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Capturing Women's Voices in Agricultural Research: Lessons Learnt from Four Quantitative Studies



A Case Study by IGNITE
July 2024

The Impacting Gender and Nutrition through Innovative Technical Exchange in Agriculture (IGNITE) project was a technical assistance programme, implemented by Tanager and its learning partners, in four African countries from 2018–2024. The project supported 35 African agricultural institutions across 18 countries to integrate gender and nutrition into their business operations and agricultural interventions.

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Introduction

Agricultural institutions throughout Africa have become more interested in including gender approaches and analysis in agricultural research. Strategically designing research to include both women and men's voices – both adults and youth – is a vital first step to exploring gender in agriculture in any project. This case study outlines lessons learnt from four gender-sensitive agricultural research studies¹ led by IGNITE in Ethiopia, Nigeria, and Tanzania, in partnership with four IGNITE clients. These were quantitative studies.

The case study is structured around four guiding questions that researchers and monitoring and evaluation (M&E) professionals should ask themselves when designing a gender-sensitive study. IGNITE provides concrete examples of decisions the research team made to ensure women's and female youth's voices were captured in the study and give

recommendations for other researchers studying gender in agriculture.

Four Guiding Questions for Gender Researchers

When conducting quantitative gender-sensitive research there are numerous strategic decisions that a team needs to make during the design, sampling, and field planning phases, to ensure representation of women. Researchers and M&E professionals should think carefully about how these decisions can lead to bias in the data, or worse, the exclusion of entire subgroups of the population of interest. Based on experience in Ethiopia, Nigeria, and Tanzania, IGNITE recommends asking the following four guiding questions when planning data collection.

¹ The four studies were Intra-household Decision Making and Teff Farming in Ethiopia; Time Savings from Mechanization for Cassava Farmers in Nigeria; Women's Inclusion in Wheat Extension Training in Ethiopia; and Volunteer Farmers and Entrepreneurship in Tanzania.

Question 1: Who is in the population of interest?

After identifying the research questions, the research team should identify who the population of interest is. For example, in IGNITE's study on decision-making with teff farmers in Ethiopia, the population of interest was adult men and women in teff farming households in Gonji Kollala and Yielmana Densa woredas in the West Gojjam zone of Amhara regional state.

When conducting a qualitative study, the research team will likely be able to purposively sample men and women from the population of interest. However, in a quantitative household survey, once the population has been identified, the next step is to compile a complete list of the population to allow the research team to understand the composition of the group, including how many are women and how many are men. For many projects, male and female youth may also be a group of interest, so it is important to include them in the listing as well. The listing is important for sampling decisions, to ensure that women are accurately represented. Knowing the proportion of men and women in the population of interest allows the researchers to adjust for any imbalances in the sample using inverse probability

weights, which allow for estimates to reflect the actual distribution of the population. This way, if the proportion of women in the sample is smaller than their true share in the population, female respondents will receive a higher weight in the data, to improve the representativeness of the sample.

Listing exercises¹

Where does one get such a list? It depends on the population, but often in quantitative agricultural research, a listing exercise is conducted. For three of the four IGNITE studies in this case study, some form of listing exercise was required. These exercises can be time consuming and tedious but are essential for ensuring the study includes perspectives from a representative cross-section of the actual population. They might be conducted at a group level (e.g., by acquiring lists from a village leader or existing group structure, like a farmer training group), or at a household level (e.g., by visiting each household in a village and conducting a short survey).

For IGNITE's two studies in Ethiopia (one with teff farmers; the other with wheat farmers), for example, the research team opted for two different listing strategies. For the teff study, gathering basic information on farmers (e.g., name, sex, contact

ቁጥር	የጾታ ስም	ጾታ	ዕድሜ	ጠቅላይ	የሰብሰቢ	የተከሰተ	ሌላ	የተገኘበት
1		ወ	40	ጠቅላይ	0.25			
2		ወ	40	21	0.25			
3		ወ	56	21	0.25			
4		ወ	50	21	0.25			
5		ወ	41	21	0.25			
6		ወ	40	21	0.25			
7		ወ	60	21	0.25			
8		ወ	50	21	0.25			
9		ወ	30	21	0.25			
10		ወ	50	21	0.25			
11		ወ	40	21	0.25			
12		ወ	40	21	0.25			
13		ወ	38	21	0.25			
14		ወ	55	21	0.25			
15		ወ	40	21	0.25			

Photo: Laterite (2021). Hand-written list of farmers in a farmer group in Ethiopia (anonymised)

¹ For detailed information on listing exercises, please refer to the Demographic and Health Surveys (DHS) Program's Sampling and Household Listing Manual: <https://dhsprogram.com/publications/publication-dhsm4-dhs-questionnaires-and-manuals.cfm>

information) was sufficient for sampling needs. Therefore, a group level listing was employed at the development agent² (DA) level, which involved asking DAs for up-to-date lists of each farmer group they manage. For the study with wheat farmers, the research team opted for a two-stage listing exercise, which started with a similar DA listing, but then proceeding to a household-level listing of a randomly sampled sub-group, to gather more detailed household level information on the women living in the households. This additional household-level listing ensured that comparisons could be made between different sub-groups of women in the study (e.g., women attending women-only extension groups; women attending mixed-sex groups).

