GENDER EQUALITY TOOLBOX

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GENDER AND AGRICULTURAL ADVISORY SERVICES

ISSUE BRIEF

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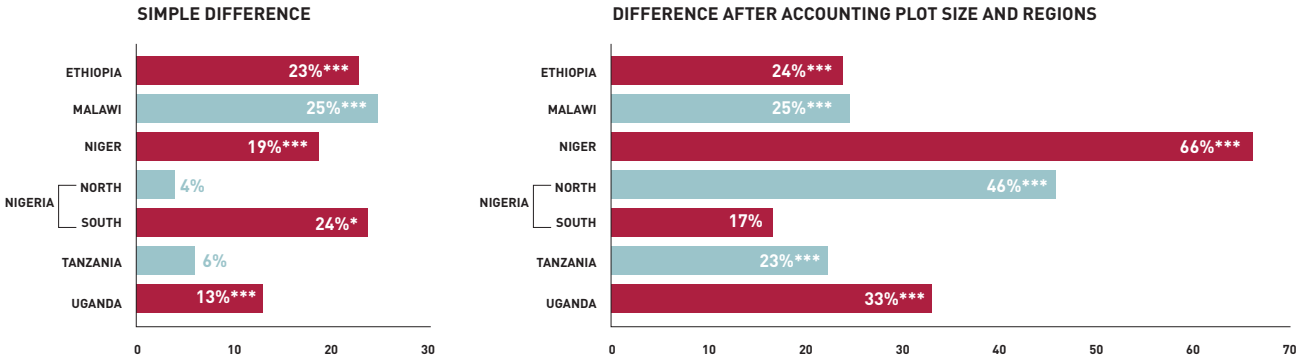
This Brief identifies the issues, challenges and opportunities that exist for investing in gender intentional agricultural advisory services (AAS).[1] Specifically, the brief establishes the rationale for targeting both female and male farmers in the provision of AAS, and reviews the most current evidence on the benefits of gender-inclusive staffing, technical content, and delivery methods. The Brief concludes with broad recommendations and guidelines for Program Officers to employ when working with partners on AAS investments.

I. Why does gender matter for AAS?

Across the developing world, female farmers make essential contributions to agricultural production and food security. Women contribute close to half of all agricultural labor in Asia and Sub-Saharan Africa. Their work—in kitchen gardens or homestead plots and in a wide range of food crops—is extremely important for household-level food security and dietary diversity (Doss 2011, Doss et al. 2018). Despite this large role in food production, women's agricultural productivity is significantly lower than men. A study in six sub-Saharan African countries that comprise more than 40% of the regional population found that, even when controlling for plot size and geographic factors, male-managed farms generate between 17% and 66% more output per hectare than female-managed farms (Ali et al. 2015, O'Sullivan et al. 2014) (Figure 1).

Figure 1: Gender Gaps in Agricultural Productivity, by Country



NOTE: The symbols */**/*** denote statistical significance at the 10%, 5% and 1% levels

Source: O'Sullivan et al. (2014)

1. Agricultural advisory services refer to the range of information, advice, training, and knowledge related to agriculture or livestock production, processing, and marketing provided by governments, nongovernmental organizations, and other sources that increase farmers' ability to improve productivity and income (Ragasa 2014).

60 year old farmer Akola Devi paints limestone on the mango tree to save them from termites in their fields in Gufu Village, Khunti district of Jharkhand in India. Photo @ Bill & Melinda Gates Foundation/Sanjit Das

There are multiple factors contributing to the gender productivity gap in agriculture – including unequal access to key inputs such as land, labor, and fertilizer. But another inequity stands out: **women's limited access to appropriate agricultural advisory services (AAS) impedes their ability to learn and adopt new technologies and management practices that may increase the returns to the inputs they do have.** The exclusion of female farmers from AAS also restricts their opportunities to form producer organizations that can facilitate other market linkages. In many low-income countries, especially those in sub-Saharan Africa, the availability of AAS is limited for all farmers. But numerous studies indicate that access to AAS (usually measured as contact with or a visit from an agricultural extension agent or livestock officer) is consistently lower for women as compared to men (Ragasa 2014). For example, household survey data from India, Ghana, and Ethiopia reveal large gender gaps in contacts with extension agents. (Table 1).

