



Gender & Breeding Initiative



CIAT

Critical Decisions for Ensuring Plant or Animal Breeding is Gender-Responsive

Background

Widespread adoption and impact of improved crop varieties and animal breeds depends on the tangible benefits they provide for the women and men involved in their production, consumption and marketing. For breeders to meet the needs of resource-poor users, interdisciplinary collaboration is needed to understand the priorities that women and men assign to genetically determined traits, and reflect those priorities in their breeding decisions.

Many CGIAR breeding programs understand that if they overlook gender differences and traits important to women users, this can aggravate household food insecurity and poverty. To help breeding programs avoid this problem and provide them with general guidance in making their breeding more gender responsive, four principles regarding the issue are proposed (see Box 1). However, many breeding programs do not yet fully understand how to put these principles into practice, making it difficult to become more gender-responsive.

This brief addresses the challenge of putting principles into practice. It lays out an approach that involves the systematic inclusion of relevant information about gender differences in critical decisions made at key points in the breeding cycle. The aim is to enable plant and animal breeding programs to become more gender-responsive.

BOX 1

What can a breeding program do to be gender responsive?

- 1) Know when, where, and why women are an important beneficiary group. Take into account important differences in constraints faced by women and men farmers that breeding can influence.
- 2) Anticipate how design decisions (e.g., defining plant ideotype, prioritizing of traits, targeting and testing varieties with farmers) may impact and be influenced by women's labor, available resources and opportunities.
- 3) Design breeding objectives specifically to benefit women farmers when they are an important beneficiary group who require a special approach, and consider their needs, constraints and knowledge more generally in the breeding program.
- 4) Be accountable, making sure the success of the breeding program is measured in ways that include positive impacts for women, as well as for households or farmers in general.

What are the expected benefits of using this approach?

Explicit attention to gender and how it intersects with other user differences at critical decision points in the breeding cycle will:

- Increase the probability that gender issues are not overlooked, and that the standard of “do no harm” is routinely assessed in a breeding program;
- Ensure that varietal product development responds to demand from well-defined markets and customers among the rural poor;
- Improve the understanding of potential users and their needs and preferences;
- Make explicit the criteria used in prioritizing one group of users over another;
- Identify social groups that are “missing” in current definitions of users, as well as potential breeding products that are better suited for their use;
- Sharpen the alignment of breeding products and users’ needs and preferences;
- Improve the efficiency of extension programs’ scaling efforts by facilitating more precise targeting through the use of gender-responsive customer profiles; and

- Increase adoption and enhance positive impacts on the welfare of women and men alike.

How are gender-responsive decisions incorporated at different stages in the breeding cycle?

When to consider gender

Breeding programs that want to ensure they are gender responsive can follow the flowchart of critical decision points in breeding presented in Figure 1. The decisions (amber boxes) occur at key stages in breeding (orange diamonds). The stages of breeding proposed here are for plant breeding, though many of the principles presented in this brief can also be applied to animal breeding. These are the stages that have been identified as key for putting the principles of gender-responsiveness into practice.

Each decision requires breeders, gender experts, and others involved in breeding for the rural resource-poor to use gender-relevant decision-making criteria at each of the turning points in the breeding cycle. A general principle is that these decisions must be informed by reliable evidence on representative gender differences, generalizable to a target population of intended users.

