



Sustainable  
Intensification of  
Mixed Farming Systems

# Towards Systemic Interventions in the MFS Initiative, Ethiopia



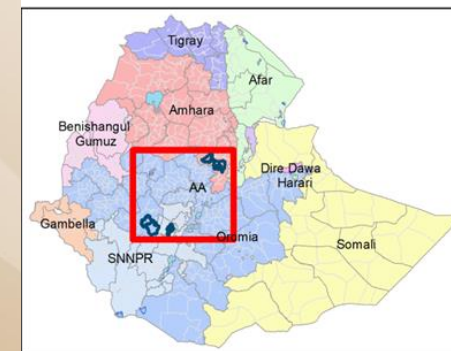
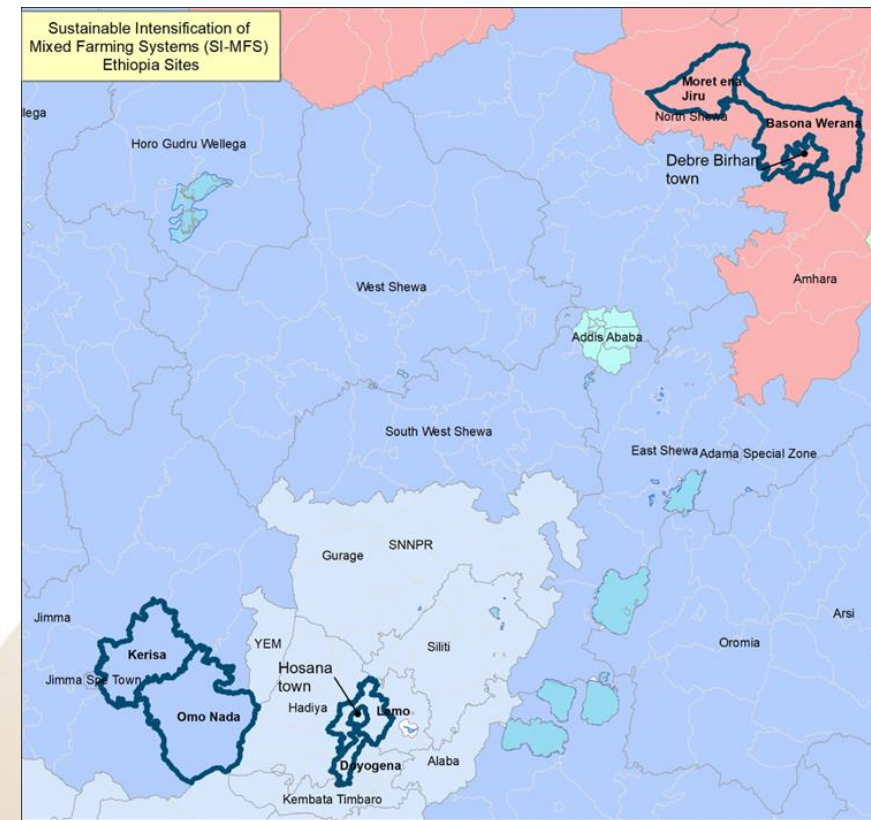
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Getachew Tesfaye (Alliance Bioversity-CIAT), Anthony Whitbread (ILRI) Haimanot Seifu(ILRI)

**Global mid-term meeting of the CGIAR Initiative on MFS from 4-6 Oct 2023 Wageningen, Netherlands**

# Introduction of mixed farming system site in Ethiopia

## Intervention Sites

- Omo Nada and Kersa- Jimma- Oromia region
- Basona and Morete and Jiru- North Shewa, Amhara region
- Doyogena and Lemo- SNNPR
- Home for previous CG interventions such as Africa RISING, CBBP etc
- With strong research, extension and other development partners



# Introduction of mixed farming system site in Ethiopia

## Site selection criteria

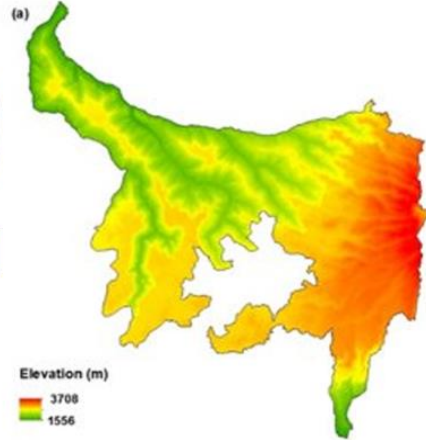
- Diversity of farming system with crop-livestock-forage systems and soil-landscape-NRM issues
- Accessibility (link to road, markets etc).
- Enthusiasm of farming community and government extension staff
- Opportunity to bring new innovations and thinking
- Presence of local University/ research center
- where 3-4 centers could co-locate and work interactively.



