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# Cultivating Collaboration through Joint Participation

## Evidence from a Video-Based Nutrition-Sensitive Agricultural Extension Program in Ethiopia

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## Abstract

Micronutrient deficiency, or hidden hunger, remains a significant problem affecting more than 2 billion people globally. Consuming a diet that is diverse in agricultural products is a primary way of decreasing hidden hunger. Nutrition-sensitive agriculture is recommended as a means of ensuring that investments in agriculture also translate into nutritional gains. Nutrition-sensitive agriculture is a multisectoral approach that requires coordination and cooperation across what are often gendered domains of control inside and outside the home. Agriculture is usually treated as men's domain and nutrition women's, with programming generally targeting recipients based on their assumed domain of control. Using evidence from a study of a video-based nutrition-sensitive agriculture program in Ethiopia, this paper provides an in-depth qualitative examination of why targeting both men and women with information on nutrition-sensitive agriculture is preferred by both female and male farmers. The findings indicate that the participation of men and women within the same household not only reduces inequalities in access to information, but also changes whether and how conversations about household production and consumption happen. Household investments in nutrition-sensitive agriculture often involve risk-taking and may require the labor of both men and women. Nutrition-sensitive agriculture interventions that provide information to both women and men ease information-sharing frictions, including those related to intrahousehold gender inequality, and encourage consensus building and the joint assessment of potential benefits and risks. The findings from this study indicate that dual targeting is important for promoting nutrition-sensitive agriculture and addressing hidden hunger because of the potential benefits related to intrahousehold collaboration.


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# Cultivating Collaboration through Joint Participation: Evidence from a Video-Based Nutrition-Sensitive Agricultural Extension Program in Ethiopia

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## 1. Introduction

Micronutrient deficiency, or hidden hunger, affects more than 2 billion people globally (Han et al., 2022). Poor-quality diets high in starchy staples and low in micronutrients can have particularly detrimental consequences for young children and women of reproductive age. Such deficiencies can lead to impairments in physical growth and cognitive development, and increased morbidity and mortality. The effects of hidden hunger can ripple out, impacting educational attainment, productivity, and earnings. Hidden hunger perpetuates across generations, resulting in sustained intergenerational impacts on health and well-being (Black et al., 2008; Bachewe et al., 2023). Consuming a diet of diverse agricultural products is a primary way of decreasing micronutrient deficiencies. However, historically, agricultural programs have tended to emphasize increasing productivity with little attention to improving the nutritional quality of the crops produced (Miller and Welch, 2013). There is growing consensus among national governments and international development agencies that supporting nutrition-sensitive agriculture (NSA) is necessary to combat hidden hunger and to ensure that investments in agriculture have a greater nutritional impact (Ruel et al., 2018).

NSA is a multisectoral approach that requires coordination and cooperation across what are often gendered domains of control inside and outside the home—agriculture is regularly treated as men's domain and nutrition as women's. In Ethiopia, where this study took place, even though women are actively involved in a range of agricultural activities, the term "farmer" refers most often to those who independently plow—most commonly men (Frank, 1999). Because of this "perception bias," the agricultural extension system primarily targets men (Mogues et al., 2010; Cohen and Lemma, 2010). At the same time, nutrition programs are most often targeted at women, who are assumed to oversee the domestic sphere (Mudege et al., 2017).

This study complements recent research that demonstrates positive impacts of targeting both men and women with NSA information by providing an in-depth qualitative examination of why dual participation is preferred by both female and male farmers. The qualitative research was embedded in an impact evaluation designed to study the effectiveness of a video-based NSA intervention that targeted both spouses in smallholder farming households in Ethiopia. Farmers explained that who receives information directly from the extension system affects whether and how the information is discussed. Furthermore, the perceived value of dual viewership varies by the gender of the viewer and the information domain. Foregrounding farmers' accounts highlights an underappreciated justification for joint targeting of extension information. We find that, in addition to reducing inequalities in access to information, sharing agriculture and nutrition information with both men and women changes whether and how conversations about household production and consumption happen. Study participants explain that when extension targets both men and women, there are benefits related to collaboration and consensus building. In other words, it better facilitates collective action within the household. Thus, this research provides insights from the perspective of smallholder farmers to inform the design of NSA extension, as well as the conceptualization of research that holistically measures extension effectiveness.

## 2. Literature: Program targeting and information asymmetries

Recent studies from several countries in Sub-Saharan Africa document that the partitioning of extension information—providing agricultural advice to men and nutrition advice to women—may be problematic for the take-up of NSA recommendations. In Burkina Faso, for example, Isler et al. (2020) study a maternal nutrition intervention and find that mothers are most often the focus of these types of

interventions, however, they are constrained in making nutrition-based decisions when those decisions have cost implications for the household. Ambikapathi et al. (2020) find that in Ethiopia, while NSA and behavior change communication interventions predominantly target women, men and women have complementary knowledge for improving nutrition. Farnworth et al. (2023) study the Girinka dairy program in Rwanda and find that dominant norms about masculine and feminine behaviors have strong implications for household nutrition, yet men are historically excluded from nutrition programming. Men often do not receive important information about the nutritional value of animal source foods, resulting in lost opportunities for men to allocate resources to the increased consumption of those foods.