Question 2: Within the population of interest, who will you speak with?

Once you have a complete list of your population of interest, including men, women and youth, the next step involves choosing participants (sampling) from that list who will help you to answer your research questions. Depending on the study objectives there are numerous strategies that can be employed, but from a gender perspective, it is important to consider stratification and respondent selection within households.

Stratification³

Stratification is a sampling strategy that involves classifying members of the population of interest into distinct groups (e.g., by gender, by age, by location), and then intentionally sampling from each 'strata' in pre-determined proportions. When a particular stratum is of great importance to the research questions (in our case, gender) it is prudent to include stratification of the sample to ensure that adequate numbers of each classification (in this case, men and women) are included in the sample. Using simple random sampling does not guarantee this, especially when there are no equal proportions of the different strata (e.g., women and men) in the population. For example, if the population includes 80% men and 20% women, a random sample will likely yield a similar split. For gender researchers, stratification guarantees that both women and men will be included in the final sample.

For IGNITE's study with wheat farmers in Ethiopia, we stratified the population to capture the views of three groups of women:

- 1) women who participated in women-only video extension training;

- 2) women who participated in mixed-sex video extension training;
- 3) women who were not trained personally but who live in a household where a man was trained.

The use of stratification in this case ensured we had adequate representation of women in each of these groups in our sample to answer our research questions.

Respondent selection within households

Most agricultural surveys approach the household as a unit, speaking to one person per household and taking those responses as representative of the entire household. These studies often focus on one 'household head', usually male, who is presumed to represent the household. There are clear problems with this approach if the goal is understanding the perspectives of women, or understanding the perspectives of different household members as they relate to each other with respect to gender. Depending on the research objectives, it may be beneficial (or necessary) to speak to more than one member of the household. When the primary aim of the research is to explore gender-specific factors and intra-household decision-making, the best approach is to speak to more than one person per household. This is done to gain multiple perspectives in the household, and to speak to women (who are often not the primary respondent of agricultural household surveys, regardless of the crops explored).

For IGNITE's study with teff farmers in Ethiopia, the primary research question focused on gender-specific drivers of best practice adoption. Understanding this process, including how men and women differently perceived their role and involvement in the decision-making, involves speaking with both men and women in the household. For this study, IGNITE conducted two interviews in each sampled household – one with an adult woman and one with an adult man – at each round of data collection.

With the decision to speak to two people in the household, the natural follow-up question is: 'why not more?' In many households, there are more adults to speak to (20% of households in our study had 3 or more adults). We did not include these primarily because of budget and operational constraints. To mitigate this, we included qualitative work exploring the roles of all members of the household and included household members and

² A development agent (DA) is a government extension worker in the Ethiopian agricultural system. DAs form farmer groups consisting of all farmers in each location and provide training on good agricultural practices for crops grown in the area.

³ For detailed information on stratification, please refer to the World Bank DIME Wiki: https://dimewiki.worldbank.org/Stratified_Random_Sample

individuals outside the household as options in household decision making questions.

Question 3: How will the household's composition impact the research design?

The composition of agricultural households varies widely. Many agricultural households are large, sometimes including several generations of adults, adult children as well as young children. Other households are smaller, perhaps including an adult couple and small children, and others are led by one single adult. In some contexts (e.g., Northern Nigeria), polygamous households are common, leading to multiple adult wives in the same household. Depending on agricultural season and other migration patterns, some household structures may change significantly throughout the year as different members seek employment far from home. This heterogeneity of household composition means that researchers must make decisions on which household members to include or exclude. These decisions should balance various priorities, including the research objectives, budget,

logistics, and ethical considerations.

From a gender perspective, there are some important inclusion and exclusion criteria. These include decisions around the inclusion of dual-adult households, female-headed households (FHHs), polygamous households, and whether to include other adults living in the household in the study (e.g., adult children, grandparents, or relatives). The research team must also consider whether to include youth (of ages anywhere between 18 and 35, depending on national policies).