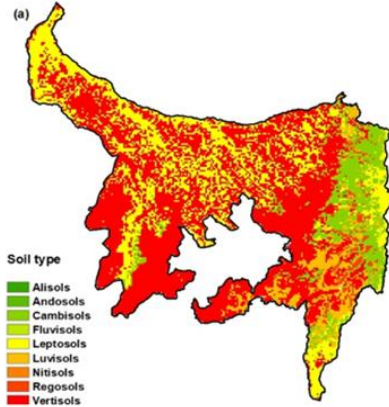
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# Description of the system (Biophysical)

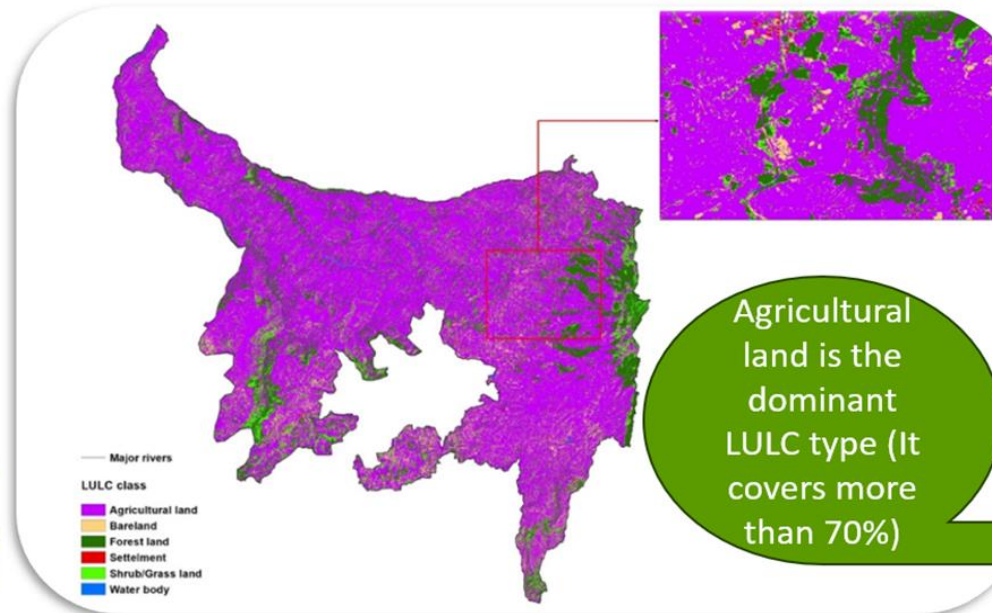
Elevation ranging from 1556 to 3708 m a.s.l



Vertisols and Leptosols are the dominant soil type (it covers about 80% of the total area)



Agricultural land is the dominant LULC type (It covers more than 70%)



[www.cgiar.org](http://www.cgiar.org)

Biophysical characterization of Basona Worena Woreda taking elevation, Land use land cover type, and Soil type as a demo example



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## Core challenges

- Soil degradation
- Competing land use options
- Feed shortage
- Limited forage species
- Low crop productivity
- Low feed utilization
- Weak linkages to input-output markets
- Inadequate availability of crop and forage seeds
- Traditional production and processing (field crops, dairy, feed, apiculture, etc.)
- Insufficient access to information & technologies
- Poor household nutrition
- Poor knowledge on housing and feeding egg laying chicken, and apiculture and flora management