Furthermore, studies from several contexts show that information does not flow freely between spouses (Fletschner and Mesbah, 2011; Lecoutere et al. 2023) and evidence indicates that interventions to reduce information asymmetries can lead to benefits for the household (Ragassa et al., 2017; Lecoutere et al., 2023). Bedi et al. (2023), for example, conducted an experiment in Ethiopia to test what happens to agricultural productivity and household welfare when you ease information and financial constraints for different members of the household by targeting either the husband, the wife, or both spouses in married households. They find that targeting influences household decision-making and outcomes. Targeting both spouses was more likely to result in increased agricultural productivity and strengthening the stock value of livestock, outcomes not seen when only the husband or wife were targeted. Just targeting the wife led to increases in business income, while just targeting the husband led to increases in household wage income. The authors suggest that different decisions are made when both spouses are targeted because of reduced information asymmetries and greater accountability between spouses. A somewhat similar study in the Democratic Republic of Congo examined the adoption of three different integrated soil fertility management technologies (Lambrecht et al. 2016). They find, likewise, that participation in agricultural extension by husband or wife alone, or by the couple jointly, all lead to differential take-up of the technologies.

Although there is a long history of siloing agriculture and nutrition programs by gender, there is a growing body of evidence indicating that when programs cut across gendered domains, project outcomes can improve. In the agriculture sector, for example, Donald et al. (2022) conducted a field experiment in Côte d'Ivoire, which randomized wives' participation in an agricultural extension training for rubber, a male-dominated export crop. They found that for the group that included wife participation and a joint action planning exercise, households planted more rubber trees while sustaining pre-program production and productivity of older trees and other crops. In Tanzania, Lecoutere and Chu (2021) study an intrahousehold intervention among smallholder coffee-farming households headed by monogamous couples. Couples participated in a half-day seminar to explore the gendered division of roles, responsibilities, and resources within the household. A sub-set of couples were then randomized to participate in a more intensive one-day coaching package, followed by a home visit, focused on participatory intra-household decision-making. They find that participating in either intervention improved women's involvement in strategic farm decisions, and that participation in the more intensive intervention also led to greater transparency about and women's shared access to coffee income within the household. In the nutrition sector, Kerr at al. (2016) study "recipe days," a community-based participatory intervention in Malawi that brings men and women together to prepare and share recipes made from local crops. Recipe days were layered onto an existing agriculture program and were meant to teach nutritional skills while also addressing gender norms by facilitating community discussions around gendered roles and responsibilities. In this qualitative study, they find that for many households, addressing dominant norms around masculinity was necessary to translate agricultural gains into better nutrition outcomes for children.

These examples share a common theme—the interventions studied aim to change the way spouses interact around the production and allocation of goods, to encourage them towards greater intrahousehold cooperation in areas that Doss and Meinzen-Dick (2015) might identify as "collective action problems." Doss and Meinzen-Dick engage with the natural resource management (NRM) literature to rethink what enables household members to reach cooperative outcomes (not necessarily efficient ones), and how interventions can strengthen collective action at the intrahousehold level for shared gains around household public goods. This perspective leads to the consideration of how interventions might affect the *processes* of intrahousehold cooperation, in addition to considering how they affect the resources that each household member brings to intrahousehold negotiations. In other words, in what ways do NSA interventions that target both spouses affect *how* household decisions are made?

Studies on targeting that focus on asymmetric information within households foreground the relative information resources that spouses bring to intrahousehold negotiations and decisions. This study adds to the literature by providing a complementary explanation of why and how the targeting of NSA extension programs matters. Drawing on female and male farmers' explanations of why they value dual viewership and building on Doss and Meinzen-Dick's (2015) focus on collective action, our findings suggest a need for greater attention to how interventions affect processes of intrahousehold collaboration for achieving improved nutrition outcomes.

## 3. Methods and context

This paper is based on qualitative data collected in two rounds in rural Ethiopia. Formative qualitative research was conducted in May 2019, which informed the design and analysis of the subsequent two rounds of research this paper is based on. The formative phase helped the research team gain a better understanding of how the agricultural extension system functions in practice. It included 34 interviews of officials involved in agricultural extension and 36 observations of extension activities. Round one of the primary qualitative data collection took place during August-September 2021, and round two took place during May-June 2022. Both rounds of qualitative data collection were embedded in an impact evaluation of a video-based NSA intervention that is part of the second phase of Ethiopia's Agricultural Growth Project (AGP2). AGP2 aims to increase agricultural productivity and commercialization of smallholder farmers in Ethiopia through a variety of interventions. Among other things, AGP2's goals include strengthening the implementation of nutrition sensitive interventions in the agriculture sector with a focus on improving the consumption of diversified diets.

Digital Green, an international non-governmental organization, has an ongoing partnership with Ethiopia's Ministry of Agriculture and Natural Resources. Digital Green trains the ministry's extension agents at the woreda (district) level to produce and screen localized videos that are shown through their existing extension system. Under AGP2, Digital Green worked with the ministry to expand into 20 selected woredas with a modified curriculum to include agriculture and nutrition information. Dissemination of videos was done jointly by the agricultural and health extension workers.

The impact evaluation seeks to assess the impact of leveraging video-enabled extension to improve nutritional outcomes by diversifying and improving dietary consumption through the take-up and adoption of new practices, and changes in household behaviors. For the impact evaluation, a total of 200 kebeles (clustered villages) in 20 selected AGP2 woredas were randomized into three experimental treatment arms:

- **Standard agricultural information (T0):** Videos focused on agricultural information such as row planting, side dressing of urea, livestock production, and the importance of crop selection and diversity.
- **Collaborative agricultural information (T1):** Videos built on the information from T0 but ensured the role of women in household production activities was made salient through showing female role models working alongside male role models (the default characters in T0).
- **Collaborative agricultural information + nutrition information (T2)**: Videos included information about agriculture, nutritious foods, and maternal and child feeding practices and often depicted men helping women with domestic tasks.

