household survey conducted in 2009/10 (n=1974) by CIMMYT in collaboration with the EIAR was chosen as the most detailed wheat dataset available. The Ethiopian wheat dataset used a stratified two-stage random sampling technique. Stratification was made both by agro-ecological zone and regional states, the latter consisting of Amhara, Oromia, Southern Nations Nationalities and People Region (SNNPR), and Tigray. Randomization took place at kebele (village) and household levels. For each kebele sample, survey supervisors randomly selected 15–18 (on average 16) sample households from the household list. Male enumerators were used.

While it is encouraging to see female-headed households (FHHs) as respondents, the samples across regions are not comparable by age or sex. Given Ethiopia’s diverse terrain and socio-cultural characteristics, this may limit the conclusions able to be drawn from the study. Moreover, the total FHH respondents represent 7.8% of the total sample, which is not in proportion to the national average of 26.1% FHH. Figure 1 shows the age and sex of respondents and shows the way the sampling method is executed renders women and youth less visible.

![Figure 1: Age and sex of CIMMYT survey respondents in four regional states](image)

Source: CIMMYT Ethiopia survey data.

4.2 International Food Policy Research Institute (IFPRI) pilot Input Voucher System survey

For more details of the sampling procedure and methodology used in the survey see Bekele Shiferaw et al., “Adoption of Improved Wheat Varieties and Impacts on Household Food Security in Ethiopia,” *Food Policy* 44 (February 2014): 273.
The second survey chosen for the data mining exercise was commissioned by the Ethiopian ATA and undertaken by the International Food Policy Research Institute (IFPRI). It was designed to understand the gendered impacts of the 2014/15 Input Voucher System (IVS) at both the institutional design and implementation level and the subsequent initial effects the intervention has had at the household level.

The IFPRI chose seven woreda (districts) in the three zones indicated in Figure 2 and 394 households. A multistage sampling procedure was followed to select the total sample of kebeles (villages) and then the households based on headship and IVS participation. The number of kebeles chosen from each woreda was based on the probability proportional to size (PPS) approach. “Out of intervention area households” were divided evenly between male- and female-headed households. Of the MHH in the dataset, those that had a female spouse were issued with separate questionnaires. Finally, two teams of six persons each (40% female) collected the data during December 2015.

The IFPRI survey was included in the data mining aspect of the project because it asked questions about wheat (although it was not wheat focused) and had, uniquely, interviewed as many FHH as female spouses in MHH. This enables women’s responses to be compared between women who head a household versus those women who live in a MHH. This approach is rare in agricultural surveys of this kind, but it should be encouraged because there is very little data on spouses in rural areas. Figure 2 highlights that this IFPRI survey sample is more inclusive, comparable, and representative by location and by women, than the CIMMYT survey discussed in section 3.1. The IFPRI survey demonstrates that it is possible to use female enumerators in a patriarchal society and to interview equal numbers of spouses and FHH. Interviewing equal numbers of female spouses as FHH is beneficial as it makes women’s role in agriculture more visible.

**Figure 2: Sample size in three zones of Amhara regional sate**

<table>
<thead>
<tr>
<th>Study zones</th>
<th>Male household</th>
<th>Female household</th>
<th>Spouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Shewa</td>
<td>40</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>East Gojam</td>
<td>78</td>
<td>76</td>
<td>80</td>
</tr>
<tr>
<td>West Gojam</td>
<td>80</td>
<td>79</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>198</td>
<td>194</td>
<td>199</td>
</tr>
</tbody>
</table>

*Source: IFPRI Ethiopia survey data.*
Figure 3 shows the age of respondents interviewed in the IFPRI survey. There are more young people interviewed in this survey than the CIMMYT survey: twenty respondents were aged 15–24 (3.33%) and 122 were aged 25–34 (20.3%). The bulk of the youth were spouses, indicating the low marital age of girls in Ethiopia.

![Figure 3: Age of the household head and spouse of the IFPRI survey respondents](image)

Source: IFPRI Ethiopia survey data.

