



Design Elements for Gender-Responsive Breeding – setting the stage

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**Gender and Breeding Initiative
Workshop, October 5 - 7**

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Topics

- **Where are we coming from? Learning from the 2016 Workshop “Gender, Breeding and Genomics.”**
- **What are we looking for? Some missing elements of “design” for gender-responsive breeding identified in 2016**



What can a breeding program do to be gender-responsive?

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

Anticipate how design decisions (e.g. plant ideotype and trait prioritization, targeting and testing varieties with farmers) may impact and be influenced by women's labor, available resources and options

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

Be accountable, making sure success of the breeding program is measured in ways that include success for women as well as for households or farmers in general



Gender and Breeding Initiative

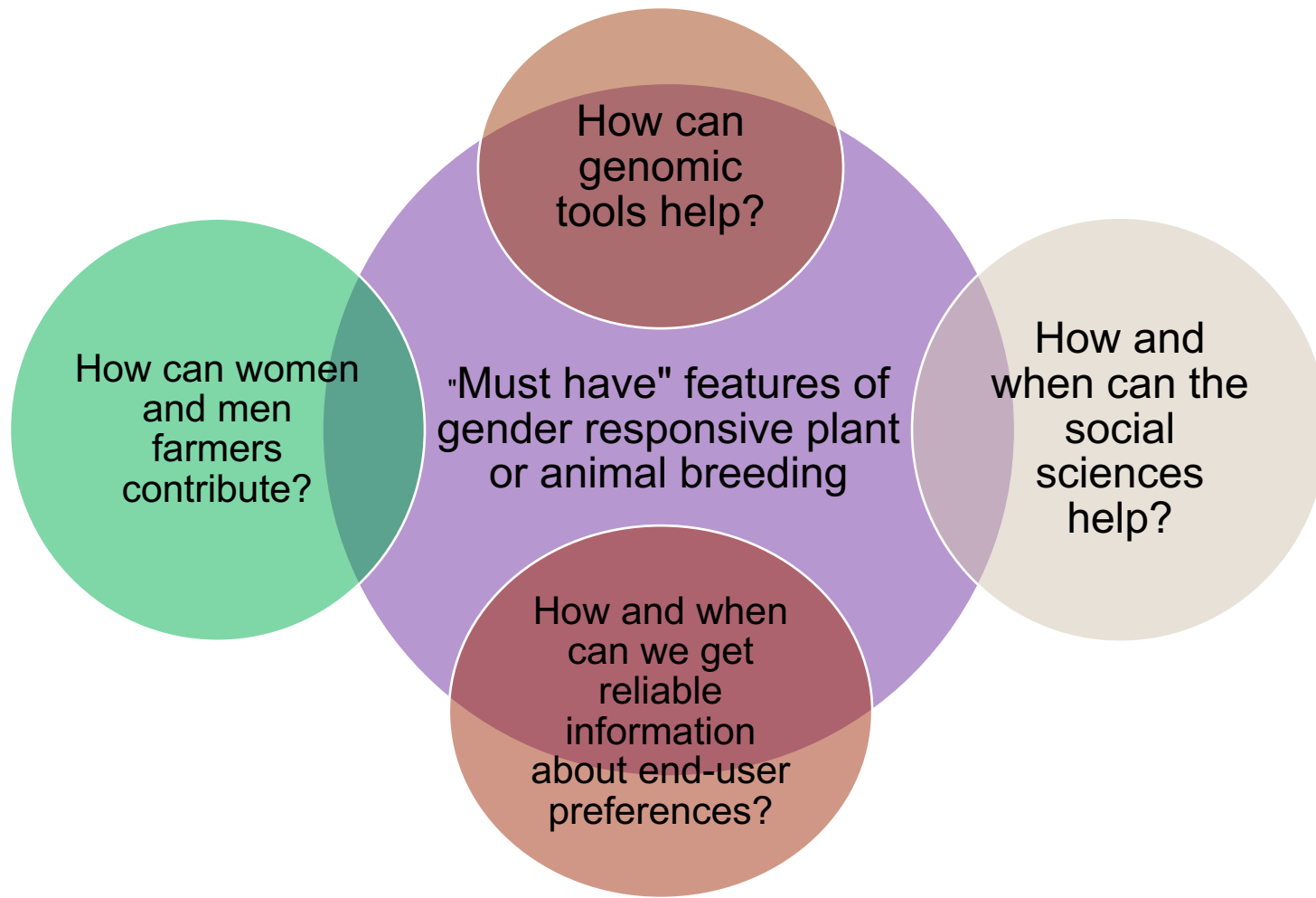
Premise for the GBI

“ For plant and animal breeders to meet end user needs, they must **understand the priorities that women and men assign to genetically determined traits.**”

