Strength in diversity. Designing on-farm trials to guide gender-intentional maize breeding

Michael Euler1, Jill Cairns2, Paswel Marenya3, Mainassara Zaman-Allah2
1International Maize and Wheat Improvement Center (CIMMYT)-Ethiopia, 2CIMMYT-Zimbabwe, 3 CIMMYT-Kenya
m.euler@cgiar.org, ILRI Sholla Campus, CMC Road, P.O. Box S689, Addis Ababa, ETHIOPIA

1. Background

• Strengthening gender-intentionality in maize breeding can contribute to closing adoption and productivity gaps between female and male managed plots
• Conventional approaches in breeding often do not focus on the linkages between the dynamics of gender roles in maize production systems, gender-based differences in trait preferences, and seed demand
• Inclusion of management practices used by women and poorer farmers into variety evaluations can help ensure new maize hybrids meet their needs
• Molecular breeding technologies, such as genomic selection, provide new opportunities to conduct early generation testing on-farm in parallel to on-station breeding

2. Selection of host farms

• The ‘On-Farm-Maize Select’ project pilots a new method of genomics-assisted on-farm testing with early-stage breeding material on ~ 800 farms in Kenya and Zimbabwe
• Host farms selection aimed at capturing differences in management practices among farms and between female and male managed plots
• Selection was guided by farm typologies to capture heterogeneity of across the target population of environments

3. Data sources

• Data collection through structured, individual questionnaires to male and female farmers
• Surveys cover ~750-800 farms (~1300-1500 individuals) in Zimbabwe (completed 09/23) and Kenya (ongoing)
• Collected information includes gender disaggregated data on:
  o division of labor in maize production
  o preferences on tested maize lines
  o intra-household decision-making arrangements in maize production and seed choices
  o ownership and control over farm and household assets

4. Gender roles in maize production

Gender of main decision-maker in maize production by location of production. Source: Household survey Zimbabwe. n=238 (experiment), n=201 (homestead), n=102 (outfield).

5. Gender trait preferences

Level of agreement between female and male farmer about individual ratings of the best line tested on farm. Source: Household survey Zimbabwe. n=89 pairs of female and male farmers.