4.3 Discussion of sample demographics in CIMMYT and IFPRI surveys

Neither the CIMMYT or IFPRI survey is representative of youth. The 2012 national-level land-use survey shows that youth (18–29 years) account for 21% of rural landholders in Ethiopia. A recent nationally representative survey in Ethiopia showed that the youth and adolescent populations account for 41% of the total population in 2011. Given that youth do a lot of agricultural labor, although not as household heads, it may be necessary to step outside the tradition of interviewing household heads so that youth farmers can be specifically targeted. Furthermore, given the prevalence of child marriages in Ethiopia, interviewing spouses will help to gather the views of young female farmers. In most districts there are similar numbers of men and women, so interviewing spouses and FHH should be included to obtain a more accurate picture. To not interview women is to ignore 50% of the farmers.

4.4 Division of labor: data from CIMMYT survey


In the division of labor question from the CIMMYT survey instrument, agricultural activities are broken down into four components and respondents were asked to record total labor in person-workdays per plot stratified by male and female. The data is summarized in Figure 4.

Figure 4: Division of labor for agricultural activities (CIMMYT survey)

There are some anomalies for the division of labor by plot (Fig. 4). For example, when male and female workdays for each activity are combined, the data suggests FHH spend 6.5 days weeding and MHH spend 9 days weeding; FHH spend more time in land preparation (5.85) than MHH (5.19); FHH spend less time in harvesting (5.6) than MHH (6.42); and FHH spend less time threshing/shelling (2.79) compared to MHH (3.64). Given that weeding is deemed “women’s work”, and given respondents recorded labor time by plot, it appears odd that FHH would spend less time weeding than MHH.

The difference in reported divisions of labor between FHH and MHH raises many questions. Why is there such a difference between the hours each spend on their wheat plots? The relationship of male enumerator to female respondent and power inequities, along with gender norms and expectations may influence the results. For example, women may answer quickly to escape the interaction with a man; or, since her workload is twice that of a man, she may be too busy to stop and answer surveys or she may not seek clarification on the question when required. Similarly, men may not know how much time female household members spend on certain activities if the work is unpaid. There could be a range of plausible explanations and more research should be done to test how surveys can attain better data from FHH and female spouses in MHH who perform agricultural activities.

Source: CIMMYT Ethiopia survey data.

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4.5 Division of labor: data from IFPRI survey

The division of labor question from the IFPRI survey instrument breaks down agricultural activities into seven categories and asks a clear question: “In growing the crop on this plot, please identify how many total male and female work days were used for each identified activity.”

Female workdays are more visible in the IFPRI survey than in the CIMMYT survey (Fig. 5). This could be associated with a range of factors, including the greater number of spouses and FHH interviewed and the fact that female enumerators were used. Land preparation results are similar to those reported in the CIMMYT-Ethiopia survey, but weeding results show a greater balance between the sexes. Unfortunately, the harvesting results are non-comparable because IFPRI includes post-harvest in the same category as harvest. FHH also report similar days worked as MHH overall because wheat plots require a similar amount of work, regardless of the sex of the owner. It also illustrates that FHH rely on male labor almost as much as MHH. Hence, surveys that interview men and women from the same house, and interview FHH give more accurate data.
Figure 5: Division of labor for agricultural activities (IFPRI survey)

Source: IFPRI Ethiopia survey instrument.
4.6 Cost of inputs: data from CIMMYT survey

The CIMMYT dataset suggests that women are disadvantaged by the market because they pay more for fertilizer and herbicide. Diammonium phosphate (DAP) and urea fertilizers are regulated by the GoE so there should not be any sex-related or region-specific differences in prices charged per area, but this is not the case. Herbicide is not regulated by the government and the biggest sex and region discrepancies are observed in these sales.

Table 1 depicts the average price per kg of DAP, which varies across the four regional states despite farmers/landowners in Ethiopia buying fertilizer directly from government suppliers and the GoE setting the price. Meanwhile, table 2 shows less variation in urea pricing by region. It is not clear why the government would charge different prices. These regional price variations need to be better understood so that the differences can be controlled for when studying differences attributed to gender inequities. It also suggests that other factors aside from rainfall and access to fertilizer may affect a farmer’s livelihood.

