

Africa RISING in the Ethiopian Highlands

Genetic intensification: Africa RISING science, innovations and technologies with scaling potential from the Ethiopian Highlands

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Key messages

- Genetic intensification ensures increased production with little or no increase in the amount of land devoted to crop production
- Crop diversification ensures sustainable production and incomes
- Wheat Barley, food legumes and potato are key commodities in mixed farming system
- Important for food, nutrition, feed and income generation
- Integration of potato with cereal-legume based farming improves soil nutrients, plant health and productivity

Objectives and approach

Objectives:

- To identify high yielding, farmer and industry preferred varieties for future scaling out
- To establish decentralized seed production and knowledge transfer system
- To identify innovative cropping systems combining with minimum negative impacts on the environment
- To build the capacity of farmers and partners

Approaches :

- PVS-PPB was conducted in two Kebeles in each Africa RISING (AR) sites Sinana, Maichew, Basonaworana and Lemo
- Male and female farmers participated in variety evaluations
- Mid-and End-season evaluation of the crops

Test crops:

- **Cereals:** bread & durum wheat; food & malt barley
- **Food Legume:** faba bean, lentil, field pea
- **Potato**

Key results

- **21** farmers preferred crop technologies (improved varieties and associated practices) identified
- **308** tons of early generation seed of selected varieties multiplied by farmers for technology scaling in phase II
- Improved post harvest management of Potato (DLS) and legumes (PICs) demonstrated to participant farmers
 - DLS is adopted by some farmers
- Capacity (knowledge) of farmers, extension workers and other stakeholders (2200) on improved crop technologies developed (field day, on the job training, theoretical and practical training sessions)

Core partners



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Significance and scaling potential

- Identified improved crop technologies increase productivity of barley, wheat, faba bean, field pea, lentil and potato by 3.7, 3.1, 2.5, 1.8, 1.8 and 41 tons/ha respectively.
- Seed growers organized to multiply seeds
- About 174,641 farm households will be reached with CLP interventions in four regions through scaling out/up in phase II project period
- The intervention narrow the yield and knowledge gaps in the action sites and surrounding areas