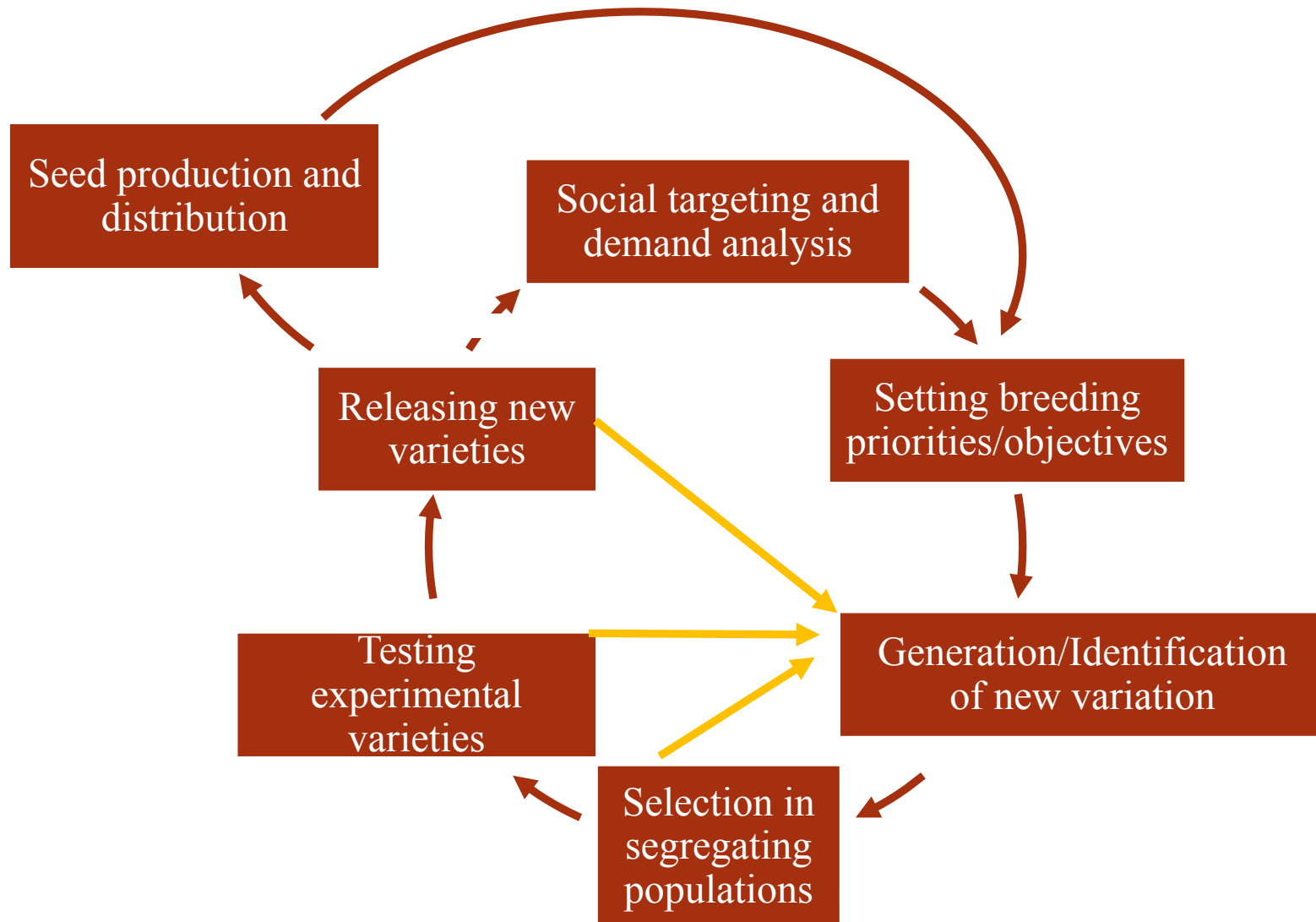
What's new about the Initiative?

- Addresses a **practical knowledge** gap crucial for breeding to have a positive impact on gender equality
- Works short-term on a multidisciplinary task across plant and animal breeding programs of CGIAR and its partners
- Marshalls proven practice from public and private sector breeding