Country	% Women reporting at least one contact with extension agent in previous year	% Men reporting at least one contact with extension agent in previous year
India	18.4%	28.8%
Ghana	0-2.1%	10.9-12.3%
Ethiopia	20%	27%

Source: World Bank/IFPRI (2010)

Why are women farmers less likely than men to benefit from AAS? This Brief focuses on four substantive barriers: targeting, staffing, content, and methods.

- **Targeting** refers to the persistent perception on the part of many AAS providers that "women are not farmers" and/or that women's lower levels of literacy, numeracy, and access to complementary inputs makes them less worthy of scarce extension resources.[2]

- **Staffing** and institutional barriers are primarily related to the predominance of males as AAS providers. The United Nations Food and Agriculture Organization (FAO) estimates that only 15% of extension personnel globally are women, and female farmers in many cultural contexts may not be comfortable interacting with male extension workers, or even be prohibited from doing so. Public, private and non-governmental AAS provider organizations also often lack institutional strategies and mechanisms to address gender issues.

- **Content-related** obstacles to women's participation in AAS include possible male bias in the choice of which crops and technologies are included in the training curriculum. This is often exacerbated by lack of contextual knowledge about the existing gender division of labor in the client population.

- Finally, some **methods** used by AAS providers may dissuade women from participating insofar as they rely on top-down training approaches, implicitly require a certain level of literacy, numeracy and/or fluency in the official language, and expect attendance at events whose time and/or location are incompatible with social expectations about women's caregiving work.

2. During focus groups with Ethiopian farmers, most of the (male and female) discussants agreed that assigning the identity of "farmer" to women was controversial because of their limited involvement in primary (and more symbolic) farming operations such as ploughing or tilling, despite the fact that women do take part in most other farming activities, including production harvesting, threshing, processing storage, and marketing (Abate et al. 2017).

II. Can female farmers benefit from AAS?

There is mounting evidence from rigorous impact evaluation research that **intentional efforts to include women farmers in AAS programs can generate positive outcomes.**

- In Ethiopia, for example, where the participation of women in agriculture is substantial,[3] the Rural Capacity Building Project (RCBP) explicitly sought to increase female participation by mainstreaming gender inclusion in all aspects of the extension system. In stark contrast to many gender unintentional AAS programs without a gender focus, the main impacts of the RCBP effort—adoption of marketable crop farming and increased labor force participation—benefitted male and female-headed households equally (Buehren et al. 2017).

- A sustainable land management program in Uganda (the Lake Victoria Regional Environmental and Sustainable Agriculture Productivity Programme) included gender training and a requirement that participating farmer groups involve women in their decision-making structures. It produced positive impacts on three measures of food consumption for both male- and female-headed households. However, the magnitude of the effect was only half as large for female-headed households relative to male-headed households due to a lack of equal access to complementary inputs, in particular time and labor (Davidsson and Ståhl 2018).

- In the Democratic Republic of the Congo, joint male and female participation in an integrated soil fertility management program led to the highest adoption rates of improved legume varieties, row planting, and application of mineral fertilizer. In this case, participation by female-headed households was relatively more effective for technology adoption than participation of female farmers in male-headed households (Lambrecht et al. 2016).

- The international development organization BRAC targeted its large-scale agricultural extension program in Uganda uniquely to smallholder women farmers. It produced strongly positive impacts on the adoption of improved cultivation methods and household food security, alongside a significant reduction in malaria prevalence in eligible households (Box 1).

Box 1
Agricultural Extension for Women Only: BRAC Uganda

Launched in August 2008, BRAC's largescale agriculture program in Uganda seeks to increase the productivity of smallholder women farmers and improve household-level food security by promoting improved basic cultivation methods and the usage of high-yield seeds, primarily maize, and other inputs. This program provides extension services and supports a network of female Model Farmers and Community Agriculture Promoters.

