

Legume SELECT: Science-driven Evaluation of Legume Choice for Transformed livelihoods

Wheat-based farming system in Ethiopia: Experiences and legume focused strategies in Sinana, Bale, Oromia, Ethiopia

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April 2022

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The Program thanks all donors and organizations which globally support its work through their contributions to the CGIAR Trust Fund

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Editing, design and layout—ILRI Editorial and Publishing Services, Addis Ababa, Ethiopia.

Citation: Abebe, Z., Abdulkadir, B., Mekonnen, K., Hammond, J., Dabess, A., Muleta, T. and Thorne, P. 2022. *Legume SELECT: Science-driven Evaluation of Legume Choice for Transformed livelihoods: Wheat-based farming system in Ethiopia: Experiences and legume focused strategies in Sinana, Bale, Oromia, Ethiopia*. Nairobi, Kenya: ILRI

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Acknowledgement

We are grateful to the Biotechnology and Biological Sciences Research Council (BBSRC) for financing the Legume SELECT project through the lead partners University of Edinburgh and International Livestock Research Institute (ILRI) and co-implemented with Oromia Agricultural Research Institute (IQQO).

Key facts

- Wheat is a dominant crop that grows in Sinana and the surrounding areas.
- Sinana is characterized by having a bimodal rainfall pattern with an average rainfall of 930 mm and a maximum temperature of 17.6°C.
- Most farmers grow wheat as a major source of income.
- Different programs/projects have been initiated to diversify the farming system in Sinana and the surrounding areas.

Introduction

The goal of Legume SELECT project is to improve the use of legumes in smallholder farming systems in sub-Saharan Africa. This factsheet highlights the status of legume intensification in Sinana woreda, Bale zone of the Oromia region.

Approaches

- A total of 182 out of 382 households were randomly selected and interviewed in two kebeles.
- The baseline survey intended to characterize the prevailing situations of socio-economic importance of legumes, land use systems, soil fertility status, and crop management and uses of crop inputs.

Findings of the survey

Farming systems and current household livelihood

- Wheat based monocropping is the most dominant practice in Sinana. Most farmers plant at least 2 ha of their land with wheat.
- About 99% of the households cultivate wheat. In addition, about 60% the households plant barely and 55% of the households plant maize.
- Faba bean and field pea are also grown in the area.
- Over 65% of wheat harvest is sold and helps each household to generate about USD 4,500 per year.
- Those households that grow barley and maize use them mainly for home consumption. Barley and maize occupied around 0.5 ha of land per household, which is only 25% of total wheat area per household.
- Overall, the average productivity of main cultivated cereal crops is 2–4.5 t/ha.
- Only 7% of the households in Sinana are living below the standard poverty line.

Land management

- The area of cultivated land per household for main crops is 5 ha or less.
- Most of the land is owned by the households.
- About 20% of the households have rented land.
- Only 22% of the households practiced different soil and water conservation practices such as contour ploughing, cutoff drains, soil/stone bund, terraces, water ponds and checkdams.

Soil fertility management

- There is high competition on the use of crop residues such as animal feed, housing, sale, house construction and soil fertility management.
- Nearly 92% of the households use wheat residue for animal feed while only 31% of them incorporate into the soil.
- Nearly 22% of the households use faba bean and field pea crop residues for soil fertility management next to animal feed (25–27%).

Status of livestock production

- The number of livestock owned per household is 2.6 Tropical Livestock Unit (TLU).
- About 31% of the households have improved breeds. However, its production value accounts only to 10% of the total value.
- Over 80% of the households use open grazing and crop residue as a source of animal feed.
- The majority of the households apply animal health practices such as vaccination, antibiotics and deworming for their livestock.

Existing legume cropping strategies

- Field pea and faba bean are mostly cultivated by over half of the households, and generate USD 1,020 and USD 612 per household per year, respectively.
- Only 10% of the households have planted legume trees.
- Less than 5% of the households planted acacia and Sesbania legume trees.
- Vetch grass is commonly grown as a sole crop by less than 20% of the households.
- Farmers' plant leguminous plants to improve the fertility of their soils and feed their livestock.

Key legume production constraints

- Soil fertility and soil erosion problems were reported by 50 and 40% of the households, respectively.
- Cereal based monocropping practices and limited legume portfolio.
- Limited inputs (e.g. legume seeds) and mechanization for diverse legumes production.
- Most input use (97% of the households) for cereal production.

Existing land and soil fertility management strategies

- There is the initiation of common soil and water conservation practices by 22% of the households.
- Crop diversifications such as crop rotation practices and crop residue incorporation are practiced by a few households.

Recommendations

- Focus to invest on legume intensification and portfolio diversification.
- Demonstrate and promote:
 - more soil conservation practices
 - annual and multi-purpose legume trees
 - high biomass legume forage for cut and carry system
- Focus on integrated nutrient management options.
- Farmers' capacity building on the importance of legume intensifications.
- More efforts are needed to ensure accessibility of quality legume seeds.

Reference

Caulfield, M., Abdulkadir, B., Mekonnen, K., Duncan, A., Thorne, P., Dabess, A., Muleta, T. and Hammond, J. 2021. *Legume SELECT: Rural household multi-indicator survey (RHoMIS) report for characterization of smallholder farming in Sinana and Digga woredas, Oromia, Ethiopia*. ILRI Research Report 84. Nairobi, Kenya: ILRI. <https://hdl.handle.net/10568/116603>