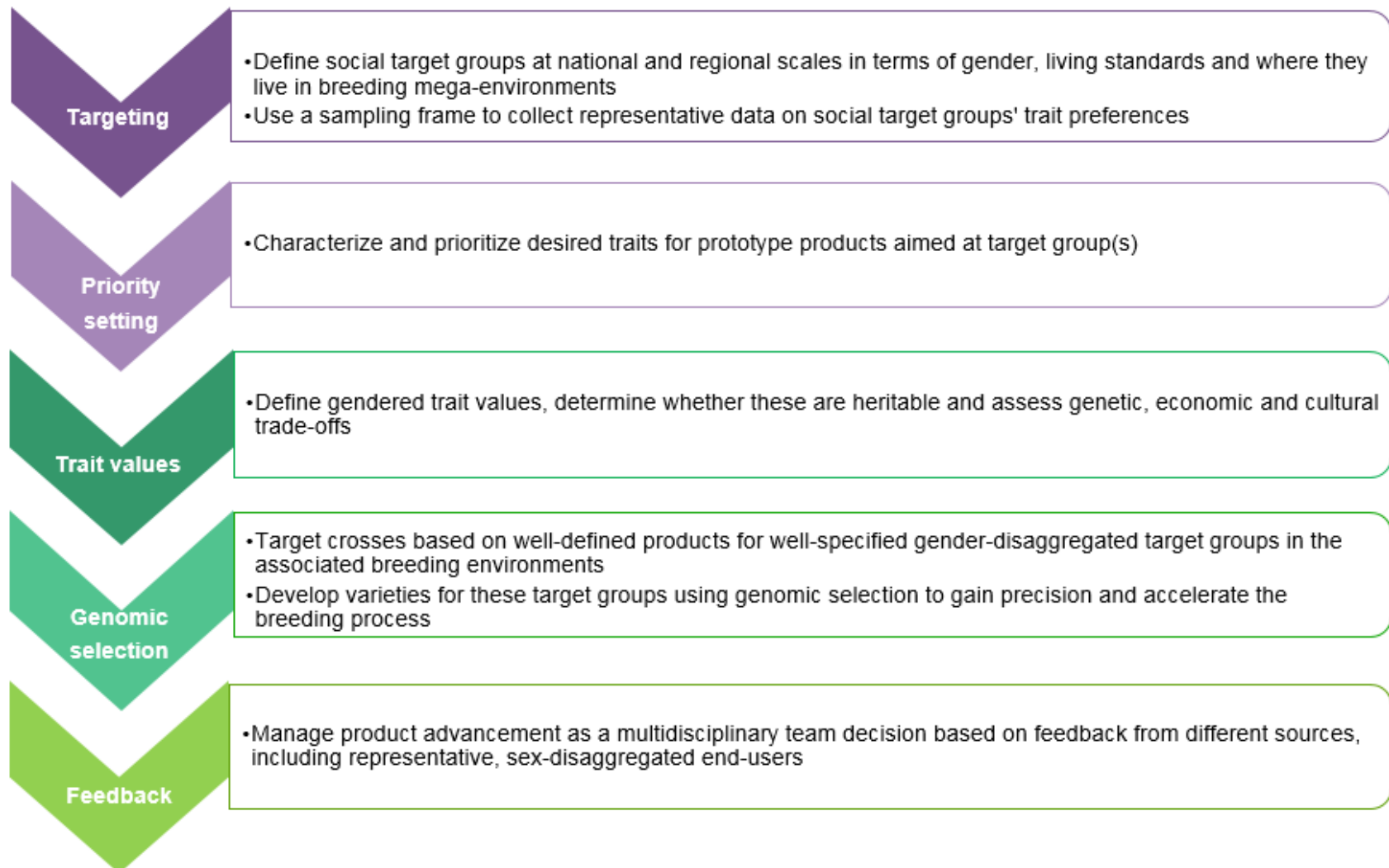
Questions asked in the first workshop



Analysis was made around the main stages of the Breeding Cycle



2016 “Must-have” features of gender-responsive plant or animal breeding





Workshop Conclusion: What's missing?

Capacity for strategic assessment of
(1) “Who are we breeding for?” and
(2) “What is the economically, culturally and
socially important demand for gender-
differentiated traits and products that breeders
can realistically develop?”

Missing elements of design



- Evidence of gender differentiated preferences that are economically significant for a large number of people
- The “Social targeting and demand analysis” study
- Measurable trait values
- Ways for breeders to handle speedy selection for multiple target groups and their preferred traits
- Practical ways for breeders to set priorities among heritable traits for inclusion in breeding
- Management deploying multidisciplinary teams to make product advancement decisions

Missing Evidence



- **Most studies of gender-differences in trait preferences are not designed to provide broad geographical coverage or extrapolate generalizable conclusions to a well-defined population**
- **The vast majority of 300 studies reviewed did not investigate causal relationships between trait preferences and gender roles or norms**

Findings: Some trait preferences are unique to women or men

Identified only by women

- Vigour
- Tall height for ease of harvest
- Adapted to diverse growing conditions
- Leafiness
- Storage life
- Ease of dehulling
- Quantity of useable flour
- Fuel quantity from stover
- Cooking time
- Taste
- Grain colour

Identified only by men

- Resistance to water logging
- Adapted to intercropping
- Yield/ha
- Suitability for local dish

Source: E. Weltzien, A. Christinck, F. Rattunde, J. Ashby, 2017



Findings: Gender differences are not clear-cut --Some trait preferences are shared but are more important to women

Production traits of more importance to women:

- **Earliness**
- **Ease of harvesting, and transport**
- **Grain traits**
- **Pest and disease resistance**
- **Multiple, successive harvests**
- **Requirements for weeding**