The impact evaluation was designed to target both spouses within the household, and in so doing, men and women received information outside of their assumed domain of control (i.e. men got nutrition information and women got agriculture information). The qualitative research, therefore, was focused, in part, on exploring how people felt about the targeting of both spouses, what motivated their preferences for targeting, and how this targeting might influence intrahousehold dynamics.

***Site selection***

While the impact evaluation took place in multiple regions, the qualitative data collection focused only on the Amhara region due to ongoing civil and political unrest and resulting security concerns. All site selection was made in close consultation with Digital Green's national and regional coordinators. For both rounds of data collection, kebeles were purposively selected considering treatment arms, accessibility, and proximity to the woreda center for security reasons and logistical purposes. For round one, one kebele from T0 and one from T2 were selected. However, in the originally selected T0 community, researchers had trouble locating enough female respondents who met the selection criteria (i.e. had seen extension videos in the last 6 months, and did not reside in a house where the husband had already been interviewed), so a second T0 community was selected. Round two included two T1 and two T2 kebeles.

| Data collection round | Zone | Kebele | Treatment arm | Distance from woreda center |
|---|---|---|---|---|
| Round 1 | North Shewa | Kebele 1 | T0 | 13km |
| Round 1 | North Shewa | Kebele 2 | T2 | 3km |
| Round 1 | North Shewa | Kebele 3 | T0 | 7km |
| Round 2 | East Gojjam | Kebele 4 | T1 | 7km |
| Round 2 | East Gojjam | Kebele 5 | T2 | 34km |
| Round 2 | North Shewa | Kebele 6 | T1 | 7km |
| Round 2 | North Shewa | Kebele 7 | T2 | 17km |

*Table 1: Data collection sites*

***Context***

All the communities from rounds one and two practiced rain-fed agriculture; however, a few from round two also had access to irrigation. In most dual farming households in the study communities, men are mainly responsible for farming, which includes plowing the land, planting, and harvesting. Women help by weeding, and also help during planting/ sowing, and by applying fertilizer, especially when children are not available. Women are primarily responsible for providing food to farmers in the field during plowing, sowing, and harvest periods. Farmers produce crops both for home consumption and for sale

in the market. During the main rainy season, households primarily produce teff, wheat, maize, barley, and beans. Besides supporting the household's main farming activities, women are often responsible for raising poultry and vegetable gardening, when the household can afford those activities. When they can, during the main rainy season women plant vegetables like green cabbage, pepper, and tomato in the garden or on a small space at the edge of the main farmland.

Households prioritized growing and selling crops with relatively high market value to generate income for purchasing food items such as oil, salt, sugar, coffee beans, and butter. Women, in consultation with their spouses, are generally responsible for selling household produce in exchange for market food items. During autumn, households in the study area tend to produce small amounts of maize, barley, and beans mainly for consumption. Women often prefer that their spouses grow sorghum during this season because it has a fast yield, and they mix it with wheat to make injera in September through November. Respondents described detailed planning about what to produce for consumption and sale to meet the household's needs across the year.

***Data Collection and Analysis***

All data were collected by one female and one male research assistant (RA). To select farmer respondents, the RAs collaborated with the local woreda and kebele Agricultural Officers, Digital Green Zonal Coordinators, and the male and female development group leaders to select farmers who had viewed videos in the last six months. The findings in this paper derive from 38 interviews, 23 small group discussions, and 5 observations of video-enabled extension sessions.

| **Round** | **Treatment group** | **Interviews** | | **Small group discussions** | | **Observations** | | |
|---|---|---|---|---|---|---|---|---|
| | | Female | Male | Female | Male | Female | Male | Mixed |
| **Round 1** | T0 | 4 | 4 | 3 | 1 | - | - | |
| | T1 | 4 | 4 | 3 | 1 | - | 1 | |
| **Round 2** | T1 | 6 | 4 | 4 | 2 | 1 | - | |
| | T2 | 7 | 5 | 5 | 3 | | - | 3 |
| **TOTALS** | | **21** | **17** | **15** | **8** | **1** | **1** | **3** |

*Table 2: Data collection activities*

Interviews were semi-structured, lasted an average of about one and a half hours each, and took place in Amharic, the language that best fit the study communities. Interviews were conducted inside the interviewee's compound or house. Men and women from the same household were not interviewed, as the goal was to maximize exposure to as many different households as possible in the data collection. For round one, to understand information flows within social networks (before the focus was narrowed specifically to intrahousehold information flows), small group discussions were held with a participant who had seen an extension video in the previous six months and who was asked to invite 2-3 of their friends and neighbors, who may or may not have also viewed the video. In round two, small group discussions were composed of respondents who had seen at least one extension video in the last six months and who were not from the same families. In both rounds, those who participated in small group discussions were different from those who participated in interviews. All small group discussions had between 3-5 respondents each.

Observations were of video-enabled extension sessions and aimed to understand how people organized themselves for the session, how engaged participants were with the information provided, and how facilitation was conducted. RAs also conducted informal discussions with participants at the end of the

sessions to capture their immediate reactions to the video. While the intervention design stipulated that screenings should be delivered separately to men's and women's groups, in practice, some of the observed sessions were mixed gender. Due to data collection taking place during heavy agricultural labor times, study participants were compensated for the opportunity cost of their time. In round one, respondents received 150 birr (around USD$3.3) each. For round two, the amount was increased to 200 birr (around USD$4) due to high levels of inflation.