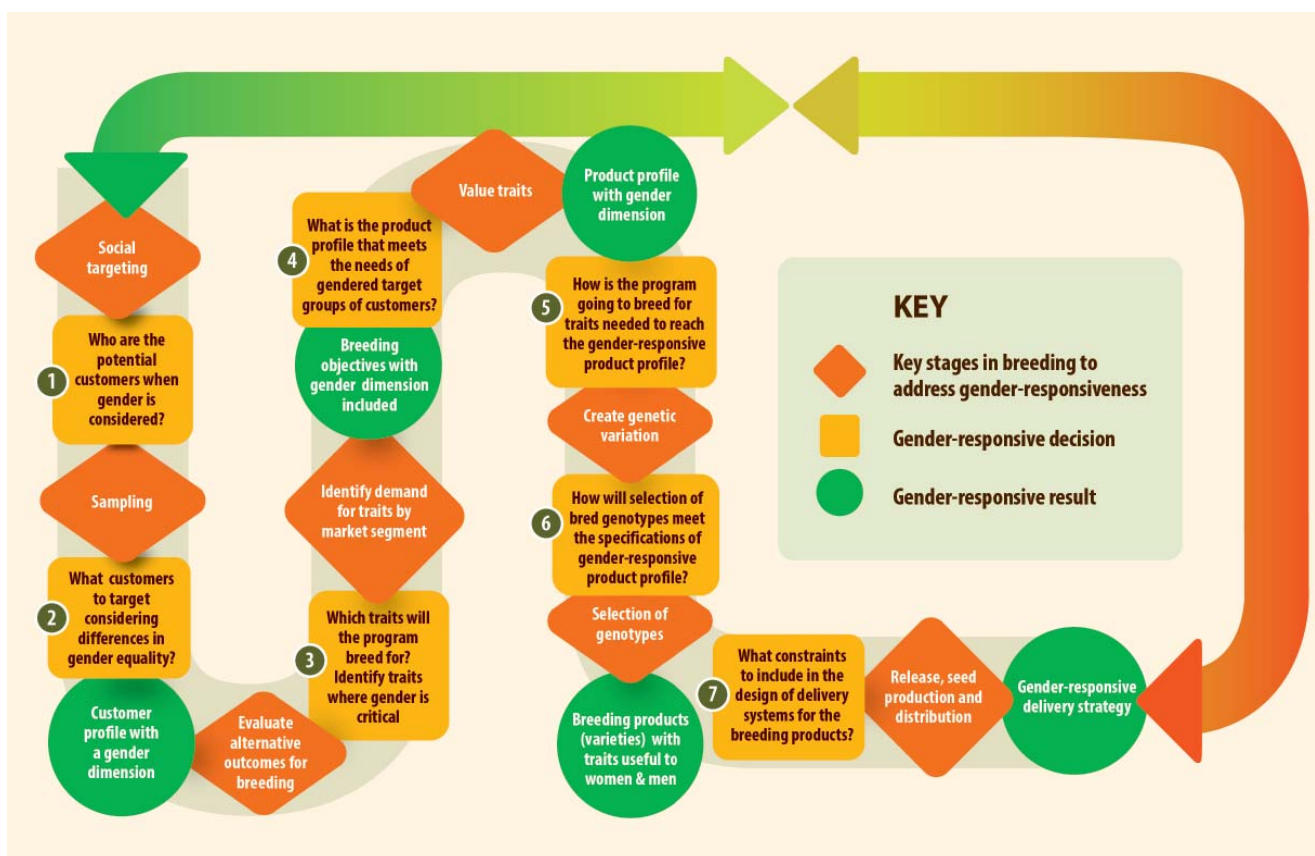


Figure 1: Flowchart of critical decision points for gender-responsive breeding

Decisions that include gender considerations at key turning points in the breeding process will produce four important results (green ovals) that can help a breeding program to achieve a positive impact on gender equality:

- Customer profiles that have explicit gender dimensions (see Box 2)
- Breeding goals that draw on gender-responsive customer profiles and consider impacts on gender equity from breeding programs
- Product profiles that have unambiguous gender dimensions (see Box 2)
- Breeding products (improved varieties) that incorporate genetic traits useful both to women and men

How to consider gender: The Decision Checklist

The Decision Checklist shown in Table 1 is a tool based on the flowchart that can be applied to make sure decisions at key turning points in the breeding cycle include gender. This Checklist can be used to strengthen gender-responsiveness in new programs or can be introduced to any stage in established breeding programs. However, it is likely to be most effective when used during an early stage of breeding, when decisions about who to target and the program's breeding objectives are made. Each decision in the Checklist requires specific and in-depth information about gender differences. These information requirements are summarized in Table 1. Each decision point and the gender information needed is discussed more fully in the next section of this brief.



Definitions

A gender-responsive customer profile for a breeding program describes the demographic, behavioral and geographic attributes of a target segment, taking gender into account to define common needs, opportunities and constraints, and their demand for use of actual or future breeding products.

- When targeting shows gender differences are not important to demand, then the customer profile will include male and female users with common constraints and interests.
- When gender differences are associated with different constraints, interests, and economically important demand, then a separate customer profile will be produced for a group of women (or men) that share common characteristics.