Source: E. Weltzien, A. Christinck, F. Rattunde, J. Ashby, 2017



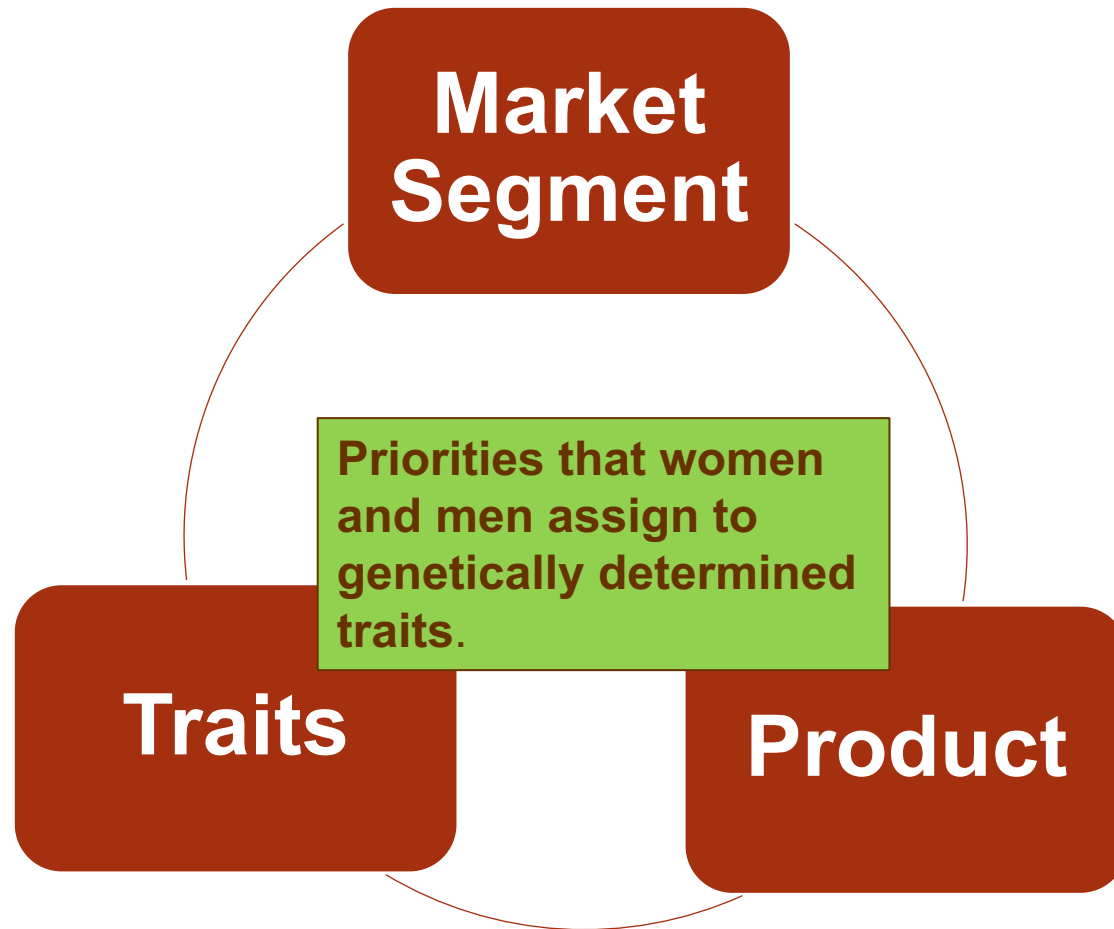
Missing: Patterns of preferences

Patterns explain reasons for different preferences:

Men and women

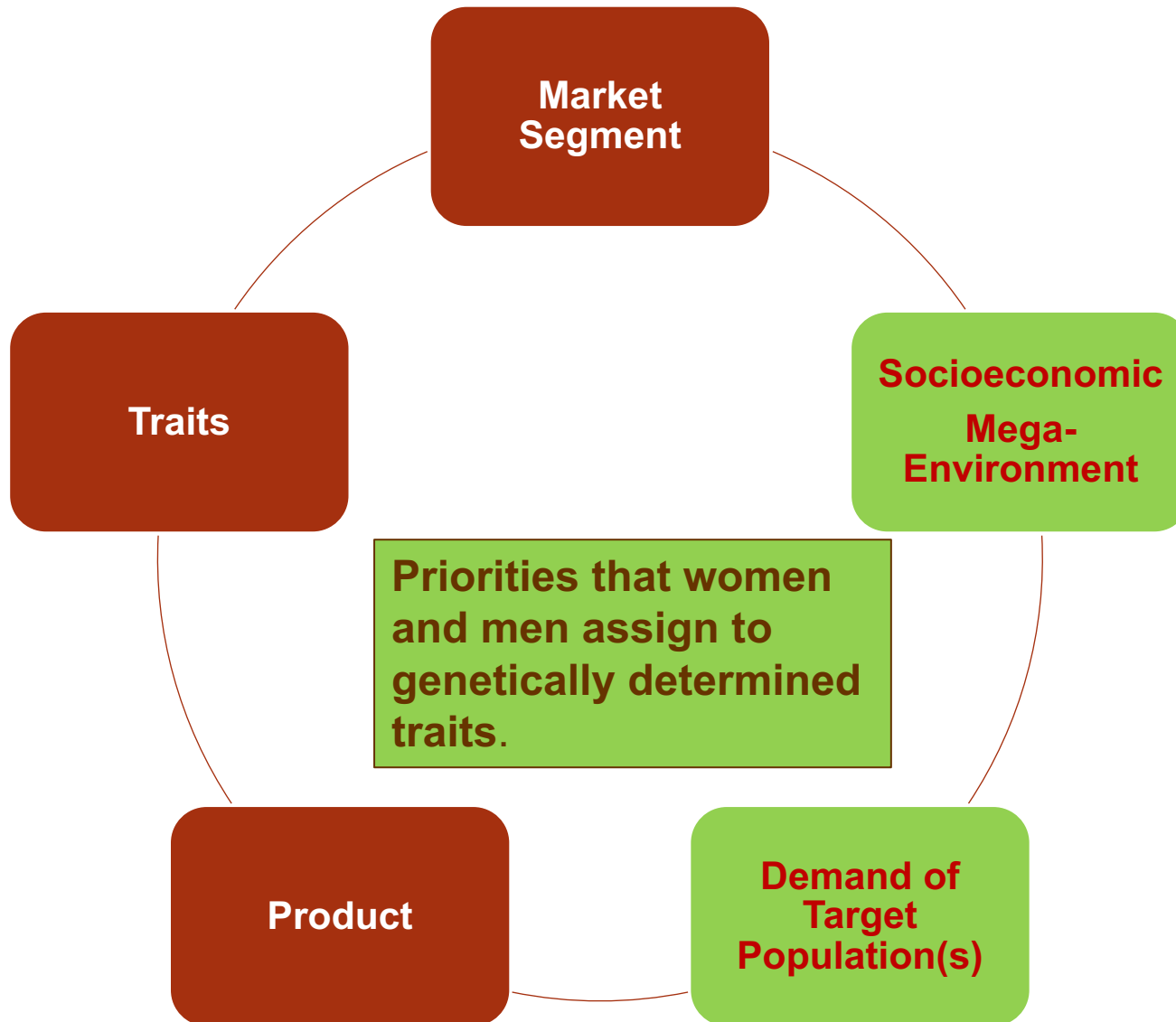
- Farm same crop under similar conditions
 - trait preferences tend to be similar.
- Farm same crop under different conditions
- Farm same crop with different objectives
- Farm different crops (“women’s crops vs. men’s”)
 - trait preferences tend to diverge.

Missing: The “Social targeting and demand analysis” study



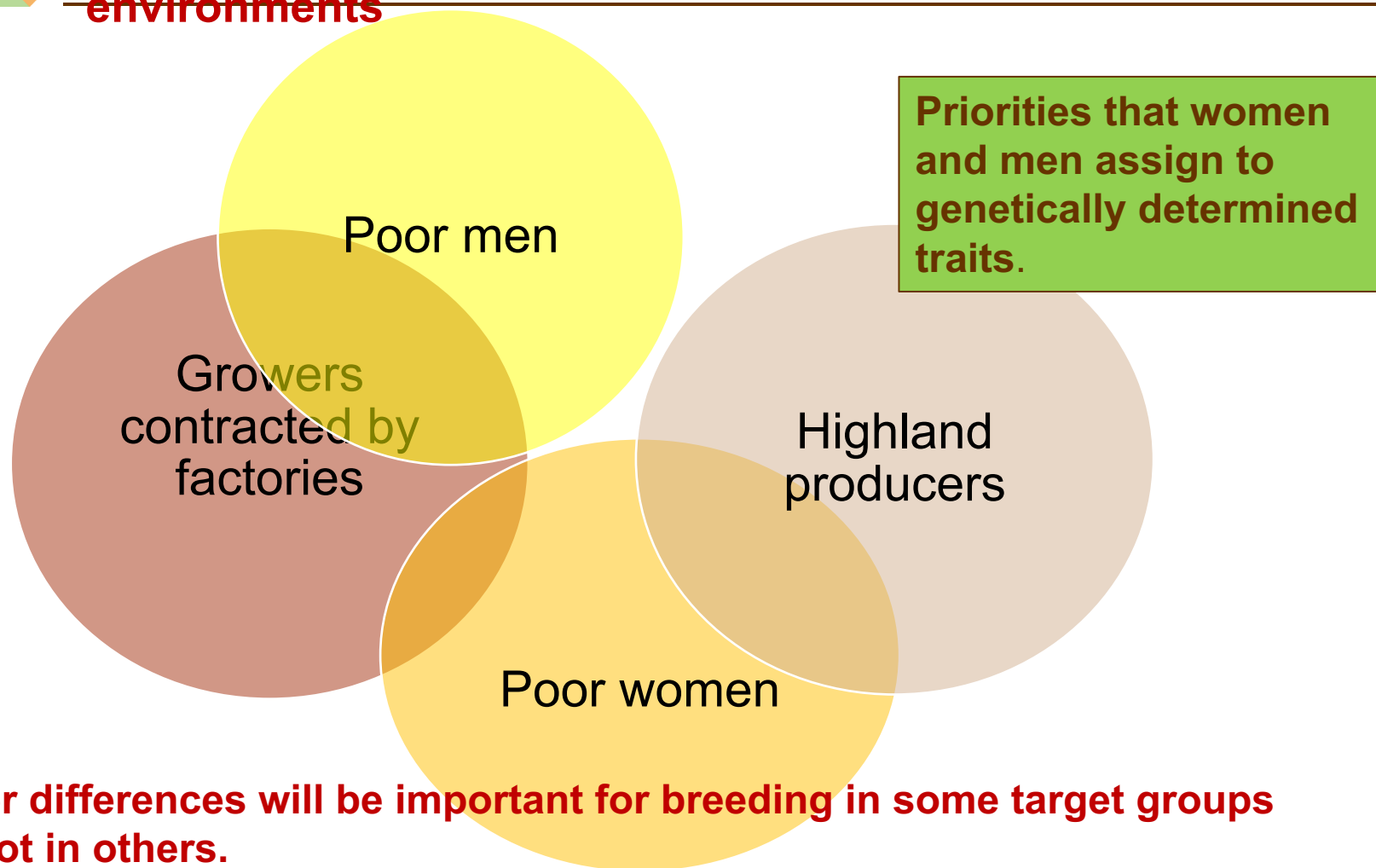
The study should identify who we are breeding for

