



**Gender &
Breeding
Initiative**

State of the Knowledge for Gender-Responsive Breeding: Case Studies for Practitioners

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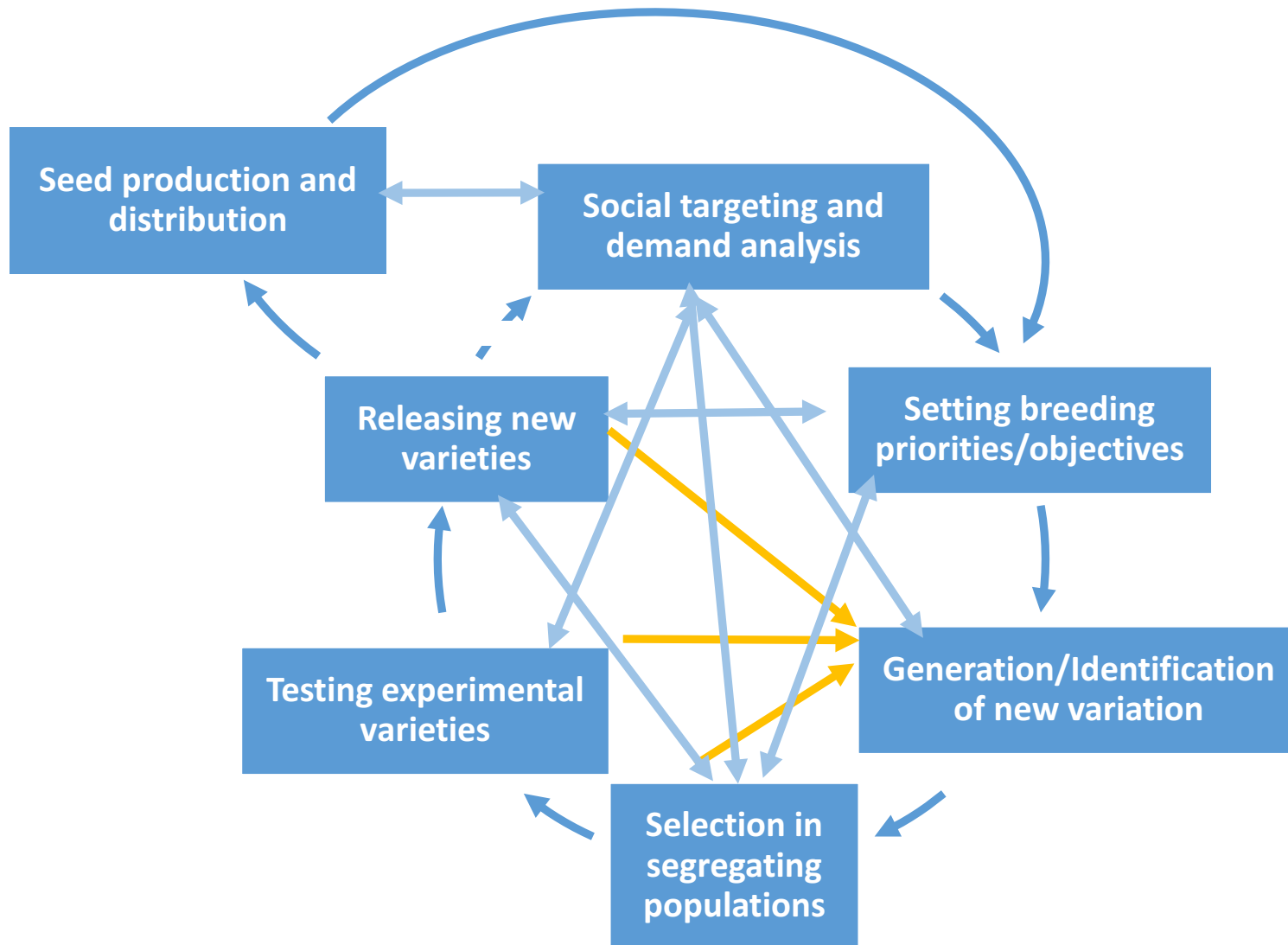
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Background – Why the Synthesis of Case Studies

- “Gender, Breeding and Genomics” workshop, October 18-22, 2016 generated a set of case studies
- 13 cases presented
- Interest to fully document and compile the cases
- Identify current approaches toward gender-responsive breeding
- Highlight best practice, tools used and lessons learned



Use case studies to validate/map design principles for gender responsive breeding



The Approach

Guiding Questions for the Case Studies

- At what stage of the breeding cycle did you identify gender-differentiated preferences for one or more traits and what were these preferences?
- How were these preferences identified?
- Which changes in the structure of the breeding program did you make to address differences in preferences identified?
- Which specific tool(s) was (were) used to address gender-differentiated preferences?
- What were the final products and their uptake by men and/or women users, and what benefits (e.g. improved food security, income) did different user groups obtain as a result?