Simply differentiating a target segment into male and female users is not useful for producing a gender-differentiated customer profile, as there are likely to be as many important differences among varying types of women users as there are between women and men. The essential feature of a customer profile is that the group profiled has common characteristics that shape a unique demand.

Gender-responsive breeding will evaluate alternative outcomes, considering both:

- 1) The combination of traits and trait levels sought for desired performance in different target market segments of a breeding program based on a gender-responsive customer profile and
- 2) The socio-economic, environmental, food security or nutritional gains for the targeted beneficiaries with explicit consideration for changes in gender equity which may result from the implementation of the breeding program

A gender-responsive product profile for a breeding program includes a set of targeted, heritable traits that a new crop variety or animal breed must have to satisfy an economically or culturally important customer demand. This is i) based on sound knowledge of differences in demand from men and women users and ii) assessed for expected impact of traits on the welfare of gender-differentiated target segments.

Table 1. Decision checklist for gender-responsive breeding

Decision Points (see flowchart)	Information Required for Gender -Responsiveness	Decision Checklist	Gender-responsive Results
<p>1 Who are the potential customers when gender is considered?</p> <p>2 What customers to target? What's the justification for targeting one segment of the user population versus another, considering differences in gender equality?</p>	<ul style="list-style-type: none"> • Agro-ecological characteristics of farming systems and different gender roles in them, for a given region or country • User segments: analysis of spatial and social distribution of different uses of the relevant crop species, disaggregated by poverty levels and gender (production, processing, marketing, consumption) • Typology of different socioeconomic segments at regional or country scale (producers, processors, traders, consumers) disaggregated by gender • Relative economic importance of different socio-economic segments, by gender, at country or regional scale 	<p>1) Gender included in social targeting: Have market segments been defined and then prioritized to be targeted, with a gender dimension?</p> <p>2) Sampling: Are the data used for targeting and for the resultant customer profiles representative of the gender-differentiated population(s) that the breeding program expects will adopt its actual or future breeding products?</p> <p>3) Does the customer profile for each social segment the program decided to target have a gender dimension?</p>	<p>Customer profile with gender dimensions for each social segment the program decides to target</p>
<p>3 Which trait preferences could the program potentially breed for? Which existing or new-bred plant or animal traits could potentially satisfy some aspects of identified demand?</p>	<p>Users' gender-differentiated trait preferences: Which are the traits where gender differences in preferences or knowledge are critical?</p> <ul style="list-style-type: none"> • Breakdown of gender differentiated preferred traits into trait components • Information on the economic and cultural value of traits for men and women in different target social segments • Breeding feasibility, including costs and heritability of desired traits • Ex-ante analysis of potential impact that can be made through breeding on gender inequality in adoption, product use, and benefits of new products? 	<p>4) Has the demand for desired traits been determined representatively – for each customer profile, taking gender into account? What is the most important demand of the most important customer?</p> <p>5) Have alternative outcomes (and impacts) for breeding been evaluated considering the expected economic, environmental, food security and nutritional gains for the targeted beneficiaries with explicit consideration of changes in gender equity?</p>	<p>Breeding goals relevant to gender-differentiated customers</p>
<p>4 What product meets the need of a gendered target customer? What product can feasibly be developed to meet the priority demand of the most important customer group?</p>	<p>Desired traits are valued</p> <p>Desired levels of performance are established relative to desired levels of impact</p> <p>Trait packages are defined that can feasibly be developed based on what is socio-economically desirable and technically doable, with available knowledge, available breeding material and other resources.</p>	<p>6) Which changes for which traits are most desirable, which changes are necessary for a product to be of value for the targeted customers? Have traits been valued with a gender dimension?</p> <p>7) Have feasible trait packages been defined considering potential impact on gender equality for men and women in different customer segments?</p>	<p>Product profiles with a gender dimension, identify the combination of traits and trait levels sought for desired performance in different target market segments, based on the relevant gender-responsive customer profile.</p>
<p>5 How is the program going to breed for the traits needed to reach the gender-responsive product profile?</p> <p>Is new variation needed to meet the specifications of the product profile?</p> <p>6 How will selection of bred genotypes meet the specifications of the gender-responsive product profile?</p>	<ul style="list-style-type: none"> • Information on male and female users' criteria for evaluating genotypes, based on gender-differentiated trait preferences and priorities that correspond to the product profile <p>Methodologies for creating, screening and selecting genotypes that reach the product profile and that make use of gender-differentiated evaluation criteria</p>	<p>8) Has new variation been created or identified considering gender-differentiated trait preferences and priorities?</p> <p>9) Are gender-differentiated preferences included in evaluation criteria (whether by breeders' or participatory evaluations)?</p>	<p>Breeding products with traits useful to women, men or both.</p>
<p>7 What gendered constraints should be included in the design of delivery systems for the breeding products?</p>	<ul style="list-style-type: none"> • Constraints faced by men and women in different customer segments, to seed production and distribution • Information about gender inequalities that are potential or actual bottlenecks to the uptake of breeding products 	<p>10) Are gender-responsive strategies for seed production and distribution in use?</p>	<p>Gender-responsive delivery strategy for breeding products</p>
Monitoring and documentation			
<p>What to monitor?</p>	<ul style="list-style-type: none"> • Gender-disaggregated information on perceptions of materials in trials and on adoption by men and women 	<p>11) Are there information systems in place to track acceptability and adoption of released materials, by men and women in different customer segments?</p>	<p>Feedback on product advancement with a gender dimension</p>
<p>What progress should be documented?</p>	<ul style="list-style-type: none"> • Feedback on use from different sources 	<p>12) Is there a system in place to document the stages of development of customer and product profiles that include gender considerations?</p>	<p>Record of decision criteria and decisions at different stages</p>