The “Social targeting and demand analysis” study



defines the target population in relation to the breeding mega-environment at the outset of the breeding program.

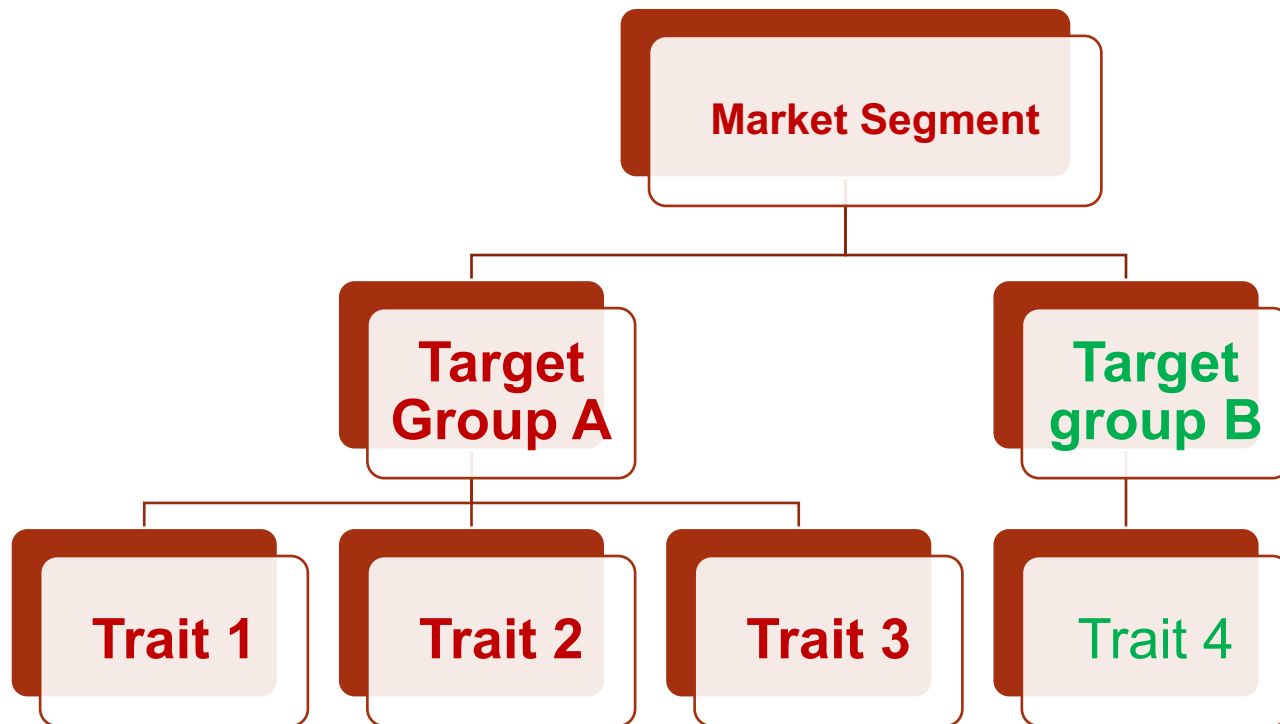
**Missing: ways to target based on well-specified
gender-disaggregated populations in the important
environments**