To ensure respect for local norms, the male RA interviewed men and observed men's extension events, while the female RA did the same for women. For mixed-gender events, there was no RA gender preference. RAs recorded all interviews with the consent of respondents and typed comprehensive notes using a response template and by reviewing field notes and recordings. Comprehensive notes included transcription of key interview segments. For round one, 4 out of 16 interviews were fully transcribed and, for round two, 4 out of 22 interviews were fully transcribed. Transcription was completed on select interviews after comprehensive notes were reviewed, as a quality assurance check to verify that the notes accurately captured the data. Analysis was conducted using Dedoose, a qualitative data analysis web-based application. All data were uploaded into Dedoose and systematically coded using a combination of descriptive and analytic codes that captured information about household production and consumption decisions, information flows, and participation in and reflections on video-enabled extension sessions. Data were then additionally analyzed in Excel, capturing, for each respondent, explanations for who should see each video and why. Data from men and women and by treatment arm were compared to explore differences and similarities in beliefs and experiences.

## 4. Findings

There was general agreement among most respondents that it is best if both spouses within dual farmer households see the same videos. This was true for men and women and did not depend on the content being screened. While many respondents expressed the belief that some content was more relevant to men (i.e. agriculture) and other content more relevant to women (i.e. poultry and nutrition), the perceived relevance of the content did not lead people to conclude that only the "relevant" spouse should see the videos. In both rounds one and two, in interviews and small group discussions, respondents were asked who the content of the video was most relevant to and who should see the videos. The following responses from a man who watched a T1 video are typical. When asked whether the video content was more relevant to him or his wife, he said, "I guess it is good for both spouses to watch. Since both couples take responsibility for their life and lives of children in the family. By the way, the video shows the need that both couples watch the videos. The couples in the video are supporting each other, and I watched in the vegetable gardening activity the wife was also working hard with her husband." When he was asked subsequently if he thinks that husbands and wives should see the same videos, he responded, "Watching the same videos, I think it is important because it makes couples to quickly reach on a consensus since they are watching on their own eyes. It might be difficult for someone to explain the things they watch well. But if they are [both] watching, the discussion between spouses could be easy."

While a majority of respondents agreed that both spouses should see the same content, a few people expressed that it would make more sense for their spouse to see something different because they felt they could explain the information themselves, and/ or they felt it was more efficient for spouses to receive different information in order to increase the amount of new information coming into the household. For example, during a small group discussion one man stated, "I don't think she [my wife] attended the video-based extension training about poultry. But I recommend my wife better be trained in another kind of activity since I already shared what I have learnt about the video, and she has an

ambition to engage in the activity in the near future." Another man agreed stating, "I have no idea if she [my wife] attended the video-based trainings, but I believe that it is better if she is trained in another area which could add another knowledge to the household." A third man then followed by stating the more common belief expressed, "I believe that spouses have to be trained on the same videos as husbands since it helps to have similar understanding about the issues with their own eyes. And it strengthens its applicability." While most people expressed sentiments similar to the third respondent in this interaction, it was not a universally held opinion and some men, in particular, did feel that it was not necessary for their spouse to see the same video because they believed they could sufficiently share the information themselves. However, for the vast majority of respondents who advocated for dual viewership, the following sections detail the reasoning that people said motivated their desire for both spouses to view the same agriculture and nutrition videos.

## 4.1 Shared motivations for dual viewership

Among the explanations for the value of dual viewership, two were widely shared by men and women. These explanations highlight that when both men and women receive information from the extension system, it helps to build a shared foundation for household cooperation.

### *4.1.1 Receiving the same information improves understanding and eases information sharing*

Many respondents expressed a strong belief that seeing the videos yourself is more powerful than being told about them. For example, a woman explained, "It would be advantageous if both husband and wife watched the video because, let's say I watched the video, and he didn't, I cannot explain to him how I understood the lesson…Because we all watched the video, we all have learned about it. It is way better to have watched it for himself than having me explain it to him or others." Both men and women believed that hearing information second-hand is less powerful than receiving it directly and indicated that information received firsthand through the videos was often clearer, more accurate, and motivating. As one woman stated, "If I don't see it [the video] with my own eyes, I may not be persuaded about it if someone tells me about it just verbally. The same is true for my husband."

People generally felt that it was good for both spouses to see the same videos, even when they believed that some information was more relevant to one or the other viewer. During a small group discussion with male farmers, for example, men explained that all the videos are important for both spouses to watch, but the poultry video is particularly relevant for wives. Poultry is generally considered the domain of women. One man noted, "My wife manages the chore activities mainly preparing food, giving food and water for poultry. And she collects the eggs." He then stated that regardless of who the content was most relevant for, all the videos should be watched by both husband and wife because it simplifies and saves energy convincing the one who did not watch the video. There was a common belief expressed that when only husband or wife saw the video, it would be harder to explain or "convince" the other about what had been learned, regardless of the content, and that both seeing the same video simplified the task of coordination, which was valued by both men and women. For women, there was an added concern that their spouse would not believe or trust what they were saying, which will be discussed in more detail below.