Using the Decision Checklist

The key decisions, activities and information needed to make decisions, and the expected results of each are presented below.

1 **Decision:** Who are the potential customers for breeding when gender is considered?

Gender-responsive social targeting: Identifies and then prioritizes social groups or “market segments” with common characteristics as customers of actual or future breeding products. First, a population of interest is segmented into groups with common needs, opportunities and constraints. Targeting then involves further analysis to set priorities among these groups, considering market size and other development policy perspectives, taking gender into account. This analysis narrows down the number of potential groups or target segments to be addressed (see Box 3).

Gender-responsive targeting:

- Is based on the use of representative population data differentiating men and women;
- Uses analysis of gender norms, roles, and relations to define social groups with common characteristics; and
- Prioritizes social groups and their demand for actual or future breeding products using criteria relevant to gender equality.



2 **Decision:** What customers to target? What is the justification for targeting one segment of the user population versus another, considering differences in gender equality?

Sampling: Makes sure the data used for targeting and for the resultant customer profiles, are representative of the population differentiating men and women that the breeding program expects will adopt its actual or future breeding products. This requires the design of a sampling frame that allows inferences to be drawn about the women and men in a population of users. Once target segments have been selected, a full demand characterization for different traits and breeding products should be applied. Gender differences will not always be important for trait preferences in all groups, because in some circumstances men and women producers have a similar demand for traits.

Result: Gender-responsive customer profiles (see Box 2)

Information about the following elements is critical to properly including gender in the customer profile:

- Criteria that will be used to delineate homogeneous groups of users with common constraints, opportunities and needs;
- How results will be generalized to economically and socially significant target segments of users;
- Who is demanding which traits and why; and
- Socio-economic criteria that will be used to prioritize one group, and the traits they demand compared to other groups.

Development of unique customer profiles requires multivariate analyses that incorporate gender to delineate different social groups according to the importance of their socio-economic characteristics. This can be done using information from social enquiry and gender analysis about:

- The size and socio-economic importance of gender differentiated segments in the population of potential users of actual or future breeding products;
- Sex-disaggregated data relevant to demand for breeding products, such as access to and/or

BOX 3

Targeting

The targeting process segments a given population of intended users of actual or future breeding products into homogeneous social groups with distinctive preferences for those products, and then prioritizes which groups to breed for.