A pair of recently published impact evaluations of the program (Pan et al 2018, Pan and Singhal 2019) found:

- Significant increases in the usage of improved cultivation methods that require low upfront monetary investment (application of manure, intercropping, crop rotation, and manual irrigation)
- Meaningful improvements in four measures of food security (food sufficiency, per capita food consumption, variety and number of meals)
- A rise of 27.6% in the value of agricultural production
- A 22% increase in the number of owned mosquito bed nets per capita
- A 29% reduction in household-level malaria prevalence, including a 22.4% reduction for children under 5 years old and a 56.8% reduction for pregnant women.

3. Women are estimated to provide between 29 and 45.5 percent of total agricultural labor in Ethiopia (FAO 2011; Palacios-Lopez et al 2017).

Harvesting of Swarna Sub I rice, a STRASA variety from IRRI, planted in Kamlavati Devi's field at Mohanjot village in Maharajganj district of Uttar Pradesh. Photo ©Bill & Melinda Gates Foundation/Prashant Panjiar

III. Messengers: Who delivers AAS? Does it matter?

Agricultural advisory services are historically a male-dominated field, which may impact women farmers' access from both the supply and demand sides. Male extension workers may make less effort to reach female clients and/or be less aware of the types of advisory services that would be most useful to them. And women farmers themselves may be more reluctant to participate in extension activities led by male providers. A recent randomized control trial in Mozambique, where women are responsible for 72% of plots as heads of households and 31% of plots in households headed by men, offers strong evidence that training and deploying female frontline extension workers significantly improves knowledge and adoption of new agricultural technologies (see Box 2) (Kondylis et al. 2016).

However, for women to be successful as sources of agricultural information, other farmers – male and female – need to be willing to learn from them. A large-scale field experiment in Malawi (BenYishay et al. 2020) looked at women trained as lead and peer "communicators" who exhibit comparable abilities to absorb and retain knowledge of new technologies—and to successfully adopt them on their own farms —as their male counterparts. It reveals strong evidence that, even though they are skilled advisers, other farmers are significantly less likely to participate in trainings and informal interactions related to diffusion of the technologies when the communicator is female.

This is true for male and female farmers, both of whom exhibit gender bias towards women as teachers of new farming technologies. This important result suggests that, on its own, assigning female farmers to teach others may not be sufficient to address inefficiencies in communication and agricultural extension. There are still deep-rooted, inaccurate perceptions about women's abilities in agriculture that need to be addressed.

Beyond field staffing issues, research on gender mainstreaming across a range of development organizations has found that to be successful, **four enabling factors are necessary: political will, technical capacity, accountability, and organizational culture.** Political will refers to the ways in which an organization's leadership prioritizes and supports integrating gender in their work, including the inclusion of gender in policy documents and the allocation of funds. Technical capacity refers to the professional qualifications and skills possessed by organizational staff to integrate gender into their work. Yet even if these skills are present, accountability mechanisms need to be in place to ensure that staff operationalize the institution's commitment to gender integration. Such mechanisms include monitoring and evaluation of gender results and staff incentives. Finally, organizational culture refers to creating an environment supportive of gender integration, one in which staff are encouraged to share lessons learned on gender and to ask questions about its relevance to their work (Meinzen-Dick et al. 2014).