Table 1. Distribution of mean per kg cost of DAP fertilizer across regional states

<table>
<thead>
<tr>
<th>Region</th>
<th>Mean price per kg (in ETB)</th>
<th>Standard deviations</th>
<th>No. observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigray</td>
<td>15.00</td>
<td>1.10</td>
<td>68</td>
</tr>
<tr>
<td>SNNPR</td>
<td>16.21</td>
<td>1.30</td>
<td>132</td>
</tr>
<tr>
<td>Amhara</td>
<td>14.36</td>
<td>1.48</td>
<td>317</td>
</tr>
<tr>
<td>Oromia</td>
<td>15.40</td>
<td>1.60</td>
<td>470</td>
</tr>
<tr>
<td>Total</td>
<td>15.14</td>
<td>1.61</td>
<td>987</td>
</tr>
</tbody>
</table>

Table 2. Distribution of mean per kg cost of urea fertilizer across regional states

<table>
<thead>
<tr>
<th>Region</th>
<th>Mean price per kg (in ETB)</th>
<th>Standard deviations</th>
<th>No. observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigray</td>
<td>12.09</td>
<td>1.48</td>
<td>67</td>
</tr>
<tr>
<td>SNNPR</td>
<td>12.80</td>
<td>1.49</td>
<td>92</td>
</tr>
<tr>
<td>Amhara</td>
<td>12.37</td>
<td>1.33</td>
<td>278</td>
</tr>
<tr>
<td>Oromia</td>
<td>12.72</td>
<td>2.05</td>
<td>186</td>
</tr>
<tr>
<td>Total</td>
<td>12.51</td>
<td>1.63</td>
<td>623</td>
</tr>
</tbody>
</table>

Table 3 shows that the per liter cost of herbicide also varies across regional states, with farmers from Oromia paying the highest and farmers from Tigray paying the least.

Table 3. Distribution of mean per liter cost of herbicide across regional states

<table>
<thead>
<tr>
<th>Region</th>
<th>Mean price per liter (in ETB)</th>
<th>Standard deviations</th>
<th>No. observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigray</td>
<td>84.89</td>
<td>42.11</td>
<td>6</td>
</tr>
<tr>
<td>SNNPR</td>
<td>110.15</td>
<td>40.97</td>
<td>73</td>
</tr>
<tr>
<td>Amhara</td>
<td>126.97</td>
<td>46.29</td>
<td>58</td>
</tr>
<tr>
<td>Oromia</td>
<td>184.71</td>
<td>512.35</td>
<td>353</td>
</tr>
<tr>
<td>Total</td>
<td>165.55</td>
<td>436.41</td>
<td>490</td>
</tr>
</tbody>
</table>

Table 4 shows that women pay more for herbicide than men, though the variation is statistically insignificant. Tables 5 and 6 also show that the average price paid for DAP and urea also varies between men and women, but not statistically significantly.
### Table 4. Distribution of mean per litre cost of herbicide by sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mean price per liter (in ETB)</th>
<th>Standard error</th>
<th>No. observations</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>181.07</td>
<td>44.73</td>
<td>33</td>
<td>0.2113</td>
</tr>
<tr>
<td>Male</td>
<td>164.43</td>
<td>20.89</td>
<td>457</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>165.55</td>
<td>19.71</td>
<td>490</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Distribution of mean per kg cost of DAP fertilizer by sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mean price per Kg (in ETB)</th>
<th>Standard error</th>
<th>No. observations</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>15.02</td>
<td>0.14</td>
<td>76</td>
<td>−0.6286</td>
</tr>
<tr>
<td>Male</td>
<td>15.15</td>
<td>0.05</td>
<td>911</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15.13</td>
<td>0.05</td>
<td>987</td>
<td></td>
</tr>
</tbody>
</table>

### Table 6. Distribution of mean per kg cost of urea fertilizer by sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mean price per Kg (in ETB)</th>
<th>Standard error</th>
<th>No. observations</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>12.76</td>
<td>0.20</td>
<td>49</td>
<td>1.1239</td>
</tr>
<tr>
<td>Male</td>
<td>12.48</td>
<td>0.07</td>
<td>574</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12.50</td>
<td>0.07</td>
<td>623</td>
<td></td>
</tr>
</tbody>
</table>

Herbicide is needed for improved wheat varieties. If women pay 20ETB more per litre, this additional cost would curb their risk-taking buffer needed to innovate. The CIMMYT dataset does not have enough comparable observations by sex and region to draw firm conclusions as to why these discrepancies exist. It may be that women are deliberately charged more as they are seen as less able to bargain and less likely to have protective and well-networked kin available to demand recourse. Perhaps with more comparable datasets, more robust conclusions could be drawn about market-based inequalities by sex and region.

