

## TOOL/GUIDELINES

# Guidelines for Facilitating Women's adoption of Improved Cereal Varieties in Sex-segregated Cultures

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## Introduction

Women in the Global South play significant roles in farming but face inequalities in access to resources, land and extension support (3,4,5). Their roles in farming cereals, often perceived as male crops, are especially undermined (2). The results are missed opportunities to achieve increased food security in households, communities and nations more broadly (7,8).

Improving the visibility of women in cereal farming is an essential first step to improve their access to inputs and close the gender yield gap in farming. Validating women in their farming roles enables extension and development programs to reach women farmers in the first place. These considerations for improving women's access to information and innovations are especially important in context of increased feminization of agriculture, defined here as increased participation for women in agriculture due to either male-outmigration or reduced profitability in farming yet with unequal access to resources. However, improved access to resources and adoption of agricultural innovations does not automatically mean that women benefit. Adoption of innovations can, for example, lead to increasing women's workloads or widening gender inequalities by leading to men taking control over an enterprise previously controlled by women (9).

As such, it is important to ensure that women also benefit from the adoption of innovations. Empowering women to take increased control over their lives by enabling them to important choices stands to strengthen their abilities to adopt innovations and benefit from these innovations.

This tool offers guidelines based on [Gennovate](#) research conducted in Uzbekistan, Morocco, and India related to wheat and barley innovations while also drawing on action research related to wheat production and processing conducted in Ethiopia, Nigeria, and Sudan. In these cultures, women and men are largely segregated in every-day social settings and women have limited visibility in their contributions to agriculture, especially cereal crops. The tool identifies contexts that support women's positive participation in agricultural innovations related to cereals. Using the framework of reach, benefit, empower, the tool significantly offers a set of **best practices** and related **indicators** to develop both cereal production and processing (9).

## Reach

The long-term impacts of excluding women from extension advice and access to innovations might lead to a situation where women's innovation capacities become markedly low, as exemplified below, with negative implications for food security and poverty alleviations in households, communities and countries more broadly.

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*“It's the man who does everything; the woman's value is low. It's rare where a woman is innovative .... There is a big difference between the man and the woman. the man has the right to decide, but the woman doesn't. even if she wants to do something new, she doesn't have the full freedom to do it,” (Morocco, Focus Group with Middle Class Women).*

It is important to target women so their capacities to innovate in agriculture (e.g. adopt and adapt innovations) are strengthened and nurtured as women are actively involved in farming and constitute half the population or even more in areas affected by male outmigration. Reaching out to women farmers to enable their access to information and strengthen their innovation capacities is important to correct these harmful impacts.



**Figure 1.** Conducting a Women Focus Group Discussion in India.

Furthermore, in subsistence-oriented and small-scale farming cereal varieties grown on farms are often grown for both household consumption and sale. Findings from Sudan and Morocco reveal that women are often participants in making adoption decisions related to wheat varieties when the wheat grown as a source of income is also for subsistence purposes (7).

“I usually tell my husband which wheat variety to grow because I know which one would work best in baking. I tried this technique variety [note that all varieties were called technique by women due to their limited interaction with extension programs] at our neighbour’s house. I liked the taste and I told my husband to grow it too. He did,” (Morocco, Interview with Innovator Woman).

In such context, both women and men in the household should be targeted for improving the overall adoption potential of improved cereal varieties. Breeders report that many improved varieties with better yield potential fail in reaching wider adoption phases due to lack of buy-in from women, whose priorities were not accounted for, particularly in palatability and cookability (7).

“We have seen time and again that if the variety is not appropriate or convincing for women who are responsible for the consumption of wheat in households, the varieties do not get adopted. If the variety is not suitable for home consumption, it does not get adopted although we release it thinking it has good yield,” (Sudan, Wheat Breeder).

As such it is important to involve the needs of both women and men in the release of new improved cereal varieties in order to achieve wider, relevant outcomes and thus increased adoption (6).

In order to reach women, improved seed variety programs need to understand the local gender norms. Women’s limited mobility and restricted interactions with men outside their families or communities can be a deterrent for their participation and ability to benefit from improved seed varieties, as illustrated below.

“No, women do not learn from agricultural extension agents because women hesitate to talk to outside people from our community. Women also do not have interest to attend meetings. People of our community also do not like if women go to attend any meetings,” (India, Focus Group with Middle Class Women).

“According to local traditions it is forbidden for women to speak first among the management of mahalla (community) committee and at other meetings in khokimiyat (local government). That is why a woman’s farm is represented by a male relative. It is easier for him to talk with tractor drivers and men workers,” (Uzbekistan, Focus Group with Poor Class Men).

In such cultural contexts, it is important to involve women in spreading innovations. Targeting leader women who have succeeded in breaking these harmful norms can enable other women to follow their lead.