Elspeth Williams, research analyst, Global Development for the Bill and Melinda Gates Foundation, meets with a group of women farmers to better understand their challenges and opportunities to improve their lives, and the role of agricultural interventions. Ibrahimabad village, Andhra Pradesh, India. Photo © Bill & Melinda Gates Foundation/ Prashant Panjiar

Box 2
Do Female Instructors Reduce Gender Bias in Diffusion of Sustainable Land Management Techniques? Experimental Evidence from Mozambique

- **Prior to the intervention,** male extension agents expressed a preference to work with male farmers because their education and organization skills made them better equipped to take advantage of extension services. Moreover, the male "contact farmers" who serve as points of contact between extension agents and community members are more likely to specialize in maize and cash crops such as cotton and sesame, whereas female messengers specialize in the same food crops (e.g., sorghum and cowpea) as other women farmers, and are therefore potentially better-positioned to communicate to female farmers.
- **The experiment** consisted of the targeted communities selecting a female farmer to receive the same training as the male contact farmer, to maintain her own demonstration plot, and to teach women sustainable land management (SLM) practices such as contour farming, pit and row planting, and mulching.
- **The results** are striking: For women farmers, their awareness, knowledge and adoption of the SLM technologies was unaltered when the community was served by a trained male messenger alone. But in communities where both men and women were trained to be contact farmers, their awareness and knowledge of pit planting increased by 8.9 and 8.2 percentage points respectively, and their adoption rates increased by 4.7 percentage points. (Kondylis et al. 2016).
- **What drives these positive effects?** The increase in women's access to information through adding a female messenger may be due to both the increase in the supply of messengers and complementarities between male and female messengers. Male messengers appear to be motivated by the presence of female messengers to increase outreach to both male and female farmers. Female farmers are also more likely to visit male messenger demonstration plots monthly only in communities with female messengers. This result suggests female messengers may increase female farmer awareness of the technology and hence their demand for information.
- **Does it cost more?** A careful cost effectiveness analysis of the Mozambique experiment concluded that the gendered intervention —training and deploying a female contact farmer along with the male contact-farmer— was more cost-effective for both female and male famers. It improved all farmers' knowledge of the sustainable land management technique, in spite of its additional expenses (Mogues et al. 2019).

IV. Content: Which technologies and management practices should be included in AAS for women farmers?

The relative exclusion of women as targets of advisory services and the barriers presented by male bias in AAS staffing are just two of the challenges to gender integration. There is also the possibility that the content of advisory programs may not be as useful for women farmers – and may even have unintended negative consequences. This shortcoming is due to the fact that most crop and livestock systems operate within the context of gender roles and responsibilities. That includes a **gender division of labor** typically involving a sex-based specialization in particular crops and/or farming and marketing activities. It also can be more challenging for women farmers to adopt new technologies due to their relative **lack of access to complementary inputs** such as land, labor, and financial capital (Doss and Morris 2001, Quisumbing et al. 2014).

In order for AAS to be meaningful for female farmers, it is important for providers to be knowledgeable about the roles they play in the local farming systems, and to tailor the content of services accordingly. For example, in their study of an agricultural extension program in the eastern Democratic Republic of the Congo, Lambrecht et al. (2016) use information on male and female plot ownership and management, as well as gendered crop and activity specialization, to understand the differential adoption rates of three agricultural technologies. Similarly, in designing a banana technology transfer program in four sub-Saharan African countries, the CGIAR Research Program on Roots, Tubers and Bananas collected detailed information on farm households' demographic characteristics, land ownership, decision-making processes, and division of responsibilities for the major production activities (land preparation, sourcing and transporting planting materials, planting, and weeding). This information allowed them to target the relevant virus control technologies to all household members in alignment with their current banana production roles (Ajambo et al. 2018).

It is important that AAS provider organizations conduct local, participatory gender-disaggregated field assessments to generate accurate data capturing women's actual roles in their communities, without assuming which crops and activities are "male" and which are "female." Such assumptions run the risk of limiting the services provided to women to stereotypically low-return activities like poultry care and vegetable gardening. This assessment data can then inform program content and be transferred to agents via training.