In addition to preferring that both spouses watch the extension videos, some respondents seemed to indicate that it would be best if spouses saw the videos at the same time. While people generally agreed that both watching the same videos was preferable, dual viewership was not a guarantee of increased communication or coordination in the household. More than one respondent described not knowing if their spouse had seen the videos at all, or not learning that their spouse had seen the videos until after starting a conversation with them about having seen the videos themselves. While people valued dual

viewership, and it could lead to increased communication and coordination, simply seeing the same videos separately was not a guarantee that new lines of communication and coordination would form, much less that husband and wife would be aware of what the other had seen. Seeing the videos together could lower the barriers to communication.

#### *4.1.2 Receiving the same information reduces intrahousehold friction and helps build household consensus*

While there were varying degrees to which people actually communicated about what they had learned, overall, respondents indicated that dual viewership could reduce household friction and increase cooperation and consensus, which both men and women expressed as important. For example, when asked if her husband had seen the videos she watched, a woman explained, "[he has seen] the video about hen breeding and also about the wheat. He knows a lot about it since he is a farmer. And we are very much in consensus with one another. We can reach on agreement and work together." The woman continued,

> We can do chicken breeding. He can hammer the corrugated iron [to build the chicken coop]. We agree with one another. That is what others would tell you as well if you ask them about us. There are some spouses who do not reach on agreement though. The husband would question what the chickens are. The wife might tell him about breeding chicken…but because we agree on this idea, if we build a chicken coop and purchase hens with the money we save, we would benefit a lot. There won't be a loss. And I have told you that we are ready to do that. Thus, because my husband has also received the lesson [watched the video] we can do that in the future.

Respondents pointed to consensus as an important outcome of dual viewership, and described how when the household was in "consensus" they would work together towards common goals.

Similarly, other respondents discussed an increased ability to contribute to and support each other if both have seen the videos. For example, a female farmer explained,

> Even in the case of poultry, if it is only the wife that watched the video, the husband might not be able to take care of the poultries in the household. But if both have watched it, if I am away from home, he could provide them care - he provides them food on time. And even in the case of the planting, if we both watched it, he will do the plowing, and I would follow his steps and do the seed planting. If it is only [him] who had watched it, I may not be able to understand how the planting should be done. But if we both watched it, we would put it to action.

In addition, many people talked about how both seeing the videos provided an opportunity to discuss and plan together. A woman noted, "We will try to plant one or two rows of wheat according to the video [side dressing of urea] … that will be like a trial to test its difference. But right after we watched the video, my husband and I have talked about it, and agreed to give it a try. It has been some time now since we watched the video – and I remember that we have agreed to try it." Even when dual viewership did not lead to behavior change, respondents still emphasized and valued the increased understanding between spouses that could result. During a small group discussion, one woman stated, "It [both seeing the videos] actually didn't initiate different behavior, other than increased understanding of wife and husband." She then explained that since watching the poultry video, they have not been able to purchase a different species of chicken or practice any of the lessons depicted due to resource constraints, but she is still glad they both saw it because maybe they will be able to make a change together in the future. Another woman then jumped in and added, that regardless of actual behavior change, both seeing the videos has increased understanding within the household, indicating that this was a valued outcome.

## 4.2 Dual viewership helps overcome intrahousehold inequality for women

While there was general agreement among respondents that both spouses seeing the same videos is valuable, women had additional motivations for wanting their spouse to also view the videos. Those motivations related to gender and power dynamics within their households that generally favored men. Below we explore four additional reasons as to why women want their spouse to see the same videos they saw and how dual viewership helps women overcome gender specific constraints.

### *4.2.1 Women worry that men will not believe them*

Women articulated specific reasons—that men did not also voice—as to why they wanted their spouse to see the same videos they saw, particularly agricultural extension videos. First, women had concerns that if they were the sole viewer, their spouse might be less likely to trust, or would question, the agriculture information they shared with him. When speaking about watching an agriculture video, one woman, for example, explained, "If I tell him about what I watched, he wouldn't think that it is true. When I tell him, he might reply saying, 'You watched something like that? Is there such a practice? We don't know about that.' He might reply like that because he doesn't have the awareness." Another woman similarly reflected, "If I only watch the video and tell him [my husband] about it, there is a chance that he might not believe what I told him, and he also might not give it a good attention. Watching it for himself might bring inspiration in him and he would want to practice it."

Men did not equally express a concern that their wife might not believe what they say if she did not see the video herself. Men worried that it might take more time to explain a new practice to their wife and convince her that the household should take it up, but this was not the same as being concerned that their spouse would fundamentally question the veracity of what they were saying. For example, one woman explained how if a man wants to start using urea on the maize crop, he will just purchase it from the market and apply it on the farm and then tell his wife about it. She explained, "the wife has no role on that…the wife would trust his decisions, and she thinks that he decided to do that, learning about its importance." There is a certain assumption that men "know" about agriculture because they are farmers who work closely with the agriculture extension agents, and so their knowledge is not questioned in the same way women's might be.

Under very particular circumstances, however, women did acknowledge that their spouse would accept what they were saying if they were the sole receiver and conveyer of agricultural information. For example, during a small group discussion, women were discussing the value of both spouses seeing a video about row planting and more efficiently applying fertilizer. One woman stated, "It would be nice if everyone could watch it [the video]. But it is no problem [if my husband doesn't see the video] because many farmers have received the information. It won't be a problem because many farmers have tested the results and benefited from the practice." Another woman then chimed in, "If I tell my husband about the video I watched, he will accept the information I shared with him, but it is preferable if we all watched it together so that we practice it together." While she still prefers that both spouses see the video, she notes that her husband will "accept" the information she shares with him. Both row planting and the application of fertilizer were previously known in the area. The new practice depicted in the video is focused on more efficiently applying the fertilizer, and the women note that others in the area have also learned about this. In other words, the barriers to her spouse "accepting" the information she shares appear lower because the information is already circulating in the area, and, therefore, she feels it is less imperative that the spouse receives the information directly from the video himself.