#### 4.7 Data mining conclusion

Several factors affect a farmer’s chances of having his or her needs represented in policy. The lack of literature and policies that substantially address gender may be related to the way agriculture research is undertaken. While not all policies are evidence-based, agricultural surveys do frequently shape agricultural policymaking and practice. If these surveys do not have a representative sample of women and youth by geographical location, then policies will be based solely upon a male, older farmer. This will lower the chances of success for more marginal farmers and women farmers, and it will perpetuate patriarchy. Moreover, it means that identity (sex, religion, age, location, marital status, education level, and ethnicity) may have a bigger bearing on wheat productivity and efficiency than necessary.

The failure to include more diverse methods, enumerator teams, and sampling strategies contributes to the failure of agricultural policies to improve food security and reduce food vulnerability. Relationships between male and female farmers within a household and between households are complicated and require further investigation if agricultural survey data is to become more reliable. A household head may not have knowledge about the entire house and farm, especially with regards to how their spouse spends every hour of every day. The IFPRI survey interviewed spouses in addition to household heads, resulting in datasets with better
visibility for women who perform agricultural labor. Moreover, understanding some of the realities of women’s lives prior to their becoming household head is immensely important for understanding the causes and nature of poverty. This emphasizes that women’s visibility is important when categories and methodologies for research are chosen, and why producing better disaggregated data across categories is a necessary step in resolving the issues of gender inequities and poverty.

Surveys should define what they mean by FHH in the survey instrument and describe how this definition is relevant to the country context in the analysis. This has relevance because marital status (widow, divorced, abandoned, husband migrated temporarily for work) will have a bearing on access to technology and other opportunities given the social stigma surrounding some of these identities. There is no definition for FHH in either the CIMMYT or IFPRI survey instrument.

Improving gender-sensitive data collection and including other intersectional criteria within national statistics and data collection mechanisms are essential. Moving beyond surveying household headship is needed to really understand women’s realities and what goes on within farming households. Project interventions should be designed to build on the lived experience of Ethiopian farmers through purposively sampling diverse agro-ecological and population segments. Revising the CGIAR sex disaggregated data minimum guidelines\(^{35}\) to include intersectionality is advised to ensure datasets capture the needs of different kinds of women and men across ages, abilities and regions. It may even be necessary to audit survey instruments for their inclusiveness. The current practice of agriculture research illustrated through these two survey examples underscores the importance of integrating gender and social equity into WHEAT R4D.

5. **Stakeholder analysis**

This section presents a summary of the results from a country-level stakeholder analysis and it confirms that the capacity of researchers to integrate gender in their work is very low.

According to the gender audit completed as part of this project\(^{36}\), EIAR’s researchers did not know how to collect gender-responsive data across the research cycle or how to analyze any gender data they did collect, and they also lacked access to gendered literature. The result is a lack of Ethiopian publications on gender relations in agriculture. The internal operating environment of the EIAR is masculine, whereby men are the dominant sex and male ways of operating are preferred and male ways of knowing are the norm. The EIAR can potentially have a huge impact on improving food security if it can better mainstream gender and social equity across the organization.

EIAR wants more support to better mainstream gender. An overwhelming percentage of online survey participants agree that the promotion of gender equality fits into the image of the institute and EIAR has a gender focal person in every Centre. This presents a tremendous opportunity for improving gender equality at EIAR. Moreover, a new Director General, who is


\(^{36}\) See: EIAR’s gender audit: [https://repository.cimmyt.org/handle/10883/19679](https://repository.cimmyt.org/handle/10883/19679)
a gender advocate, began in EIAR in 2018. Recommendations from the audit have already begun to be implemented, and henceforth the value of undertaking gender audits is that they can provide a clear direction for change.