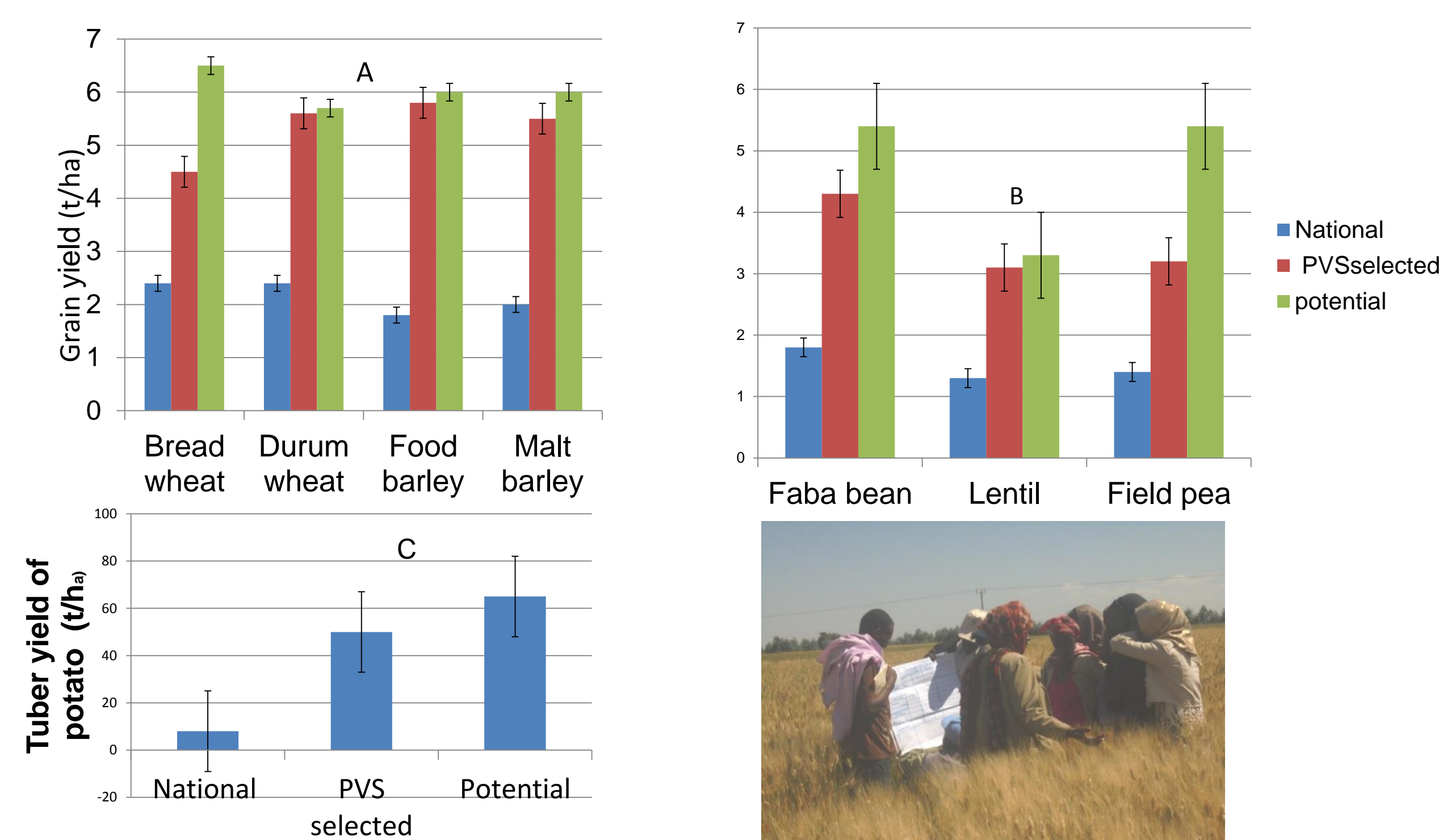


Fig. 1. Yield gap of cereal (A), highland food legumes (B) and potato (C) in Ethiopia.

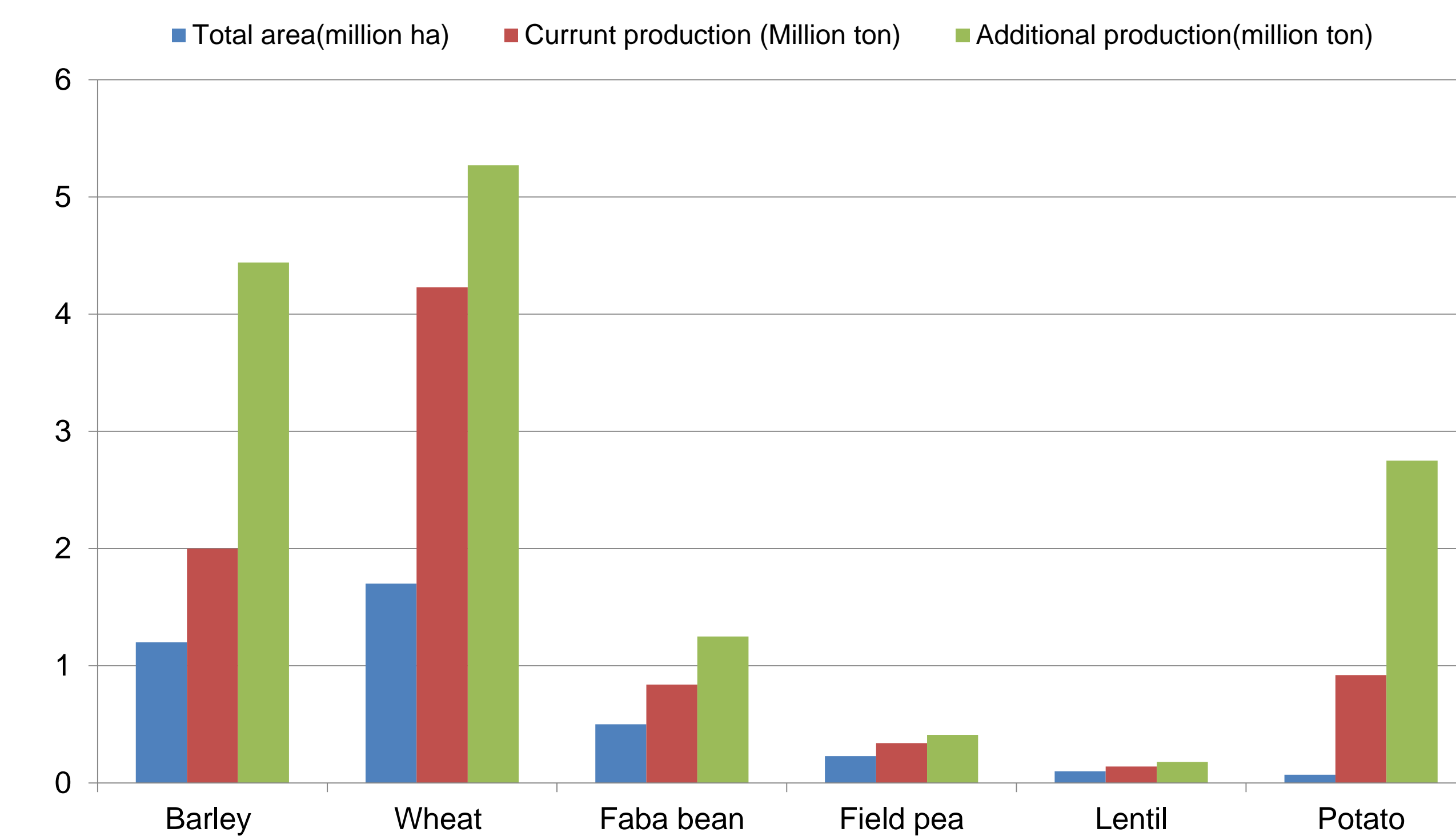


Fig. 2. Crops production increment through genetic intensification (production increase with no increase in the amount of land devoted to cereal-legume-potato production in Ethiopia: A model to increased food production with SI).



Fig.3. Faba bean seed multiplication on farmers' fields using improved production package (improved variety, agronomic practices and integrated galls disease management (A and C), farmers' faba bean crop (farmers' variety + local production practice) heavily attacked by the disease (B and D –top and bottom right side) at Tsehibet Kebele, Endamehoni, Tigray, 2015/16 cropping season.