### *4.2.2 Women wanted men to see videos about agriculture because they could not act alone*

Women felt it was important that both spouses see the same video when it comes to agriculture related information, specifically because agriculture is their husband's domain. In dual farmer households, people routinely describe farming as something women do with their husband, and not generally something they can make decisions about alone. During a small group discussion, one woman explained, "The husbands are the main decision maker about the planting, and they need to watch it [extension video] too." Another women then added, "It is the husbands who select the farmland for the teff and haricot beans planting. They are the one who determines how many rounds to plow the farmland." Women felt strongly that when it comes to agricultural practices, while they are involved in terms of providing supporting labor, they cannot take decisions unilaterally and so it was important that husband and wife both saw the same videos. One woman stated, "We live in the same household, so the videos are equally important to me and my husband. I cannot do any of the practices without my husband if he didn't watch it." In other words, women wanted to receive agriculture information and valued it, but they felt it was equally important that their husband also receive it because she would ultimately need his buy-in before a new practice could be taken up. This of course is closely related to their concern that their spouse will not trust or believe what they say when sharing new information about agriculture.

At the same time, men also expressed that both spouses seeing the same agricultural videos was good, but their interest in this was not tied to a specific concern that if their wife did not see the video, he would have difficulty acting on what was learned. One man explained, "I think it [agricultural video] is more relevant for the husband since it is an agricultural activity, but it is good both spouses could see it to have knowledge…it is not bad both spouses see the same videos, especially if they are going to discuss it and adopt it to their family." Ultimately, one man explained, "There is not much consultation with the wife about what is needed for agricultural activities." In other words, while men and women thought there was value in both spouses seeing agricultural videos, women had a more explicit need for men to see the same videos they saw, and this was driven by a strong gendered role division in the household. Men are perceived as the farmers and primary decision-makers in this domain, and women as providing a helping hand and playing a support role. These perceptions shaped, not the value of the information itself for women versus men, but what they felt they could do with it.

### *4.2.3 Women want men to see videos about nutrition because it increases men's support*

Women felt strongly that it was their responsibility to decide what the family should eat—it was their domain. One woman explained, "It is not men's business to know what food the family should eat. We have to think on our own and serve the meal for them." Women readily agreed that men's lack of involvement in and awareness of food preparation and decision-making is due to a strong gender division of roles in the household. One woman explained, "They [men] don't have the knowledge and experience [about cooking] as they grow up." Women felt that it is generally not important for spouses to discuss what should be eaten in the household, because what is eaten is what is available or produced by the household, and it is the role of women to think about what should be served given what is available. The primary exceptions to this seemed to be: 1) when there were financial decisions to be made that involved determining which crops to sell to make purchases in the market or 2) when decisions had to be made about growing a new crop for household consumption. In terms of making purchases from the market, one woman noted,

> The husband could be consulted on what should be eaten if there is anything that is going to be purchased from the market. They [men] would be fine to discuss on what is purchased because it involves selling crops, and financial decisions. If such expenses are not involved, and if the

> food is prepared from what is available within the household, the husband or children are willing to eat whatever it is served. Thus, there is no need to make discussion.

In other words, when household nutrition intersected with the (re)allocation of resources, spouses needed to communicate and plan together about what to do.

Women, therefore, wanted men to see extension videos about nutrition because they felt it could increase men's understanding of the value of eating more nutritious foods, and in turn his willingness to allocate limited household resources to achieve this. In describing the financial implications of dietary diversification, one woman explained, "We don't prioritize to purchase vegetables like cabbage, green pepper and the like but we purchase it if we have leftover finance after securing other needs…The price of food oil has increased now so you have to sell up to 20 bowls of teff to purchase the 5 liters of food oil and the like. We produce [teff] once a year so we cannot purchase all what we wish, and we need to decide about how to balance." Most of the respondents lived in areas where seasonality remains one of the key factors in determining food availability and dietary diversity. Most households did not have irrigation and relied on rainfed agriculture, growing vegetables in backyard gardens during the rainy season only. Purchasing vegetables, meat, and milk from the market means selling crops, and respondents indicated that such decisions about what to sell should be made together. A man explained, "[If] my wife wants to introduce any new food for the family, she will ask me. And she knows if I could be able to do that, and that totally depends on the priorities we have for other life necessities especially for pepper, cooking oil and salt."

In this context, many women spoke about how when men saw the nutrition videos it would "lure" them into encouraging the wife to practice what was portrayed in the video, including purchasing, or providing money for the ingredients needed—a primary role men played in terms of supporting household nutrition. One woman who had viewed a video with her husband about making wheat bread explained,

> When I ask him [my husband] to do this and that, if it was only me who has watched the video, and if I share with him the video content, he might respond saying that it is a ridiculous or unpractical thing for the family to do. But now, since the husbands have watched the video together with us, he himself suggests that we will benefit our child by preparing the food. He advocates the benefit of trying what was screened on the video – and that is because he has also watched it.