In the absence of a good understanding of the intra-household division of agricultural labor, **some of the technologies promoted in AAS programs have the potential to unintentionally place a burden on women,** who may not share in the benefits generated. For example, the row planting component of the TIRR package promoted by the Ethiopian Ministry of Agriculture significantly increased the shares of labor provided by women and children to sowing and fertilizing, activities in which they were not traditionally involved (Vandercasteelen et al. 2018).[4]

In contrast, other technologies that may be preferred by women might not be taken up if they have less influence over the adoption decision. A recent study of mechanical rice transplanting (MRT), a technology that reduces demand for labor, found (through a willingness to pay exercise) that women value MRT more highly than men – especially in households that rely exclusively on female family labor for transplanting. They view it as a means of reallocating on-farm labor to other unpaid family work (Gulati et al. 2019). However, adoption rates do not reflect these preferences since men have greater decision-making power with respect to agriculture.

It is also essential that AAS providers be aware of the differential resource constraints that women farmers face. Evidence from several studies suggests that women are less likely to adopt capital-intensive technologies (e.g. those requiring purchased seeds or fertilizer) or those requiring labor inputs exceeding what the woman can provide herself (Doss and Morris 2001, Lambrecht et al. 2016, Davidsson and Stahl 2018).

4. Moreover, in this case, despite the greater labor requirements of the new technology, there was no impact on teff yields or profitability.

V. Methods: Which AAS communication and delivery systems work best for female farmers?

In the same way that women may need differentiated AAS content – because they are likely to grow different crops and carry out different agricultural tasks –certain types of outreach, training and communication methods may be more beneficial to female farmers than to their male counterparts. **Evidence suggests that while the traditional training and visitation (T&V) approach has not generally served women well, some of the more innovative AAS approaches -- farmer field schools, self-help groups, peer mentoring, incentivized learning, and video-mediated agricultural extension – may do a better job of disseminating agricultural information related to the adoption of new crops and technologies to female farmers.** These methods, which are consistent with adult learning theory, are often human resource intensive and tend to be costly and challenging to scale up. Digital technologies may offer cost effective opportunities to amplify these communications and delivery systems in ways that work for both male and female farmers – if they can address the gender digital divide.

A comprehensive evaluation of farmer field schools in East Africa found that the impacts with respect to crop and livestock productivity, as well as agricultural income, were significantly larger for female-headed households than for male-headed households (Davis et al. 2011). For women participating in the East African Sub-regional Project for Farmer Field Schools, average crop productivity increased by almost 140% relative to the control group of women farmers; the corresponding increases were 23% for livestock productivity and almost 190% for agricultural income.

Field schools adopt a participatory and experiential learning approach to AAS, in which farmers work together in groups to conduct their own research, diagnose and test problems, and come up with solutions. This appears to be a promising method for reaching female farmers in some developing country regions. When specific measures are taken to enable and encourage women to participate in farmer field school programs, there is some qualitative evidence that the experience can even contribute to greater gender equality in the household by facilitating changes in gendered roles and encouraging spousal collaboration and shared decisionmaking (Friis-Hansen et al. 2012).

Women's self-help groups (SHGs) may also offer a platform for gender equitable access to agricultural information, advice and services. SHGs are local community groups comprised of 10-20 adult women who meet at regular intervals to deposit small amounts of money into a common pot from which members can take loans. Along with savings and subsidized credit, these groups receive training and inputs to pursue income-generating activities and are often recruited to help with public works or service delivery. Kumar et al. (2017) identify three pathways through which SHGs may impact agricultural outcomes: by (i) improving access to inputs, markets and technical knowledge, or the agriculture pathway, (ii) increasing access to finance (the financial pathway), and (iii) improving women's role in decision-making in agriculture, (the empowerment pathway). New research in India evaluating the impact of membership in SGHs affiliated with the NGO Professional Assistance for Development Action (PRADAN) finds that participation in an SHG improved women's access to agricultural information, bank accounts, and loans, and increased their decision-making power with respect to agriculture. But there were no significant changes in the use of improved agricultural practices (Raghunathan et al. 2018). The authors conclude that SHGs may break the knowledge barrier by providing agricultural extension directly to poor women, and improve women's control over household income. But other barriers that hinder adoption – including deeply rooted social norms and traditions, and social expectations about women's care work -- need to be addressed to transform knowledge into practice.