**Gender differences will be important for breeding in some target groups
and not in others.**

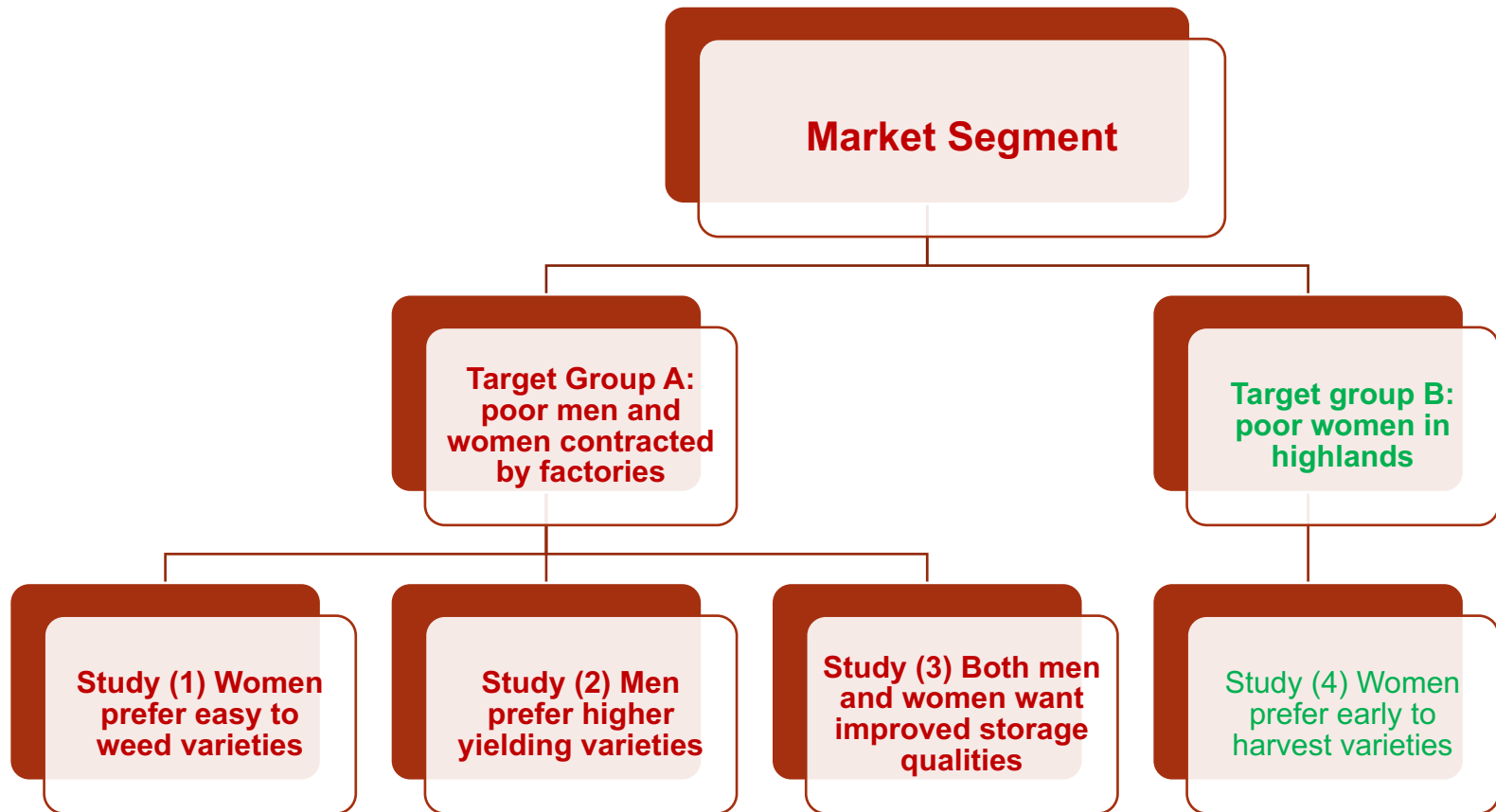
**It can be important in certain populations, to target some women specifically:
e.g. Poor women in highlands**

Missing: ways to characterize preferred traits as representative of a target group