Therefore, while women decide what to feed the family—and generally do not want their spouse getting involved in these kinds of daily decisions—broader support and agreement is generally needed within the household to make sustained changes to the family's diet that requires an additional allocation of limited resources. Women reported that their husbands would more seriously consider those types of changes if they received nutrition information directly from extension services.

### *4.2.4 Women want men to see videos that model intrahousehold collaboration because they feel unable to suggest relaxing the gendered division of labor*

Women especially wanted men to see videos that modeled men participating in domestic tasks (T2 videos). Women strongly expressed that these kinds of practices, that went against gender norms, were not something they could proactively bring up and discuss with their husband by themselves. Women relied on their spouse seeing the video as a means of seeding ideas and encouraging behavior change. One woman stated, "It is unthinkable to ask our husband to give us a hand as shown on the videos." Another woman similarly explained, "The video might inform men that they could be involved in

supporting their wives during food preparation. But I won't be asking my husband to assist with cooking or food preparation."

When men did see videos that modeled male characters helping their spouses with domestic tasks, men took note of the messaging around collaboration and were generally receptive. A man who saw a T2 nutrition video about porridge, for example, highlighted how the video had spurred him to help his wife, stating, "I want to be honest with myself that I was not supporting my wife in any way. But after I watched this content, I tried to help my wife by fetching water using donkey which I didn't do it before. This content gets my weaknesses and helped me to look into myself to support my wife in chore activities like the one I already took." Another man who watched a video about preparing porridge talked about how seeing the video was important for him because it helped him think about how to support his wife more by offering to hold the baby while she cooks, and if she gets sick, he now knows how to prepare the porridge for the baby himself.

While many respondents were receptive to the collaborative messaging in the T2 videos, the gender messages were not universally accepted. One woman noted that, "While the video was screened, some men left the session laughing when they saw the husband helping his wife by providing her fuel wood. They were saying, 'how is it that he is providing her with fuel wood.' If you are cooking stew and ask your husband to bring you fuel wood, he would laugh at you and leave the house. It is difficult in our culture."

Women in the study communities already participate in a variety of agriculture tasks alongside their spouses. So, T1 videos depicting women and men collaborating around agricultural work appeared to be less notable to respondents. However, women did observe that when men saw content that modeled women and men working together on the farm, this could also lead to behavior change. When talking about row planting and applying fertilizer, for example, one woman explained that it takes three people to plow, plant the seeds, and apply fertilizer as depicted in the videos. A woman then added, "it [the video] has opened the door for my husband to ask me to help him applying fertilizer after watching the video." So, while women were more interested in men seeing videos that showed them helping with domestic tasks, women did notice that when men saw videos about household collaboration around agricultural tasks, requests by their husband for them to work on the farm could increase. It is important to note that increased "collaboration" in agriculture potentially increased women's workload, but we do not have data indicating how women felt about this or how it actually impacted the allocation of agricultural tasks within the household, if at all. We do know, however, that for women, their primary interest was in men seeing the T2 videos about doing the kinds of domestic work they felt strong normative constraints against proactively discussing with their spouses. In the absence of their spouse seeing the videos, women were clear that they would not share the information with their husband.

### 4.3 Due to external constraints, consensus does not mean action

While respondents placed high value on dual viewership for its ability to build household consensus, increase cooperation, and work towards a common goal, respondents were also clear that both seeing the same video did not necessarily translate into taking up new practices. Respondents worried about how the sales from household produce had to be distributed across what the household purchases for consumption and purchasing farm inputs like seeds and fertilizers. One woman said, "Mainly, planning is difficult and different from the old times in relation to the increasing household expenses."

As one man explained, "Anyone in the kebele can't simply apply it [what they saw in the video] because he or she wishes. These couples might have one [practice] that they could fulfill or ones [practices] they might not at all apply, or still other ones [practices] require time to bring together the available

resources." Another man explained that he would like to produce more nutritious foods for his family to consume, but he lacks irrigation and can only grow fruits and vegetables in the rainy season. He then explained that he is trying to diversify his income by engaging in apiculture and eucalyptus tree production. He says, "I am thinking to increase the frequency of consumption of vegetables, fruits, and meat from the market by increasing my family income." But, he says, he struggles when buying from the market because the prices keep rising, especially for sheep and goat. He can't raise these animals himself because there is not enough grazing land in the area.

During a small group discussion, a woman explained, "I prefer growing vegetables for my household because it is [more] cost effective to grow vegetables than purchasing it from the market… and it is also because my backyard is closer to me than the market when I want to pick vegetable and add to my household's diet..." But, another women added that while they prefer growing vegetables, if there is not enough farmland or access to irrigation or water to grow vegetables in the backyard during dry season, the family prioritizes growing staples like wheat, maize, and teff.

Although men and women were often receptive to the messages in the videos, and valued both spouses seeing them, material limitations that many families faced weighed heavily on their production and consumption decisions. Take up of new practices, therefore, was not necessarily the metric against which respondents themselves judged the value of dual viewership. Rather, they articulated the value of both spouses seeing the same videos as being primarily related to practical considerations such as increased ease of understanding and reduced time explaining and convincing each other of new information, and changes in intrahousehold dynamics related to a greater sense of shared goals, cooperation, and consensus within the household.

## 5. Discussion

A majority of respondents, both men and women in dual farmer households, agree that it is best if both spouses see the same agriculture and nutrition videos, and videos that portrayed collaborative intrahousehold behavior. There was a general sense that it was better for both spouses to have increased knowledge, regardless of the information domain, as it could be beneficial to the common good of the household.