“If there were any woman, and she told us about new barley varieties and improved agronomic practices, then we should also adopt at first time. Women mostly do not to attend any meeting. If women also attend the meetings and have all information and knowledge about new things, then we can grow or try anything

*the first time also,”* (India, Interview with Innovator Woman).

It can be difficult to find women extension agents as their number is usually low and even when women are hired as extension agents their interactions with rural communities might be limited due to their remoteness or to organizational culture which almost exclusively devolves office and lab work to women extension agents. As such, other rural women can still act as chaperones and/or spread the innovations themselves. In India, for example, findings reveal that the wives of men innovators spread information about new barley breeds to other women in the community.

“*Rohitash Ji encouraged my husband [to adopt an improved barley variety], and his wife increased awareness among women to try out the new barley seeds. She helped us in increasing our knowledge and realize the importance of new information related to barley,*” (India, Interview with Woman Innovator).

In India having women in leadership positions, who were targeted as primary beneficiaries from the onset of the project, has enabled other women in the community to access information about new barley varieties. Barley contract farming (*Sanji Unati*) was introduced to the community to both women and men leaders and spread to others, to women and men alike.



**Figure 2.** Barley contract farming official with women farmers' participants.

Along the same lines, in Nigeria women appointed in wheat cooperatives enabled the access of women farmers to improved seed varieties as well as machinery, previously perceived as exclusively accessible to men (8). In the same

study, women leaders were targeted to participate in extension programs and cultivate improved wheat varieties on their lands. The women leaders were trusted in their communities and were asked to recruit other women to learn and benefit from wheat-related farming practices.

This was done because it was not possible to find women extension agents in the area. Some of the women who are farmers and leaders in their community (e.g., president of a self-help group) were given the training and acted as extension agents to spread knowledge to other women in the community.

Where the participation of women is perceived as a competition with men in the household, it is best to ask for men to bring their wives along with them rather than exclusively recruit women to the project. Action research in Sudan reveals that inviting both the husband and the wife to attend field days related to improved wheat varieties and agronomic practices improves the participation of women and subsequently both women's and men's abilities to adopt (7).



**Figure 3.** Husbands and wives participating in field days in Sudan.

It is important for women to attend field days whereby the performance of different varieties is evaluated on the ground. In almost all the studies reported here women and men valued learning from farmers who have experienced the benefits first hand, as illustrated in the example below. As such, seeing the varieties and practices on the ground during field is important for adoption purposes for women and men alike.

“*Yes, women learn from extension agents, but mainly they believe the successful farmers or neighbors because they can see actual profit,*” (Uzbekistan, Focus Group with Middle Class Women).

Suggested **indicators** related to **targeting women** which can guide this step are the **number of women participating in field days**, the **number of women hosting trials and technologies**, the **number of women attending extension training**, and the **number of women leaders of extension agents** involved in disseminating the innovations of the project.

### Benefit

Benefitting from agricultural innovations does not only entail participating in an extension program or adopting improved varieties. For women to benefit, women's income should notably increase and/or women experience through the crops grown improved nutrition outcomes for themselves and others in the household. While some women can benefit from certain agricultural innovations, the same innovation can be detrimental to other types of women. As such, it is important to monitor and mitigate for these negative impacts across different social classes and other forms of social difference (e.g., age). This is particularly true for mechanization. Mechanization of fertilization, seeding, harvesting, ploughing, and pesticide application could lead to a situation where landless women and men lose their jobs.

“*Our husbands sleep if the tractor is used [our husbands don't find job opportunities because the tractor does the work they used to do] and what will we eat if we rely on jobs in agriculture? They should instead keep the work done with hands, our sons and husbands are losing,*” (Morocco, Poor Class Women).

However, members of households who were providing the related labour for free would benefit from workload reduction along with financial savings due to decreased hiring of agricultural labour. To mitigate for such unintentional outcomes, for example as was done in Sudan, the women who have lost their jobs to mechanization can benefit from roughing tasks (manually removing off types) in fields cultivated for seed production often done in a machine-intensive setting.

One notable way for improving women's income from improved seed varieties is through value addition. While the income of wheat crop grain or seed sale is often controlled by the men, who are responsible for its sale, the income of value-added product especially when sold in the household or local markets is cashed by women themselves. Extension programs often ignore women's needs particularly with regards to value

addition (3). Some examples for value addition extension programs, which were the focus of projects reported here in Sudan, Ethiopia and Nigeria, can include new recipes for products in demand, yeast, egg or oil addition, and training on marketing the produce.



**Figure 4.** Value added products produced from trainings in Sudan (above). Gas cylinder and over microcredit offered to women in Sudan (blow).

Women who have participated in such program in Sudan and Nigeria reported gaining double their income and/or starting a business out of these trainings on new or improved recipes (7,8). In order to benefit, it is probably not enough for women to only attend the trainings, the availability of microcredit (e.g., in order to buy wheat flour and ovens) and community support (e.g., not stigmatizing entrepreneurial women) for their enterprises should be strengthened as they were reported to be key for enabling women to succeed in generating income from value added products.