Female-headed households

Female-headed households (FHHs) make up approximately 22% of households in Ethiopia, 18% in Nigeria, and 25% in Tanzania⁴. They include women who are unmarried, widowed, or divorced, and also those where adult men have migrated (usually for work) but can still participate in the decision making from afar, and can also contribute income through remittances⁵. Depending on the research objectives, researchers must decide whether it makes sense to include these FHHs or not.



⁴ World Bank. <https://data.worldbank.org/indicator/SP.HOU.FEMA.ZS?locations=ET-NG-TZ>

⁵ Note that this categorization excludes male-headed households (MHH) without adult women, although this is a much less common household group across Africa.

For IGNITE's two studies with teff and wheat farmers in Ethiopia, the research team opted for two different strategies with respect to FHHs.

For the teff study, IGNITE limited the sample to dual-adult households with at least one adult man and one adult woman and excluded FHHs. The research team decided to exclude FHHs because of interested in understanding decision-making in a dual-adult setting. Intra-household decision-making in households with one adult (either women or men) is very different than in households with at least one adult man and one adult woman. Th study also had budget constraints and the research team decided it was best to increase the study's power to answer questions about the most common type of household. As a result, the study with teff farmers does not have findings pertaining to FHHs. There is always the risk that any reporting on this study will be interpreted to represent the local population as a whole (and forget the significant minority of households that were excluded).

For the wheat study, the research team chose to include both dual-adult households as well as FHHs. This is because the primary objective of the study was to compare outcomes for women across three different extension group types, and it was expected that women in FHHs would represent a significant fraction of women participating in extension.

It is important to note that both studies excluded male-headed households with no adult women, although the research team believes this group represents a small percentage of the population.

Polygamous households

Polygamous households include those with one adult with multiple spouses; in countries where IGNITE works, the most common structure is one male and multiple female wives. In Nigeria, 31% of women report that their husband has multiple wives. These households need to be surveyed differently. Because it is common to prioritise spouse pairs, it becomes difficult to develop a protocol to select a spouse when there are multiple spouses to choose from. There are three main approaches in the literature that research teams can consider: i) randomly select a spouse, ii) interview all spouses, and iii) select the most relevant spouse. If the study design is to only interview two people, we can either select the spouse randomly or purposively. If selecting purposively, one would select the spouse that is most involved in the relevant activity being studied (e.g., cassava farming). If selecting randomly, one would stratify by first wives and non-first wives, as the literature on polygamous marriages suggests different power dynamics between those two groups. In this case, the research team should consider that first wives may or may not be older than younger or subsequent wives, and have different power in the household, and that spousal order may or may not determine involvement in different agricultural activities or value chains entirely.

For IGNITE's study on time use with cassava farmers in Nigeria, we first identified polygamous



households through a listing exercise. Next, for these households, the research team collected information on the number of wives and the seniority of the wives, as well as if one woman was more involved in cassava farming than others. If none of the women were more involved in cassava than the others, they would randomly select a wife, stratified by spouse seniority. The research team decided to approach the sampling in this way to maximise the number of women who were most involved in cassava farming, but also to reach a variety of women in a consistent manner.

Non-spouse pairs and other adults

Besides spouses, many agricultural households include other adults – either adult children or relatives. Studies often exclude these extra members due to logistical challenges and budget constraints, instead opting to speak with a ‘household head’. However, in some contexts these individuals represent a large share of the adult population, so excluding them could lead to bias.

For IGNITE’s study with teff farmers in Ethiopia, the focus was on dual-adult households as the study was exploring decision-making on best practice adoption between men and women. While the research team prioritised spouse pairs for this study, IGNITE did find some households with non-spouse adult pairs of the opposite sex (e.g., a parent and an adult child, or an elderly mother and an adult son). IGNITE decided to also include these households to explore decision-making made outside of spouse-pairs as well. However, spouse pairs made up 92% of the sample and were by far the most common household composition.

Question 4: How do you ensure that you collect high quality data from women?

Once the research team has determined the sampling strategy and defined inclusion / exclusion criteria, the next step is to ensure that all important voices are captured in the collected data. The method of data collection (e.g., in-person; on the phone; qualitative or quantitative), the gender of the enumerator, the time of day when data is collected, the sensitivity of the topic being discussed, and numerous other factors all have gender-specific considerations and contribute to the quality of the data.

Gender of the enumerators

Women and men are not always comfortable sharing their experiences with enumerators,

especially when the topic is sensitive. However, men and women are generally more comfortable sharing their experiences with someone of the same sex.^{6 7} This is especially true in certain conservative social contexts which limit communication between men and women in the society. Therefore, employing both female and male enumerators, and pairing them with respondents of the same sex, can be a good way of ensuring respondents are more comfortable.