Respondents explain that dual viewership matters primarily because it has the potential to influence the process of intrahousehold cooperation by increasing communication, consensus, mutual understanding, and even enhanced respect for one another. These benefits seemed more pronounced for women, since women consistently identified gendered information sharing frictions. First, women expressed a common concern that wives are not treated as reliable messengers, particularly of agricultural information. When both spouses saw the videos, this challenge was greatly reduced. Other studies have also found that men question women's ability to understand and accurately transmit agricultural information. For example, BenYishay et al. (2020) conducted an experiment in Malawi, in which men or women learned about a new agricultural technology and then were assigned the task of communicating it to others to convince them to adopt. They find no gender gap in people's ability to learn, retain, and use new information. However, when women are the communicators, other farmers are less willing to learn from them because they perceive that women are not as good at farming. Women, in our study and others, clearly face many challenges in getting others to engage with them as reliable learners and sharers of agriculture information. When information asymmetries are reduced within the household by viewing videos together, this can help address the problem of preconceived gender biases about women's agricultural knowledge and abilities.

At the same time, women felt particularly constrained in their ability to start discussions with their spouse about him doing work that was culturally defined as women's work. When husbands also saw videos that portrayed gender atypical behavior, men received information that women were otherwise unlikely to share. Ashraf et al. (2023) find something similar in Zambia when they vary whether the husband or wife receives information about maternal health risks. When the wife is the sole recipient of information, she updates her beliefs but does not share the information with her husband. When the husband is the sole recipient of information, he updates his beliefs and shares the information with his wife. The authors conclude that careful targeting can help reduce information asymmetries and improve household well-being, especially as it relates to areas in which there are strong gendered spheres of information. Similarly, in our study, we find that dual viewership helped overcome common intrahousehold information sharing frictions that are undergirded by unequal power dynamics and norms about gendered roles and responsibilities. Women explained that they would not initiate discussion about relaxing rigid gender roles in their household. Men would have to introduce that type of behavior change, which means that it is important to directly target men with role models for those types of changes.

Importantly, respondents seemed to value dual viewership not because of a specific outcome it produced, but because of the collaborative process it provoked. Even when the information in the videos was well received, respondents pointed to material limitations that often prevented them from partially or fully implementing what was learned. Indeed, Abate et al (2023) find that providing video-enabled extension to both spouses, instead of just the (typically male) household head, increased extension access and knowledge for female spouses, but did not increase take-up of new agricultural technologies. Based on the findings of this qualitative study, we argue that short-term positive impact on the take-up of new technology or on productivity outcomes cannot be the only metrics for judging the value of providing extension information to more than one adult in agricultural households. Even in the absence of short-term take-up, respondents in this study valued the provision of information to both spouses (and the modeling of household cooperation) primarily because it increased feelings of agreement between spouses and encouraged more robust communication and a more collaborative process of household planning. The dividends of such an approach are not likely to be captured in short term agricultural gains, but in stronger, more resilient households over time.

Longer-term research is needed, but interventions that increase communication and agreement within the household over time might be expected to translate into longer-term impacts on NSA. Nyqvist et al. (2024), for example, evaluate a communication skills training program in Uganda that supports women to effectively communicate their knowledge and preferences about child health to their husbands, who tend to have more decision-making power in the household. They find that the program led to increased discussion between spouses about household health, nutrition, and associated finances, which translated into increased spending on and consumption of animal sourced foods for women and children. In other words, improved communication between spouses led to positive changes in household nutrition.

Our study participants' emphasis on the processes of intrahousehold collaboration recalls the insights that Doss and Meinzen-Dick (2015) derive from using NRM frameworks to analyze how interventions might affect collective action within households. When there is a need to work together to achieve a collective outcome, the relative resources of each contributing group member matters, but so do the rules that shape how decisions are made. Sharing agriculture and nutrition information with both men and women can change whether and how conversations about household production and consumption happen. And, because of gender power differences within households, women will often benefit from the provision of information in ways that facilitate collaboration.

## 5.1 Policy implications

This study complements recent research that demonstrates positive impacts of targeting both men and women with NSA information and points to an important policy implication. Given the widespread support within households for men and women both receiving agriculture and nutrition information, extension programs should routinely target both spouses within the same household with the same information interventions. While the current gender division of labor in households might mean that some aspects of NSA information may be more relevant to domains where men or women have primary decision-making authority, "relevance" should not be used to determine targeting of outreach because doing so ignores the need for intrahousehold collaboration.

# 6. Conclusion

Household investments in NSA often involve risk-taking that affects the whole household and may also require the labor of both men and women. Many of the farmers in this study explained that the pursuit of dietary diversity required difficult decisions regarding the allocation of scarce household resources and overcoming external constraints. NSA interventions that are designed to promote collaboration can encourage consensus building and the joint assessment of potential benefits and risks. Research from 12 countries in Sub-Saharan Africa suggests that joint decision-making may be protective against intimate partner violence because it leads to shared responsibility for actions and a reduction in conflict if decisions are later regretted (Donald et al. 2024). Like that study, the findings from this qualitative research are a reminder that people care *how* decisions are made. Our findings indicate that dual viewership is important for the promotion of NSA and addressing hidden hunger not only because it can affect agriculture and nutrition outcomes, but also because of the potential benefits related to intrahousehold collaboration, planning, and task sharing and increased feelings of household consensus, shared goals, and mutual support.

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