Of the sixteen centers who are members of the CGIAR Research Centers consortium, fifteen have offices in Ethiopia. The CGIAR Research Centers work to build the capacity of national agriculture research systems in low-income countries such as Ethiopia. The focus on gender research is limited within CGIAR in Ethiopia, as only four of the centers that have an office there have a gender expert employed within a project. In theory, CGIAR centers should mainstream gender, but this is a more recent development that requires solid leadership support, technical expertise, resources, and institutionalization. At the headquarters level, most CGIAR centers have a gender leader who is too stretched to visit all countries and build the capacity of the national agriculture research systems. Without country-level gender researchers and advisers, it is unclear who will build the gender research capacity of national agriculture research institutes, like EIAR.

The stakeholder analysis shows that gender mainstreaming is poorly done across all institutions that work in Ethiopia’s agricultural sector, with the exception of some high-performing international nongovernmental organizations (NGOs). GoE has a policy framework in place for mainstreaming gender in agriculture and in government institutions that should be applied. Despite the commencement of the Gender Equality Network for Ethiopia’s Agriculture Sector in late 2015, there is still a lack of coordination between gender advisers/units and intra- and inter-organizational actors. Some of the current institutions in Ethiopia tend to think that they “mainstream gender” when in fact they include women. Many institutions lack the expertise to deliver gender results. More research on what a gender friendly institution looks like and what gender mainstreaming results look like is required. Greater accountability is then needed to ensure gender is actually mainstreamed.

Seven transformative methodologies that deliver results for gender equality were identified from stakeholder interviews. This is a missed opportunity for wheat researchers to partner with, learn from, and help improve the practice of gender mainstreaming in agriculture research. Fortunately, the large multi-donor Agricultural Growth Program implemented by MoANR, EIAR and ATA has picked up on the transformative methods reviewed and will be teaching one of the methods to extension workers. However, the EIAR has little experience with qualitative and participatory methods. This is a necessary first step for transformational methods to be applied successfully across the country.

Additionally, safety in the field is a concern because sexual harassment is a reality for some female enumerators and research institutions lack policies that safeguard against this. This makes it harder to recruit female enumerators and, thus, harder to capture data from women. Continuing with the ad hoc, weakly mainstreamed approach of just counting numbers of female participants and possibly collecting some sex disaggregated data is insufficient to

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37 See: https://www.cgiar.org/research/research-centers/
39 For more information on AGP please see the baseline report: http://essp.ifpri.info/files/2013/03/ESSPII_EDRI_Report_AGP_Baseline.pdf
deliver the change required. The challenge of delivering the gender equality changes in a patriarchal country cannot be underestimated.

Diversity and intersectionality should be incorporated into agriculture research. The GoE has a disability policy, but agriculture programs and research centers do not mainstream disability issues and have not done any research on the people living with disability who work in the agriculture sector. Youth is another demographic that could be amenable to positive interventions that are not associated with political controversy. There are many other categories of exclusion that should be explored within Ethiopia including religious minorities and low productivity areas. Gender equity policies can only truly be effective if they incorporate intersectionality. The prerequisite for this is agricultural research and institutions collecting a variety of data from different population segments and then understanding how different statuses and modes of oppression and discrimination affect productivity and life changes.

Once the capacity and commitment of agriculture researchers improves, they should help state-owned enterprises and the private sector improve their outreach to women by developing gender-friendly products and services. Couple training, mobilizing women into groups, improving their confidence and offering basic financial literacy skills are examples of gender-friendly services that the private sector could offer while a mechanized wheat grinder would be a gender-friendly product. Development partners should also collaborate with seed companies and other private stakeholders to enhance equitable access to improved seeds and related inputs at affordable prices. Women are disadvantaged by the market more than men and the SDGs include working with businesses to fight poverty. The stakeholder analysis revealed that the private sector does not regularly consider women as consumers, nor understands gender inequality. Much work is needed to improve women’s market access to wheat products, improved seed varieties and necessary inputs.

For agriculture researchers to better mainstream gender, they need to allocate more funds toward gender research, experiment with feminist methods, build links with stakeholders who are transforming gender norms, and participate in gender networks to strengthen their expertise.