For IGNITE’s study with teff farmers in Ethiopia, we chose to consider both the adult man and adult woman in the household as primary respondents (as opposed to having a primary and a secondary respondent). We sent a pair of enumerators to each household, and paired each adult female with the female enumerator, and each adult male with the male enumerator. This required some logistical changes during data collection and analysis and was also more expensive to implement. It also involved changing our data monitoring procedures to account for the different risks to data quality that came with paired enumerators (compared to single enumerators). In analysis, we had two points of data from each household on most questions, even those where disagreement seemed unlikely. This required a different approach for each variable and did not always lead to clear results. However, the research team believes these extra efforts and costs were worth it to ensure respondents were comfortable and that the data was high quality.

Speaking to women and men separately

Related to the comfort of respondents, research teams should consider that in some cases, women are not comfortable sharing their experiences in front of men in their household or in their community. This is due to cultural norms in many countries (e.g., Ethiopia), where agricultural activities are considered a man’s domain, and women’s opinions are often less valued. It may also be the case that in group settings, people in positions of power – often men or even older women – can dominate the conversation and not allow space for women, especially younger women, to speak. Keeping these societal norms and realities in mind when designing data collection strategy is essential to ensure women are included in the research.

For IGNITE’s study on time use with cassava farmers in Nigeria, IGNITE conducted focus group discussions with cassava farmers who use farm mechanization technologies to hear of

⁶ Ayhan, H. (2001). Statistics by Gender: Measures to Reduce Gender Bias in Agricultural Surveys. *International Statistical Review*, 69(3), <https://www.jstor.org/stable/1403456>

⁷ Elias, M. 2013. Practical Tips for Conducting Gender-responsive Data Collection. *Bioversity International*, Rome. https://www.bioversityinternational.org/fileadmin/_migrated/uploads/tx_news/Practical_tips_for_gender_responsive_data_collection_1658_02.pdf

their experiences, and how they spent the time they saved as a result of the using technology. During scoping and piloting, the research team observed that during mixed-sex FGDs relating to mechanization, men were overwhelmingly participating the discussion. When moderators specifically encouraged women in the group to participate, it often led to lively discussions between men and women, but men quickly switched back to dominate the conversation. The research team therefore decided to include both women-only and mixed-sex FGD groups to ensure women's voices were captured both with and without the influence of men.

Consider your methods – collecting data over the phone has implications

Choosing whether to collect data in-person or over the phone has different implications for men and women. Phone ownership is still heavily skewed towards men, especially in rural areas and in certain countries like Ethiopia, where there is a 26% gap in phone ownership between men and women.⁸ Therefore, choosing to conduct a survey over the phone may systematically exclude women from participating. Relatedly, even if women have access to a phone, they tend to have less income and less control over that income, so they have less chance of having airtime or credit available to take a call. Similarly, choosing to call or visit a household at certain hours of the day can influence the opportunity for women or men to participate in the study. Across Africa, women have more household responsibilities than men (e.g., childcare, food preparation) and therefore have less time available for an interview. Building trust with respondents is also more difficult over the phone. Consider sending a SMS primer before the call to inform the participant ahead of time. Female enumerators have also been considered more trusted over the phone (by both women and men), so consider using more of them.⁹

For IGNITE's study with volunteer farmers in Tanzania, IGNITE conducted a survey over the phone with 5,000 women and men volunteer farmers. In this case, phone ownership was not a concern, as the IGNITE's client had confirmed that almost all the volunteer farmers owned a phone and regularly used mobile phones for their role. However, the sample had women who share phones with their husbands. In such cases, the researchers asked the initial respondent to pass the phone or schedule another time to speak with the second respondent. On the time of day, the study monitored the response rate

for men and women throughout the data collection process, and attempted call backs at different times of day to reach men or women at a time convenient for them. The researchers also provided phone airtime with every participant in the phone study, as an incentive to ensure that they did not incur a financial cost due to the interview.

Lessons and Recommendations

1. When accurate lists of the study population are not available, a listing exercise is essential to understand the composition of the population and to ensure that women are appropriately included in the sampling strategy.
2. Stratification of the sample into relevant subgroups is an invaluable tool for ensuring the voices of different groups of women and female youth are adequately represented in your data.
3. Do not expect a single household member's perspective to be representative of all household members. Speaking to more household members – both women and men – allows all points of view to be captured and will improve the quality of the findings.
4. Consider carefully whether the research questions are relevant or will differ for women in FHHs, compared to women in dual-adult households. Women in these two types of households face different realities, and these differences should be considered when forming a sampling strategy.
5. The decision on how to treat polygamous households should be carefully considered because it can lead to the exclusion of some women in the study. If polygamous households are very common in the study area, or are a primary focus of the study objectives, a deliberate strategy should be used to account for these cases and ensure their voices are captured in a systematic and consistent way.
6. The decision on how to treat extra adults (e.g., adult children, relatives) in the household can lead to the exclusion of the voices of adult women and men in the study. These household members are commonly ignored in household surveys but make up a significant portion of the adult population; researchers should carefully consider whether excluding these members makes sense for their study.