Cereals crops which are inherently beneficial to both women and men are also likely to benefit women and men in a more equitable way. Barley, for example, that is both utilized as a feed crop and can be sold to brewing companies, which have to meet an increasing demand for beer, can be beneficial for women through offering more livestock feed and for men



through the grain sold to brewing companies. In India, women in households which adopted contract farming and improved barley varieties reported gaining increased income from sales of milk and owning more livestock and consuming more milk.

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*“We want to give second rank to hybrid barley variety*

*because new hybrid barley variety gives us more yield than the first variety we used before. And, hybrid barley variety gives us more fodder. So hybrid barley variety is useful for our livestock also. And hybrid barley variety helps in livestock producing more milk,”* (India, Focus Group with Middle Class Women).



**Figure 5.** Milk production reported to have increased with adoption of improved barley varieties in India.

Suggested **indicators** to ensure women are also **benefiting** include **number of women whose income has increased** due to the intervention, **number of women who have obtained microcredit**, and the **number of women who have seen nutrition outcomes in their families**.

### Empower

Innovations can empower women when they address structural constraints which impede women from having key choices in their lives. Workload reduction is an important strategic objective which in turn constitutes an obstacle for women to adopt innovations and gain information.

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*“Women try to be innovative actually they are interested in finding new ways, practices, new wheat varieties but they are tightly connected with the family issues and this to some extent disturb them from their search actions. Therefore, innovators are*

*mainly men, they are able to spend whole day in the field,”* (Uzbekistan, Focus Group with Middle Class Women). In this community there is no kindergarten – so women must spend the day looking after the children as well, unable to work the fields during this time.

To enable women in making informed choices for adopting new innovations or agricultural practices, more needs to be done than spreading information or targeting them. Addressing their time poverty can have significant impacts on their abilities to adopt innovations (1). Women in Morocco ranked drudgery reducing technologies of pesticides for treating wheat crop and combines which harvested and cleaned planting seeds, both tasks which used to consume significant amount of their time, as important innovations for women in the past decade.

Strengthening women's income generation in fields which they have control over can strengthen their decision-making power in their households. In many parts of the world, women tend to control income from livestock and value-added food products. Improving women's income potential in these domains can significantly strengthen their decision-making potential in their households and beyond due to an increase in their own income (7,8). Innovations which work together in synergistic ways can achieve this objective more efficiently. In India, improved barley varieties alone would not have achieved increased women's income generation and control in milk production in the same way without the simultaneous introduction of new goat breed.

The two innovations together have been reported to significantly increase women's ability to generate income which they decide on how to use. As the barley yield increased by up to 20%, more feed became available and more animals could be reared. The new goat breed in turn yielded more milk and more kids than the desi or local breed.



**Figure 6.** Improved goat breeds introduced simultaneously with improved barley varieties in India.

Strengthening the leadership potential of women through appointing them in visible leadership roles, such as through hosting technologies and being board members on agricultural cooperatives has proven to improve their decision-making power in the household and communities more broadly.

“*Now [after profitable barley production] my family members have more faith that I can decide. So sometimes my family members take suggestions from me,*” (India, Interview with Woman Innovator).

“*I felt that the farmer now trusts me more, and he listens my suggestions [after succeeding in growing improved wheat variety]. The farmer-Sobir aka, in his field I’m working and who is my husband’s friend, started to trust me more and consult with me,*” (Uzbekistan, Interview with Woman Innovator).

Introducing a quota to include women as board members in wheat farmers’ cooperatives in Nigeria created visible leadership roles that other women can benefit from. In addition to enabling access to wheat innovations (seeds and machinery) to other women in the community, these women have also reported increased decision-making power in the communities whereby they contacted local officials to provide landless women and youth with land and succeeded (8).



**Figure 7.** Woman board member in a wheat agricultural cooperative addressing a local agriculture minister in Nigeria.

Suggested **indicators** for guiding efforts aimed at **empowering women** include **number of innovations introduced that can**

**reduce drudgery** for women, **number of women appointed to leadership positions** through the project and **number of women reporting increased decision-making power** in their households and communities due to project interventions.

### Concluding Remarks

These guidelines proposed contexts for enabling women to participate, benefit and become empowered through agricultural interventions while identifying the validation of women in their roles in cereal crops as an essential first step.

The three approaches of targeting, benefitting and empowering women in cereal production are mutually enforcing. If women are reached with new improved seed varieties, they might benefit through improved nutrition and increased income. If women benefitted from improved seed varieties, other women might be reached as well through farmer to farmer learning. Transforming inequitable gender norms related to leadership roles in local agriculture can be achieved through gender quotas in leadership position along with awareness raising and sensitization. This in turn enables other women in the community to be reached and to benefit. However, more should be done in order for women to benefit and become more empowered, including addressing structural barriers to their participation and enabling microcredit access.

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