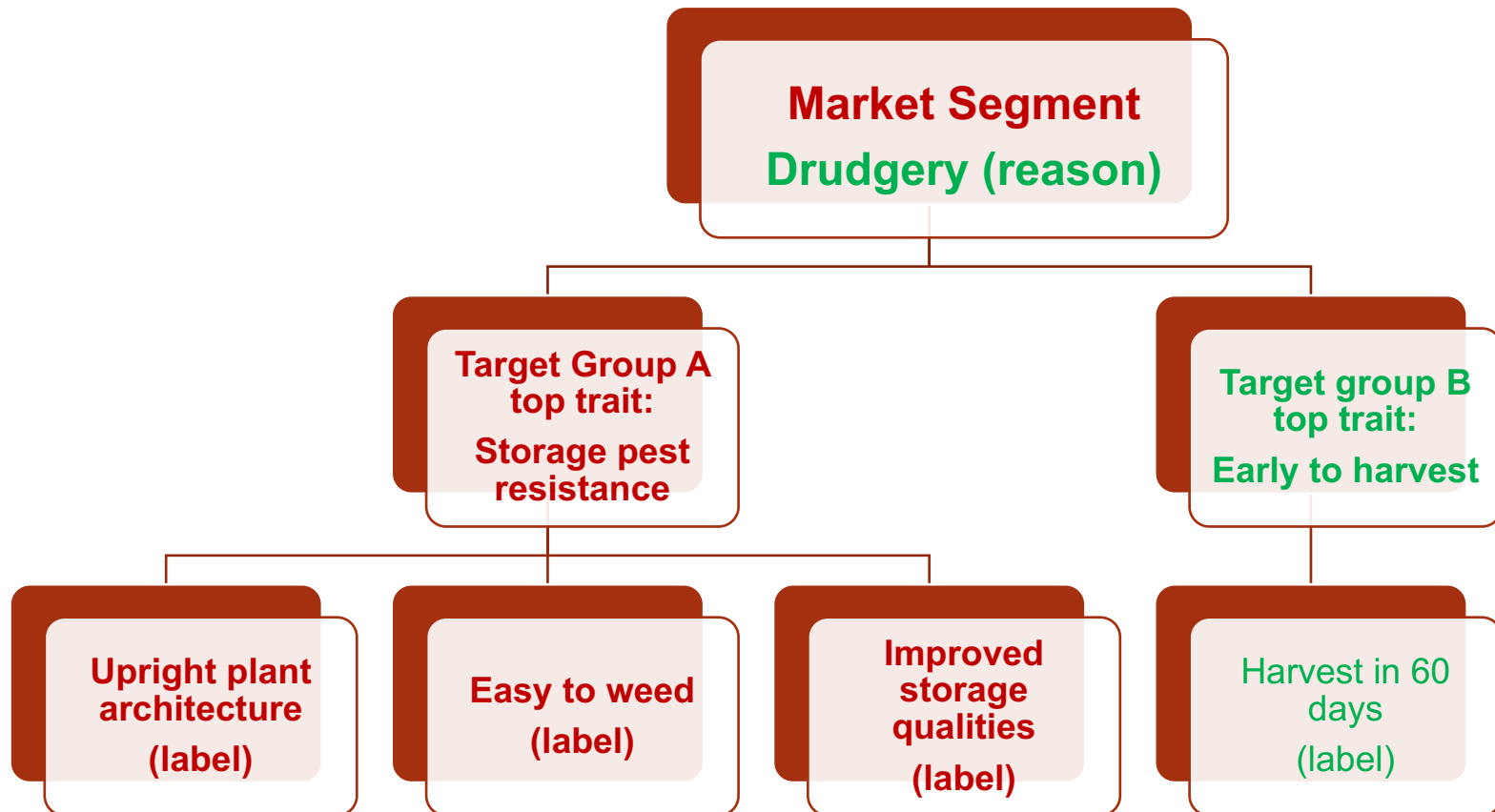
Prioritization **among traits** involves making explicit trade-offs **among beneficiary groups**

Missing: data on women's and men's priorities for traits, representative of a significant target group



Breeding programs must use a sampling framework to establish which gender differences are representative of social target groups at national and regional scales

Missing: Measurable trait values based on understanding reasons before labels



Define traits by understanding ontologies and how gender inequality, poverty and other factors drive preferences.

Define trait values by measuring priority traits, determining whether they are heritable, and assessing the genetic, economic, and cultural trade-offs

Missing: Management commitment



- Decisions at different stages in the breeding cycle, about which genetic materials to advance and which to cull, must be made on the basis of a multidisciplinary assessment.**
- **Breeders' criteria**
 - **Socioeconomic criteria**
 - **End-user feedback from representative target groups**

Key missing element of design



The social targeting and demand analysis

- Socioeconomic research provides breeders with a definition of their target groups in terms of gender and other socio-economic characteristics
- carried out on a large geographical scale in mega-environments defined for breeding purposes
- uses a sampling frame to ensure that information on gender-differentiated trait preferences (collected in households and communities) is representative of the program's social target groups.

Key missing elements of design



Approaches that enable breeders to address gendered trait preferences with greater precision and speed.

If gender analysis indicates that priority be given to many desirable traits that are genetically complex, the workload of a breeding program could soon become unmanageable.

Breeders need ways to screen genetic resources quickly and efficiently to determine which materials to use as parents, or which materials to advance the early stages of selection, where very large numbers of materials need to be managed.

“Take home” summary from 2016 Workshop



- Evidence of gender differentiated preferences that are economically significant for a large number of people
- The “Social targeting and demand analysis” study
- Measurable trait values
- Ways for breeders to handle speedy selection for multiple target groups and their preferred traits
- Practical ways for breeders to set priorities among heritable traits for inclusion in breeding
- Management deploying multidisciplinary teams to make product advancement decisions



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1. Who are we breeding for?

Who is the priority CGIAR target beneficiary (end user) for the breeding program ?	Targeting Consumers	
Targeting producers	Poor consumers Men Women	Non-poor consumers Men Women
Non-poor producers Men Women	Breeding to improve low-cost staples (classic green revolution)	Not CGIAR Mission
Poor producers Men Women	? Unique female	Breeding to improve competitiveness in high-value, export or boutique markets

Trait prioritization is not all that precedes targeting of the intended beneficiary group and their trait preference(s): generalizable at scale!

2. What's the (gendered) trait most in demand?

Breeders' question: what's the feasible, high priority gender trait with potential for economic impact at large scale?