⁸ LeFevre, Shah, Bashingwa, et al. (2020) Does women's mobile phone ownership matter for health? Evidence from 15 countries. <https://gh.bmj.com/content/5/5/e002524>

⁹ Hersh, S., Nair, D., Komaragiri, P. B., & Adlakhia, R. K. (2021). Patchy signals: capturing women's voices in mobile phone surveys of rural India. *BMJ global health*, 6(Suppl 5), e005411. <https://doi.org/10.1136/bmjgh-2021-005411>

7. When interviewing both women and men in a household, especially when sensitive topics are being discussed, it is strongly encouraged to match respondents to enumerators of the same sex. This leads to additional cost and logistical challenges but is worth it for the improved comfort of respondents and higher quality of data.
8. Women and men may not be comfortable sharing information in front of other household members or community members of the opposite sex. Researchers should be sensitive to these nuances and power dynamics when designing and implementing gender-sensitive research.
9. Not all data collection methods reach women and men equally. If conducting a phone survey, consider factors like phone ownership, time of day, and building trust when collecting data to increase your chances of reaching women.

Based on these lessons learnt, IGNITE recommends asking four guiding questions when planning data collection, to ensure that women's voices are heard.

1. Who is in the population of interest?

Identify the groups you want to learn something about (e.g., women teff farmers in Amhara), and consider a listing exercise if you are conducting a quantitative household survey.

2. Within the population of interest, who will you speak with?

Stratify your sample to ensure representation of relevant subgroups, and do not expect a single household member's perspective to be representative of all household members.

3. How will the household's composition impact your research design?

Consider how your sampling decisions may be excluding important subgroups (e.g., FHHs, other adults in the household) and ensure you are doing this for good reason.

4. How will you ensure that you are collecting high quality data from women?

Do not forget to take into account factors like enumerator gender, societal norms, time of day, access to phones, and sensitivity of the topic to ensure women can participate.

Summary of the Four IGNITE Studies

Study 1: Intra-household decision making and teff farming in Ethiopia: How gender factors influence decision-making on the adoption of best practices (BPs) in teff farming households in Ethiopia. The study focused on farming households who had been trained through the national extension programme, with a focus on farmers trained by Development Agents (DAs) who were trained by an IGNITE client. The study explored how the decision-making process to adopt BPs was made by the households and identified the key gender-specific factors that influence adoption decisions.

Study 2: Time savings from mechanization for cassava farmers in Nigeria: How the time saved from the use of farm mechanization technologies (e.g., tractors, harvesters, boom sprayers) is reallocated to other activities among smallholder cassava farming household members in Nigeria. The study explored: 1) who was enjoying the benefits of that extra time, and 2) how that time was being used. The study focused on smallholder cassava farming households who were accessing mechanization services and comparing them to households who practiced manual farming.

Study 3: Women's inclusion in wheat extension training in Ethiopia: How video-mediated extension training delivered to women wheat farmers through women-only farmer groups compares to that delivered to women farmers through mixed-sex groups. The study also compared knowledge and adoption outcomes for women farmers who received video-mediated extension (in either type of farmer group), and women farmers who resided in households where only a male household member received video-mediated extension. Women farmers included those in both female- and male-headed households.

Study 4: Volunteer farmers and entrepreneurship in Tanzania: How lead volunteer farmers earn income from their work, and how these paths to income differ for women, men, and youth. Volunteer farmers offer last mile delivery of extension services including training and inputs such as seeds and fertilizers. They are self-employed – providing training to other farmers usually at no cost, and without receiving a direct wage for their work. The study examined how gender plays a role in these income-generating activities, focusing on entrepreneurial volunteer farmers who had started an income-generating business tied to their work.

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IGNITE Partners

Tanager, an ACDI/VOCA affiliate, is a global development organization that empowers people to realize life-changing economic and social opportunities. We have 30 years of experience implementing gender-transformative and nutrition-sensitive agriculture approaches, connecting actors across the production supply chain, fostering knowledge and access for women and other marginalized groups, and unlocking sustainable, climate-smart economic opportunities for all.

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