A third promising approach to delivering AAS to women is the use of peer mentors (also called farmer-to-farmer extension). The mentors are usually female farmers with some training and experience in the new technology that is being introduced. A randomized impact evaluation of the Ugandan National Agricultural Advisory Services (NAADS) program offered this kind peer mentoring to a subset of female cotton farmers as part of the agricultural extension program—and produced strongly positive results (Box 3) (Vasilaky 2013, Vasilaky and Leonard 2018). This outcome is consistent with a large body of academic literature establishing the importance of social learning as a key determinant of product and technology adoption (cf. Beaman et al. 2018). Recent research in Malawi, for example, found that farmers are most convinced to adopt new technologies by communicators in their social networks who share a group identity with them, or who face agricultural conditions most comparable to themselves (BenYishay and Mobarak 2019).

Box 3
Female Social Networks and Farmer Training: Can Randomized Information Exchange Improve Outcomes?

- **Treatment:** A social network intervention (SNI) involved pairing each woman with another randomly selected female cotton farmer whom she did not already know. Each pair identified cultivation issues, chose a collaborative goal, and set potential times when they would meet to exchange information.
- **Results:** the impact evaluation found that cotton farmers in villages that received the SNI experienced large gains compared to the control group for all but the highest performing farmers. The intervention was also successful in creating new links between female cotton growers who, prior to the SNI, did not know one another, but following the intervention, reported sharing cotton-growing information (Vasilaky 2013, Vasilaky and Leonard 2018).
- **What explains the outcomes?** There are several plausible mechanisms that could explain these effects, including elevating aspirations, increasing confidence, mitigating risk aversion, and technical information sharing.
- **Lessons learned:** This experiment demonstrates that woman-to-woman mentoring – particularly where one of the women is somewhat better off economically and can therefore set an achievable example – facilitated Ugandan women farmers' ability to acquire new crop information and to improve their yields.

There is also evidence that **female farmers can learn agricultural information in incentivized, competitive environments.** A branch of the Ugandan NAADS impact evaluation tested alternative modes of group training among women cotton farmers (Vasilaky and Islam 2018). In one treatment arm, groups of 14 women were incentivized to learn a series of informational points relevant to cotton farming, with prizes proportional to the total number of correct answers for the team as a whole. In the other arm, only the highest performing group member was rewarded, establishing a competitive (tournament) learning environment. After three rounds, the women learned more total information under tournament incentives than under team incentives; participants were more engaged and exerted greater effort when they were in competition with one another for the prizes. However, each new information point was more likely to be learned under team than tournament incentives, most likely because the lowest performing participants were concerned about the negative reputational effects of continued free riding. These experimental findings suggest that using competitive schemes in low-cost group–based training can be effective for encouraging information exchange and learning retention among women farmers.

Using videos to deliver agricultural information is another promising method of reaching women farmers. A study of the experience of Digital Green in Ethiopia finds that targeting both spouses for video-mediated extension significantly increased wives' access to Development Agent (DA) advice as well as their scores on a test of knowledge of the three principal technologies for teff, wheat, and maize (Abate et al. 2019). However, the increase did not translate into changes in the households' technology adoption decision above and beyond that of the regular treatment arm that was targeted to household heads only (Box 4).

Another recent randomized control trial with maize farmers in eastern Uganda used videos to provide technical information on seed choice, soil nutrient management, weeding, timely planting and plant spacing, as well as guidance on an incremental approach to investing in the new technologies (Van Campenhout et al. 2018). The experiment varied the sex compositions of both the messengers portrayed in the videos (male/female/mixed) and the audiences to whom they were shown (men only/women only/couples together). Preliminary results suggest that increases in knowledge of the practices were greatest for couples who watched the informational videos together, giving support to the hypotheses that gender inclusive AAS methods can contribute to improved outcomes.