Targeting will answer the following questions:

- “How can we know when, where and why women are an important beneficiary group?”
- “How do we take into account important differences in constraints faced by women and men farmers that breeding can influence?”
- A target segment refers to a group of beneficiaries with common characteristics identified as the customers of a breeding program. A target segment may be male, female or mixed male and female, depending on the importance of gender differences for demand



ownership of land, livestock, labor, capital, income, agricultural inputs, markets and development services for different segments;

- Gender differences in demographic characteristics such as, age, ethnicity, religion, race, education level and literacy;
- Gender norms, roles and responsibilities that affect technology choice and how crops and animals are used in rural organizations, such as the family, the farm, the community, cooperatives, self-help groups, water associations and agribusinesses;
- Analysis of how gender intersects with other factors in technology choice to determine whether differences among types of users are more important determinants of trait preferences than simple male/female differences; and
- Preliminary information on gender-differentiated preferences for desirable traits.

3 Decision: Which trait preferences could the program potentially breed for? Which existing or new-bred plant or animal traits could potentially satisfy some aspects of identified demand?

Identification of demand for traits: This involves use of representative information to define and explain the trait preferences and priorities of population groups, differentiating men and women, identified during targeting. Of critical importance is understanding why gender differences affect preferences, and how the reasons for different preferences are related to adoption (including the way dissemination and uptake are affected by gender). This information is needed for defining decision criteria that can be used to set priorities among traits, once these are valued in the next stage.

Descriptions and explanations of gender-differentiated trait preferences must be generalizable to a population

defined as a target segment and can be generated using many different methods, including surveys, participatory varietal selection, focus group discussions, and key informant interviews.

Technical measurement, analysis and definition is required for the biophysical or chemical properties of plants or animals that users refer to when expressing a trait preference such as “chewy” or “drought-tolerant” or “easy to peel.” This is required for feasibility to be assessed. Assessment of feasibility involves evaluating which high-priority gender-responsive traits are technically doable for breeding, as well as the cost and how long it will take.

At this stage when the breeding program aims to decide what breeding can potentially do and for whom, cost-benefit analysis and forward-looking (ex-ante) impact analysis with a gender dimension are desirable. This is an important opportunity for interdisciplinary exchange -- when there’s a possibility for estimating the socio-economic pay-off from technical proposals for improvement of the plant or animal to meet a demand from a well-defined customer group (meaning we know how important this group is to the desired outcomes). For example, who will benefit and how much from increased drought tolerance? How much will reduced weeding pay-off and for whom? Who will capture the benefits of lengthened shelf-life? Who will benefit if cooking time is shortened? Is it worth the effort?

Technical feasibility needs to be assessed in advance and in conjunction with socioeconomic payoff because this is the only way to detect if results that are technically easy to obtain may be prejudicial to gender equality; or conversely, if outcomes that are highly desirable from a socio-economic perspective may be technically impractical. This assessment may be data-rich and accurate, or it may be speculative because data is deficient. Either way, the important point is for this joint technical and socioeconomic assessment to be

attempted: it will tell the program whether its intended gender-responsiveness is well grounded in evidence or needs more back-up.

Result: Gender-responsive breeding goals

Critical questions that must be answered when setting breeding goals include:

- What are the most important trait preferences for different customer groups?
- Whose trait preferences can be addressed by breeding and why?
- Which traits and associated customer groups should be prioritized in the breeding strategy?
- Which other traits will breeders add?
- What is the desired benchmark performance level of a prioritized trait?
- What are the potential impacts on gender equity of the breeding program?

Answering these questions requires information and multidisciplinary dialogue about:

- Characteristics of traits preferred by the different types of customers identified in the target customer profiles;
- The significance and rationale for gender differences that affect preferences for different traits by different types of customer;
- The translation of trait preferences into descriptions of heritable and breed-able traits – for example, the preference expressed by women users for “earliness” needs to be dissected into simpler components;
- Concrete values for desired benchmark performance levels of traits associated with gender-differentiated preferences within and across customer profiles; and
- The probabilities of success in reaching useful trait levels that correspond to an expressed preference or demand.

4

Decision: What is the product profile or package of traits that best meets the needs of a given target group of customers? What product can feasibly be developed to meet the priority demand of the most important customer group?

Each step in this Decision Tool narrows down the scope of the decision process. Step 4 restricts the potential options under consideration in earlier steps to a priority product (or package of traits) that can feasibly meet an important demand for an important customer group.

Value traits: Genetic traits, which make up the product profile and for which it is feasible to breed, need to be valued in order to set priorities and thus determine specific, technical breeding objectives. This is when it is necessary to have the research evidence needed to set desired levels of performance for different traits, relative

to desired levels of impact. A desired trait package needs to be defined that can feasibly be developed based on what is socio-economically desirable, gender-responsive and technically doable, using available knowledge and breeding material and other resources.