6. Conclusion

In Ethiopia’s agricultural sector there are many compounding factors that keep women poorer and more disadvantaged compared with men. The unpaid labor burden of women hinders their control over resources. The gendered division of labor varies by location and crop, with unexplored impacts on families that commercialize (i.e., move from growing for self-consumption to growing for profit through selling their produce). Intra-household relations and the differential impact of wheat-growing technology on men’s and women’s welfare is also insufficiently studied. In Ethiopia, women’s subordination is pervasive in society, and is reinforced by institutions (formal and informal); this manifests in the lower visibility of women in the available data.

In general, women’s role and participation in agriculture has not been well documented. There is a lack of representative sex-disaggregated data, and the majority of studies/policies focus on

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female-headed households (FHH) as the only analytical category, leaving all other categories of women, such as women living in male-headed households (MHH), almost entirely unaddressed. Moreover, groups of women in need of protection, such as the disabled and abandoned, are invisible to legislators and policymakers. Overall, the scientific agricultural literature is lagging behind current practices as put forward by the United Nation’s Sustainable Development Goals (SDGs). Better integration of gender and social equity into WHEAT R4D is one way to help Ethiopia meet its development goals.

Despite R4D programs, how researchers address the development aspects in low-income settings is inadequate, with the result that the agricultural literature does not take into account gender equality and social inclusion as much as the SDGs would advocate. Different methods and approaches, aside from household surveys are needed. Agricultural practice would also benefit from having anthropologists in rural areas study how agriculture innovations are passed on via gendered networks. Similarly, participatory plant breeding and other participatory methods would help keep male and female farmers involved and make central research programs more responsive to their needs. Feminist methods that reduce power inequities in the way they collect data, co-create solutions, analyze the data and ensure women’s voice are heard should be used more regularly. The existing core agriculture literature lacks the context-specific information required to change gender norms.

Gender policies, agricultural policies, and national development plans do not address social norms and only a handful of NGOs tackle this delicate issue. Ethiopia’s national agricultural research system is not equipped to understand and take on ideas about gender and to deliver transformative methods to help effect gender equity. On one hand, it makes sense to have CGIAR play this role given its association with agriculture. However, the gender research capacity within CGIAR and its operating environment is not conducive to feminist or participatory methods.

Wheat researchers should adopt an intersectionality and inclusion agenda, explore mixed methods and feminist methods, and conduct multidisciplinary studies. In particular, there is limited engagement between researchers and women and between researchers and excluded groups (i.e., the disabled and abandoned who are not the most productive). Women’s empowerment should be a component in all research projects. Diverse agro-ecological and excluded population segments should be purposively sampled. With more gender-sensitive data, evidence-based policy decisions would lead to improvements for women. This would require more female researchers and senior gender advisers to be employed by the CGIAR and EIAR. Until then, gender and social equity issues will continue to be inadequately addressed by wheat researchers in Ethiopia.

Women’s contribution to and benefit from agriculture is a complex issue. While Ethiopia has made relatively great strides in improving the situation of women, there is a need to capitalize on this progress and speed up the rate of change so that women can take advantage of opportunities to improve their productivity and help their advancement. Ethiopia’s policy history shows the value of leadership in delivering improvements for women. The current reform-minded prime minister, Abiy Ahmed Ali, has gender equality on his radar, as does the current Director General of the EIAR (who recruited 100 female scientists in November 2018). To capitalize on this appetite for change, more long-term, in-country capacity building is
needed for gender mainstreaming, gender-responsive research, and incorporating gender in project design and evaluation. A gender and agriculture specialization should be taught at Ethiopian universities as a long-term solution to the capacity gap.

There is plenty of scope for improving how gender and social equity issues in agriculture research are currently being addressed. Moreover, it has been well documented that investing in women and girls results in significant returns both economically\(^{41}\) and increased agricultural productivity\(^{42}\), the latter being a priority for the GoE if it is to meet its food security aims. It is not only an opportune time to be working on gender in Ethiopia’s agricultural sector, it is essential for the growth of the nation.

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\(^{42}\) Aguilar et al. (2014).