On the cutting edge of AAS delivery – and central to the foundation's strategy in this area – **is the use of digital information and communications technologies (ICT) as a complement to conventional face-to-face extension approaches** (Cole and Fernando 2016, Deichmann et al. 2016). Digital technologies can be used to enable human intermediaries (e.g. videos, digital training tools, mobile-based farmer profiles, and performance management systems), to reach farmers directly (e.g. Interactive Voice Response, Short Message Service, radio and television), and to create backend data and analytics systems. ICT also offers the possibility for farmers to proactively seek out and receive discrete advice on-demand, as opposed to predetermined content delivery.

While video AAS appears promising, it is unclear if digital technologies more broadly have an advantage in reaching underserved rural women. The few impact evaluation studies that report heterogeneous treatment effects by gender conclude that women farmers in India were significantly less likely to use the Direct2Farm mobile agri-advisory service, and female extension workers in Kenya who participated in an ICT training continued to prefer face-to-face methods (Kansiime et al. 2019, Tata and McNamara 2018). While women could arguably potentially benefit the most from ICT for agriculture services – which can be offered at low cost, at scale, and with standardized content -- there is a wide "digital divide" in terms of women's access to and use of ICTs. Women on average are close to 20% less likely to own a mobile phone and 30% less likely to have internet access than men, according to a sample of Sub-Saharan African countries (Deichmann et al. 2016).. Even if women have access to a mobile phone within the household, they may have limited privacy or independence while using it or may be further constrained due to low levels of language and technical literacy (Aker et al. 2016). These differences in access and usage not only affect women's potential access to and use of ICT for agriculture services, but their ability to translate these services into action. **This makes it imperative that digital AAS initiatives understand gender differences in access to and agency over the relevant technologies in the design and implementation of programs.**

Box 4
Digital Green's Video-based Agricultural Extension Program in Ethiopia: A Promising Approach for Gender Inclusive Extension

In 2017, the International Food Policy Research Institute (IFPRI), with funding from the Bill & Melinda Gates Foundation, partnered with Digital Green to assess the effects of video-mediated agricultural extension services on farmers' knowledge and adoption of improved agricultural technologies and practices in Ethiopia. Among their research questions was: **is video-mediated extension more effective when it targets both spouses than when it targets only the (typically male) household head?**

The videos featured local farmers and focused on main production activities (i.e. planting, weeding, fertilizer application) of major crops (teff, wheat and maize) that farmers cultivate in the locality. This video-based approach is a shift away from standard extension practice in which extension agents conduct trainings at farmer training centers and make occasional visits to individual farmers or local groups.

The experiment consisted of:

- A control group in which the Government of Ethiopia's conventional extension approach was targeted to the (typically male) household;
- A first treatment group in which Digital Green's video-mediated approach was targeted to the (typically male) household head; and
- A second treatment group in which Digital Green's standard video-mediated approach was targeted to both the household head and his/her spouse. Disseminations were done separately for male and female participants, but were typically conducted on the same day and allowed for female household heads to participate in either of the video dissemination sessions.

Focus group interviews indicated that women appreciated the reduced travel time and ease of access of the video sessions, and the fact that screenings were held separately for men and women. Women reported that the visual presentation helped them to better understand and imitate the technologies and practices, while overcoming the literacy and numeracy barriers of the conventional AAS delivery methods. They also noted that the use of local characters in the videos provided a sense of trust in the information being provided. Men and women both indicated that the mutual participation of spouses in the video screenings enabled them to discuss the technology or practice and its use afterward, which facilitated adoption decisions.

The quantitative impact evaluation results indicate that:

- Only the joint treatment led to a significant increase in spouses' access to extension advice: spouses in the joint treatment group were 20-25% more likely than spouses in the control group to have received advice on wheat and maize.
- Likewise, only the treatment that included spouses led to positive and significant effect on spouses' knowledge of the three technologies being delivered (row planting, precise seeding rates, and urea dressing); scores on the post-test were 4.3-4.8% higher for spouses in the joint treatment group relative to the control.
- With respect to actual adoption of the technologies, the spouse-inclusive approach did not induce higher uptake over and above the 35% increase for the head-only video treatment. This could be due to the fact that the crops and practices that were promoted were not "women's" crops within the traditional gender division of labor, and/or intra-household dynamics that might have acted as barriers to spouses contributing their newfound knowledge to the adoption decision.