In making this decision it must be clear that prioritizing traits involves setting priorities among men and women users when:

- Women users have different trait preferences from men, and this difference is related to a crucial inequality in their access to or control over productive resources;
- Women prefer the same traits as men, but rank them differently – a trait that is highly important to women, such as cooking time, is of low importance to men; and
- Women and men have overlapping sets or bundles of preferences that express different trade-offs – for example, both rank drought resistance highly, but women rank earliness more highly than yield, and men rank yield higher than everything else.

When we choose which traits to prioritize, we also choose which social groups are of greater importance to the breeding program.

Result: Gender-responsive Product Profile (see Box 2)

A product profile is a description of a package of traits that meet the breeding objectives. A gender-responsive product profile is the result of considering gender differences while deciding which combination of traits is a priority. For each important customer profile, one or more product profiles will be defined. A product profile identified with a customer demand consists of a list of traits, the benchmark performance desired for each trait, and the priority given to them. Note that a product profile is not synonymous with a breeding strategy. A product profile needs to be supported by:

- Gender-disaggregated data on trait preferences correlated with demand from different customer profiles
- Ontologies (dictionaries) of trait characterizations that are also correlated with gender and customer profiles

5

Decision: How is the program going to breed for the traits needed to reach the gender-responsive product profile? Is new variation needed to meet the specifications of the product profile and how will genotypes be selected?

Steps 5 and 6 address decisions to be made now the program knows who it is breeding for (specified by the customer profile) and what demand (specified by the product profile), it has a realistic expectation of reaching. Informed, gender-responsive decisions can now be made about how to breed, determining the specific, technical breeding objectives and methodologies needed for the product profile in question. These activities need to incorporate gender-responsiveness. A straightforward way to do this is to make sure the gender-responsive



WorldFish

criteria for traits built into the product profile continue to provide a reference point whenever new variation is created, tested, evaluated, selected or deployed.

Create genetic variation: Use of gender-responsive decision criteria included in the product profile in the choice of genetic resources used in making crosses (e.g., choices among local germplasm or elite materials) will help make sure critical decisions about parent material, as it relates to feasibility of developing the end product, includes consideration of gender. The product profile defined previously, when traits were valued, may be adjusted based on the results of this stage.

6 **Decision:** How will selection of bred genotypes meet the specifications of the gender-responsive product profile?

Selection of genotypes: Decisions to select and advance genotypes should include gender-relevant criteria, derived from the product profile. Gender-responsive tools can be used for selection. For certain traits and phases of selection, participatory methods should be used to ensure male and female user perspectives that represent the target segments defined earlier.

Critical decisions at this stage require dialogue among disciplines about:

- What source germplasm to use?
- What traits the breeding program can work on cost-effectively, i.e., that are within its technical capability and resources?
- What are the feasibility, costs and potential impact of alternate breeding strategies for developing a product, as per the product profile, e.g., the feasibility, cost and impact of alternate screening methods, on-farm testing, participatory breeding and/or varietal evaluation?

This requires cross-disciplinary discussions to obtain information about:

- What suitable source germplasm is available with the desired traits?
- The tractability of prioritized gender-responsive traits;

- The economic value to the interested customer group of specific crop varieties or animal breeds that have a gender-responsive trait; and
- There should be an ex-ante analysis of cost implications for the breeding program.

Result: Breeding products with traits useful to women, men or both.

Once customer profiles, targets and breeding objectives have been identified taking gender differences in demand into account, this provides a foundation for the definition of products that meet the demand of men, women or both. Then the feasibility for breeding products to develop any given product to meet that demand and the value of doing so, can be assessed. Factoring gender into each critical decision in this process is key to delivering breeding products that will benefit women as well as men. Factoring gender into each critical decision in this process is key to delivering breeding products that will benefit women as well as men.

7 **Decision:** What constraints to include in the design of delivery systems for the breeding products?

Release, seed production and distribution: This requires purposively managing the product launch and promoting uptake so that gender equity is promoted. Careful consideration of key gender constraints and opportunities in delivery, for example credit availability for seed purchase or the need for refrigeration of a vaccine, should be applied when a product profile is developed.