Links to Other Input Papers

- Cases used in the STP framework paper
 - Social targeting and demand analysis by J. Ouma
 - Cassava trait preferences in Nigeria by Jeffrey Bentley
- Breeding priorities
 - Examine case studies for priority setting



Audience for the Synthesis of Case Studies

- Breeding teams including breeders and gender specialists
- Research managers and Institutional leadership
- Donors
- University students in breeding and social sciences
- Decision on audience really matters!



Outline/Content of the Synthesis of Case Studies

- I. **Foreword:** Importance of gender in crop and animal breeding
- II. **Executive Summary:** overview, major emerging ideas and implications for research.
- III. **Introduction:** Framing of GBI, workshop outputs etc
- IV. **Theoretical Framing:** Theoretical foundation drawing from feminist theory and gender in agricultural development debates.
- V. **Case Studies:** At least one case per step in breeding cycle
- VI. **Lessons learned:** Synthesis of major learnings from all cases studies into design principles for gender-responsive breeding for practitioners
- VII. **Toolbox:** Synthesis of key tools and use tips



Foreword

- Co-written by gender specialist and breeder
- Focus is on higher level discussion on “why gender research matters for breeding”
- We will be approaching a few of you to seek interest!

Case Studies: An Overview

Category	Case Name	Author
a. Social Targeting and Demand Analysis	The Pre-Cooked Bean	J. Ouma
b. Setting Breeding Priorities	Towards improved gender-responsive bean breeding: Lessons from bean improvement research in selected countries	E Katungi
	Gender analysis for forage improvement in the lolili conservation system of Tanzania	A Galie
c. Selection	Participatory Plant Breeding and Women Empowerment for collective innovation and sustainable Transition: A Case from SW China	Y Song
	Case study of cassava trait preferences of men and women farmers in Nigeria: Implications for gender-responsive cassava variety development	O Olaosebikan
	Farmer engagement in variety testing and evaluations provides crucial information for breeding strategies in Mali	K Isaacs
	Participatory breeding and gender role in cañahua, a NUS Andean Grain crop in Bolivia	JP Rodriguez
d. Testing Experimental Varieties	Gender-differentiated preferences in breeding for new matooke hybrids in Uganda	NL Sanya
	Trial evaluations with women	E Weltzien



Case Study 1

Breeding cycle step: Setting Breeding Priorities

Title: Towards a more gender-responsive bean breeding program: lessons from Eastern Africa

Summary: The study uses choice experimentation in PVS for bean breeding in East Africa

Findings:

- Significant differences in farmer preferences dependent on gender, landholding and market access
- Counter to expectations, preference for short cooking time was not different between women and men, but determined by access to markets
- In PVS trials, only one variety showed significantly different ranking between men and women

Case Study 1

Implications for breeding : Cooking time has now been added as a “must-have” trait for PABRA



Photo: PABRA



Case Study 2

Breeding cycle step: Setting Breeding Priorities

Title: Gender-responsive intensification in the *ololili* system of Tanzania

Summary: This case study examines gendered labor organization, knowledge and trait preferences of forage plants and governance of the *ololili* system

Findings:

- The ololili system relies heavily on women's unpaid labour, and lack of finances, and community power and gender dynamics hinder restoration
- Number of forage plants mentioned was similar between women and men, but each group ranked the importance of these forages differently.
- Very few commonalities existed across gender and across locations in terms of the traits women and men attributed to a specific plant.
- Women and men from all villages expressed an interest in planting forage and dual-purpose crops

Case Study 2

Implications for breeding: Breeders identified legume and grass species compatible with the existing natural pastures. These species addressed the two out of the three trait priorities identified during the gender study as common to men and women





Case Study 3

Breeding cycle step: Selecting in segregating populations

Title: Participatory Plant Breeding and Women Empowerment for collective innovations and transformation towards equal and sustainable development: A Case from SW China

Summary: This study examines how farmers and breeders interact in maize improvement, *in situ* conservation and value adding activities

Findings:

- PPB activities have conserved more than 50 food varieties and improved 10 landraces
- The activities have increased women's income, enhanced community based collaboration in sharing productive activities, managing natural resources and linking to external information and markets
- Hybrid and OPV improvement can be integrated as parallel efforts in one PPB breeding programme to support multiple functionality of diversified farming and food systems

Case Study 3

Implications for breeding: During the exchange visits the ‘professional’ breeders discovered that the farmers had conserved and improved *Tuxpeno 1*. One farmer in particular had further improved *Tuxpeno 1*, the resulting variety had become widely popular in the surrounding local communities



Photo: National Geographic



Case Study 4

Breeding cycle step: Testing experimental varieties

Title: Farmer engagement in culinary testing and grain quality evaluations provides crucial information for sorghum breeding strategies in Mali

Summary: This study presents lessons learned around using sorghum culinary testing methodology with with farmers in Mali

Findings:

- Men and women evaluate sorghum varieties from perspectives that are based on their roles and responsibilities in the household
- Women evaluate the quality of a variety for processing and cooking, and that their valuation of the varietal yield extends far beyond the agronomic yield.
- Decortication losses, water absorption potential, and proportions of flour and grit were key considerations for grain processors: Households make trade-offs
- Women discuss economy during To preparation, evaluating if a variety produces more food due to these traits