Source: Abate et al. (2019)

VI. Recommendations

This Brief has identified four key areas in which attention to gender can improve the equity and impact of agricultural advisory services for developing region farmers: targeting, staffing and organizational reform, and content and method of service delivery. Four general recommendations, along with some practical guidelines for implementation, and the identification of evidence gaps, follow from a review of the evidence:

1. **Target women as legitimate clients in AAS programs.** Whether as female heads of household or as spouses within male-headed households, women farmers are able to benefit from AAS in terms of using information to adopt new technologies and improve income and nutritional outcomes. To ensure that AAS providers are inclusive of female clients, practical measures include the establishment of institutional-level quotas and/or offering extension agents monetary and non-monetary performance incentives to actively find ways to reach out to this historically underserved population (Bitzer 2016). Here, it is important that AAS providers not simply be recognized and rewarded for the number of women they interact with, but for effectively engaging with female farmers in ways that generate measurable outcomes.

2. **Commit to more gender-equitable training and staffing of AAS providers, supported by organizational/ institutional measures to systematically achieve greater gender integration.** It is clear that in many contexts, women farmers learn more effectively from female extension agents, contact farmers, and peer mentors. Foundation support of AAS provider partners should be tied to **monitorable targets with respect to hiring, training and promoting female field staff.**[5] At the institutional level, both public and private extension agencies can be supported to develop monitorable gender strategies and concrete plans for gender training of all managerial, technical and field staff. The FAO has developed The Gender and Rural Advisory Services Assessment Tool (Petricks et al. 2018) as a user-friendly methodology that helps organizations carry out an in-depth analysis of the gender sensitivity of their AAS programs at the policy, organizational and individual levels.

3. **Identify and promote agricultural advisory services that are most relevant for women's crops, activities, and access to inputs.** This implies that AAS programs need to be informed by field diagnostics on gender-differentiated land ownership and management, crop specialization, access to complementary inputs, marketing constraints, and division of responsibilities for agricultural tasks, which can then serve as the basis for identifying and prioritizing the AAS needs of female farmers in a given context. There are a number of options that could contribute to greater inclusiveness of service provision to farmers. They include **systematic collection of such data at baseline** (using locally adapted instruments such as the project-level Women's Empowerment in Agriculture Index), seeking **gender expertise in the design of advisory programs and selection of advisory methods and tools,** and **regular monitoring of sex-disaggregated outcomes and impacts.**

4. **Utilize advisory methods that are proven to work for women farmers.** AAS providers need to be incentivized to innovate with respect to the ways in which they work with farmers, especially if they are trying to meet the needs of both female and male clients. **AAS methods shown to be particularly effective for women include participatory farmer field schools, peer mentoring from other women farmers, incentivized competitive group learning, and video-mediated agricultural extension.** Introducing direct-to-farmer approaches using digital technologies needs to take into account the risk of exacerbating the gender digital divide if interventions are not specifically designed to target women and address barriers to their access to and agency over such technologies

5. **Support data collection and research to generate useful evidence on gender-differentiated impacts of AAS.** All foundation AAS provider partners should collect sex-disaggregated data on their staff and clients, which should form part of the regular reporting requirements. In addition, AgDev can actively identify opportunities to support experimental research, along the lines of the IFPRI/Digtial Green collaboration profiled in Box 3, that tests alternative AAS curricula and delivery methods to assess their impact on female farmers' technology adoption and productivity, as well as other measures of women's empowerment in agriculture.

5. In Kyrgyzstan, for example, the introduction of staffing quotas increased the proportion of female agricultural extension agents to 30%, which in turn led to an increased focus on women farmers as the recipients of extension services, whose share went up to 60% of the client base (Bitzer 2016).

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