Critical decisions at this stage are about addressing some gender inequalities identified during targeting, which can be resolved by product delivery systems, marketing, or farm management (i.e., the constraints that breeding cannot resolve), but that must be addressed for gender-responsive breeding to have impact. This requires information about gender inequalities that are potential or actual bottlenecks for the uptake of breeding products.

Result: Gender-responsive delivery strategy for breeding products

Monitoring, evaluation and documentation of gender responsiveness

A gender-responsive breeding process needs to be supported by tools for planning, monitoring and evaluation. The team of breeders and social scientists should work with partner organizations to develop a gender-responsive theory of change. Gender-responsive indicators, outputs, and outcomes should be monitored throughout implementation of the different stages of the breeding program. This will contribute to a systematic and consistent documentation of the breeding process and its results under a gender-responsive approach, and will generate evidence of the value of considering gender that can be used to influence a wider group of stakeholders.

Next steps for gender-responsive breeding

Improved plant varieties and animal breeds can deliver significant benefits for the rural poor, especially for women, and so contribute to improving gender equity. To ensure that women, who play a critical role in smallholder agricultural production, benefit from improved genetic resources, it is important for breeders to respond to clear differences in the priorities that men and women assign to genetic traits and to draw on differences in their knowledge of traits. Taking account of gender dynamics and differences throughout the different stages of the breeding cycle, will make it more likely for male and female farmers to adopt these varieties and breeds, thus strengthening productivity, food security and nutrition. Breeding programs that overlook the specific trait preferences of female farmers and consumers may be at risk of further disempowering women and of placing them at greater risk of remaining in poverty.

This brief summarizes the results of intensive conversation among breeders and social scientists about what is needed to promote the use of gender-responsive breeding. That dialogue identified critical decisions when gender could be integrated into the breeding process of product development, presented in the form of a Decision Checklist.

To effectively apply the Decision Checklist, two important “next-steps” will be required:

- 1) The development of compatible crop and socio-economic databases to enable the representative social targeting analysis needed (see also GBI Working Document #1) to inform critical decisions; and
- 2) Pilot implementation to generate the type of analysis needed to apply the Decision Checklist, supported by multidisciplinary teamwork by breeders and social scientists. The CGIAR Gender and Breeding Initiative will seek trial and adaptation of this tool by breeding teams and to promote and support exchange of learning from its use.



Acknowledgements

The Decision Checklist was developed over the course of two workshops organized by the CGIAR Gender and Breeding Initiative to encourage action by breeding programs. The first workshop, held in October 2016, brought together breeders and gender researchers who identified important gaps in evidence, and the “must-haves” for gender-responsive breeding (see CGIAR Gender Research Action Plan, Brief #4, Figure 3). The second workshop, held in October 2017, <https://cgspace.cgiar.org/handle/10568/89834> built on these results by commissioning three Working Papers: Working Paper 1 ‘Gender and social targeting in plant breeding’; <https://cgspace.cgiar.org/handle/10568/91276>. Working Paper 2 ‘From market to demand breeding decisions’; <https://cgspace.cgiar.org/handle/10568/91275> and Working Paper 3 ‘State of the Knowledge for Gender in Breeding: Case studies for practitioners’. Small groups drew on these to develop practical advice for addressing critical decision points and tailoring the decisions checklist. The following people contributed: Cu Thi Le Thuy, Eva Weltzien, Alastair Orr, Alessandra Galie, Seamus Murphy, Cindy Cox, Esther Njuguna, Kayte Meola, Hale Ann Tufan, Netsayi N Mudege, Michel Ragot, Juliet Kariuki, Pricilla Marimo, Lora Forsythe, Thokozile Ndhlela, Prakash Gangashetty, Rhiannon Pyburn, Birhanu Lenjiso, Ranjitha Puskur, Yoseph Beyene, Stefania Grando, Thiago Mendes, Meredith Bonierbale, Jean-Luc Jannink, Bela Teeken, Jacob van Etten, Chiedozie Egesi, Peter Kulakow. Jacqueline Ashby, Vivian Polar and Graham Thiele compiled and edited the final document.

Contact:

Holly Holmes
Communications Specialist, RTB
h.holmes@cgiar.org