Case Study 4

- ***Implications for breeding:*** Diverse varieties are now tested in the field *and* during processing to ensure that varieties selected for the next season capture the range of characteristics expected by the household as a whole





Case Study 5

Breeding cycle step: Testing experimental varieties

Title: Gender-differentiated preferences for new *matooke* hybrids in Uganda

Summary: This study examines participatory evaluation, sensory and consumer acceptability by men and women of new *matooke* hybrids

Findings:

- Quality attributes are deterministic of adoption of banana hybrid varieties
- Hybrid bananas differed significantly for sensory attributes
- 78% of the *matooke* hybrids evaluated for release had low heat retaining capacity (food hardens fast when served)
- The hybrids also required prolonged cooking time to soften the texture adding more labour time to gather fuelwood which became an additional challenge to the already overburdened women

Case Study 5

Implications for breeding: New matooke hybrids are now evaluated stepwise with a quality focus: begin with food quality traits, follow with production related traits. Women panelists are involved in the preparation of the samples for sensory evaluation.





Case Study 6

Breeding cycle step: Testing experimental varieties

Title: Involving women farmers in variety evaluations of a “men’s crop”:
Consequences for the sorghum breeding strategy and farmer empowerment in Mali

Summary: This study provides an overview of changes to sorghum breeding strategy in Mali informed by long term gender analysis and participatory evaluation

Findings:

- Women not sometimes aware of new varieties tested by their husbands
- Gender-responsive participatory breeding increased women’s access to new varieties and diversity of improved varieties cultivated in their villages
- Women’s preferred varieties for seed production are now given stronger consideration by the respective cooperatives: enhanced their agency
- Women’s groups now engage in large-scale production and commercialization of sorghum and groundnut seed

Case Study 6

Implications for breeding: Fundamental change to breeding program to emphasize desirable grain quality: women invited to the research station to score grain qualities of early generation material during the selection process. Sorghum breeding programs in Mali now grow all segregating generation material under low-P conditions in fields managed specifically for this purpose





Case Study 7

Breeding cycle step: Setting Breeding Priorities

Title: Cassava farmers' preferences for varieties and seed dissemination system in Nigeria: Gender and regional perspectives

Summary: This case study explored adoption of improved cassava varieties by farmers, the cassava seed system and variety preferences of men and women

Findings:

- Improved varieties are gradually squeezing out the local varieties
- For both men and women, a composite of all preferences should be realized to gear breeding efforts towards a basket (set) of improved varieties that combine high yielding, poundability, in ground storability, ease of peeling, weed competitiveness
- Use of trained and experienced social science and gender specialists as facilitators is crucial to move away from the simplistic disaggregation of data by sex.

Case Study 7

Implications for breeding: This study has informed breeders on important new traits such as ease of peeling, swellability, weed smoldering that can be considered when setting breeding priorities.





Criteria

- Study clearly maps to a step in the breeding cycle diagram
- The research is clearly focused on generating information for application in breeding
- Sex-disaggregated data collected and used analysis
- Qualitative and quantitative data collected
- Intersectionality considered and discussed
- Findings, conclusion, and discussion include take-aways and recommendations adding to design principles for gender-responsive breeding programs?



Criteria

- Extent to which and how gender is addressed in the study
 - Roles/responsibilities
 - Opportunities/Constraints
 - Access/control of resources
 - Preferences/Practical & Strategic needs
 - Decision-making power
 - Cultural norms
 - Gendered benefit/cost differentials
 - Gendered Participation
 - Differences in traditional knowledge
 - Community leadership



Synthesis of Tools

- Conventional Breeding Techniques
- Participatory Varietal Selection (PVS)
- Participatory Plant Breeding (PPB)
- Focus Group Discussions (FGDs) -
 - mixed groups
 - groups disaggregated by sex, age
- Individual Interviews
 - sex-disaggregated data collection
 - both heads of household
 - equitable gender balance in sample
- Choice Experimentation
 - for trait identification at early stage of breeding
- Gender Sensitive Intervention
 - using recommendations from FGDs
- Sensory and consumer acceptability evaluations
- Post-harvest Culinary Testing
- Grain Quality Evaluations
- Transect Walks
- Foresight analysis to help predict priority traits that will be demand in the market in the years to come



Lessons Learned

- We cannot assume knowledge will trickle from men to women
- Quality attributes, esp. taste, are important trait for both men and women
- Men and women evaluate varieties from perspectives that are based on their roles, responsibilities, and constraints
- Intersectionality is important
- In semi-subsistence context, gender differences can be difficult to detect
- Choice experiment studies require specialized training
- Institutional capacity needed to communication of findings on gender needs and priorities for building gender responsive breeding programs



Wanted: More cases!

- There is definite scope for more cases to be included
- Especially weak/under represented are following steps in the breeding cycle:
 - *Identification of new variation*
 - *Releasing new varieties*
 - *Seed production and distribution*
- Livestock/Fish breeding missing



Thank you