Product Profiles, Traits, and Adoption: Towards a Multi-stakeholder Approach

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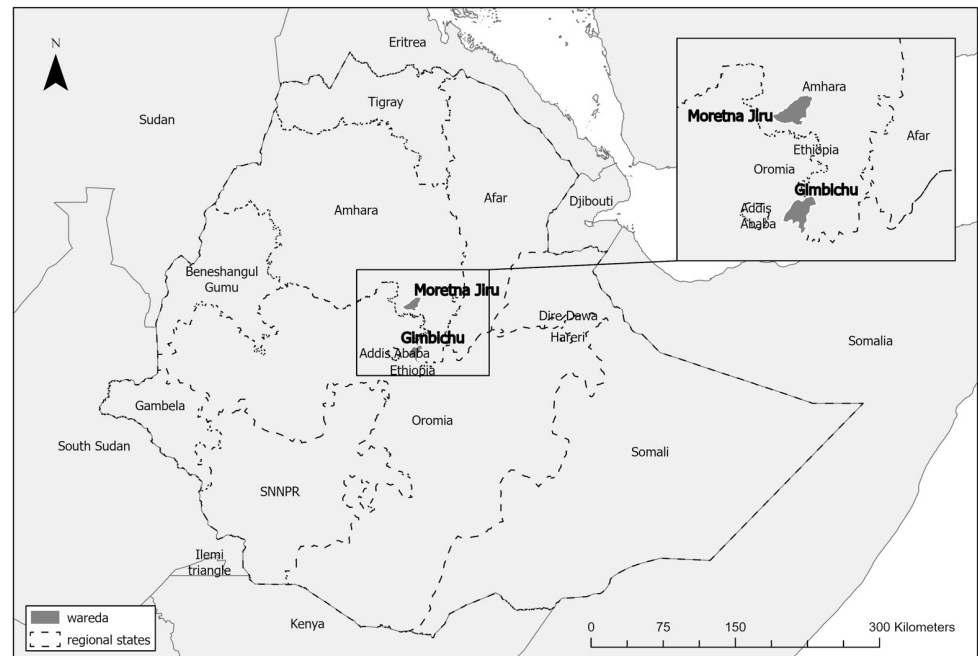
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Background

- Lentil is a cash and subsistence crop (women and men farmers are thus interested in a variety of attributes)
  - What are their trait preferences as it also relates to adoption
    - Worked in areas where new varieties were introduced (Derash and Teshale)

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Trait Preferences and Lentil Varietal Adoption in Central Ethiopia: A Multistakeholder Approach

Stakeholders

Women in men headed households (W-MHH)

Women headed households (WHH)

Men headed households (MHH)

Agro-processors

Traders

Breeders

Methods

✓ **Quantitative**

280 surveys

✓ **Qualitative**

214 In-depth interviews

24 Focus group discussions

Findings

Low adoption of improved lentil varieties

Trait preferences influence lentil adoption

Gendered differences in lentil production, sale and consumption

Disconnect between farmer preferences and breeding priorities

Conclusion: There is the need for more gender-responsiveness and equity in lentil breeding programmes

Trait Preferences (yellow highlights denote missing traits from breeding program and red indicate significant results)

- Resistance to rust
- Market price
- Yield/productivity
- Taste
- Ability to split properly (+traders and processors)
- Ability to dry without spoiling (storage) (+traders and processors)
- Amount of residue
- Shattering

Recommendations for Breeding Program

What are breeders breeding for?

- yield, earliness, seed size, disease resistance

What does gender-responsive breeding entail?

- Market traits, good taste, higher residue amount as well as traits with negative workload implications deserve more attention in breeding programs

 More generally:

- Lentil breeding and adoption research programs should consider a **diversity of traits** beyond grain yield to encompass **the range of production, processing, and consumption attributes** that are valued by farmers, traders, millers and consumers.

- Lentils deserve attention in **extension, release and making available new varieties** given its significant role in generating income and better nutrition for households

Product Profile: Definition and Components

- Descriptions of the traits that users want in new varieties
  - contribute to effective breeding that meets customer demand (demand-driven breeding)
  - but must go hand-in-hand with carefully segmented customer preferences (i.e. targeting specific groups of users)
- Components:

Contributors
Market Segment Definition
Market Segment Product Concept
Competitor Product Profile
Key Traits for Registration

Market Segment Definition

- Identified and defined based on a unique combination of key traits required in a product to meet/exceed "**customer**" needs.

- The customers
  - In a specific location x crop type (e.g., small lentil grown in eastern part of India, large lentil grown in central India)
  - Number of men and women farmers growing the crop
    - Their characteristics (poverty level, gender inequality)
  - Area cultivated

- Impact of product developed (adaptation to CC, human nutrition, intensification etc.)

- Pathway to market (description of the pathway to market from the breeding program to the product being grown in farmers' fields)

Product Concept

- **<u>Product concept</u>** is a description of all the traits that are of value today and/or in the future that are being actively targeted by one of the breeding pipelines within the organization.

- Key traits in the product concept include:

Trait Category	Trait Examples
Abiotic Tolerance	Drought, Heat, Salinity, Submergence etc.
Agronomic Traits	Branching, Fertilizer Efficiency, Maturity, Regeneration Capacity
Biotic Resistances	Bacterial, Fungal, Virus, Viroid, etc.
Consumer Traits	Consumer traits (including gender balanced preferences for traits) e.g. flesh color, grain color, starch yield, taste, cooking time, etc. Bio-Fortified, Bread Qlty, Nutrition, Protein Content, Starch Content
Fodder/Forage Traits	Fodder Digestibility, Nutrition or Yield
Value Chain Traits	Dormancy, Milling Efficiency
Yield	Total Yield

Thank you!