## Community engagement:

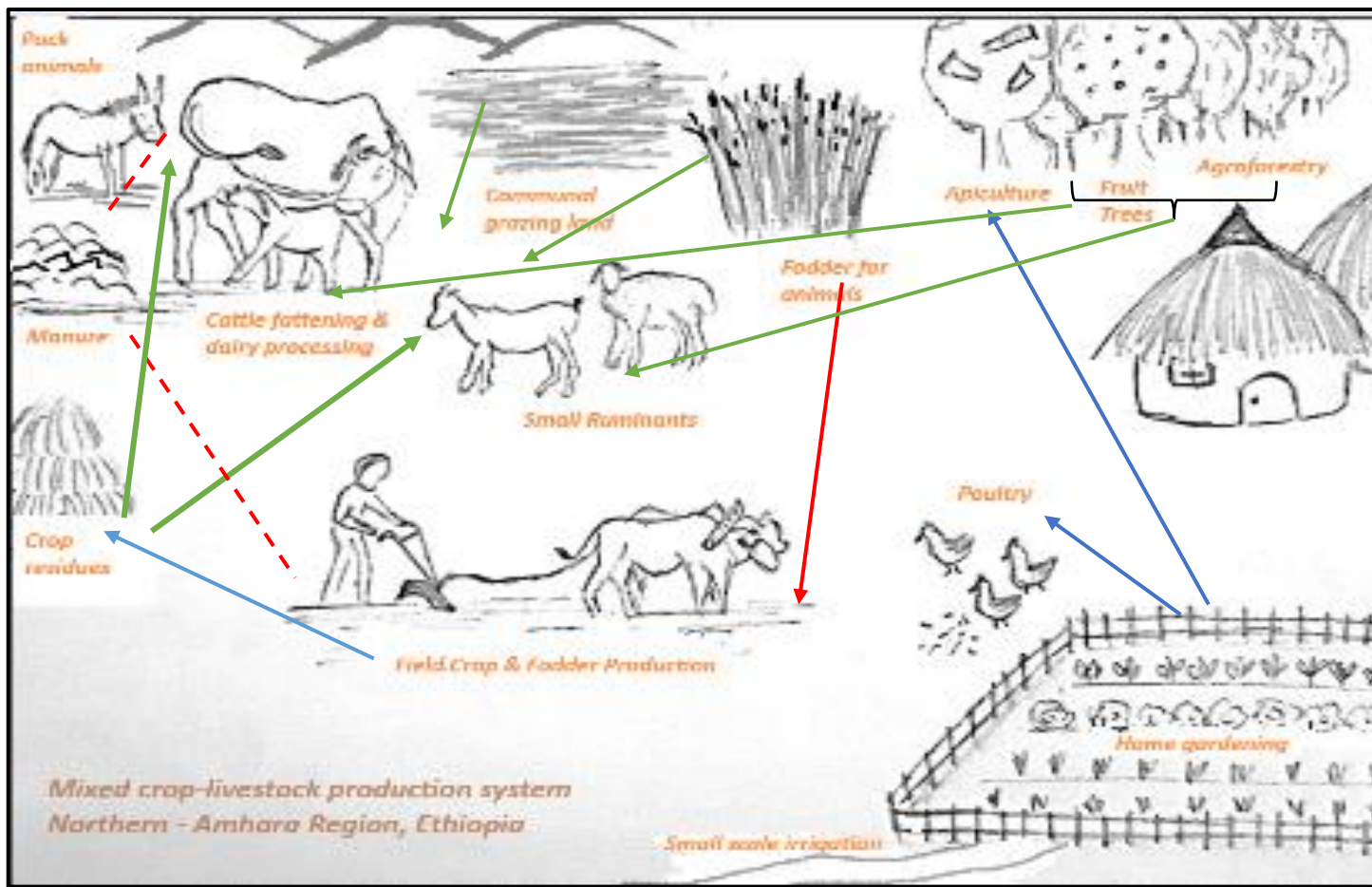
Participatory varietal selection (barley, field pea and food oat), women business organization, crowd sourcing (faba bean and wheat bread) seed varieties

## Description of the crop-livestock system in Basona Site

Prioritized **challenges** with greater effect on the system

[Systemic Challenges N Amhara MFS 2023.docx](#)

Promoting **solutions** with greater potential for intensification, diversification, integration, community engagement, and capacity development to sustainably enhance the efficiency of the system



**Integration:** -Promotion of **multi-purpose feed options** – *Desho*, alfalfa, and *Lucerne* tree which enhance soil fertility, oat-vetch which crowd out weeds and produce lots of biomass

- Feed formulation** – better utilization and balance (crop, vegetable, and fodder)
- Intercropping** with fruit trees
- Promotion of **seeds of improved** varieties with greater biomass for animal feed (lablab, food-feed oat)
- Integrating beekeeping** and **poultry** with home gardening, fruit and forage trees

**Intensification and diversification:** timely and adequate access to **seeds** of improved crop and fodder varieties (seed multiplication), **sheep fattening, feed processing and formulation, milk processing** (quality/quantity), mechanized feed processing, improved **atela** (used for animal feed and local drink) production, **increasing the flock of chicken** to enhance hh nutrition and income, **upgrade traditional** beekeeping practices

**Inclusive awareness raising and capacity development on** feed value chain, feed formulation (mix ratio), crowd sourcing, feed and forage, sheep fattening, financial literacy, radio broadcasts, and experience sharing.

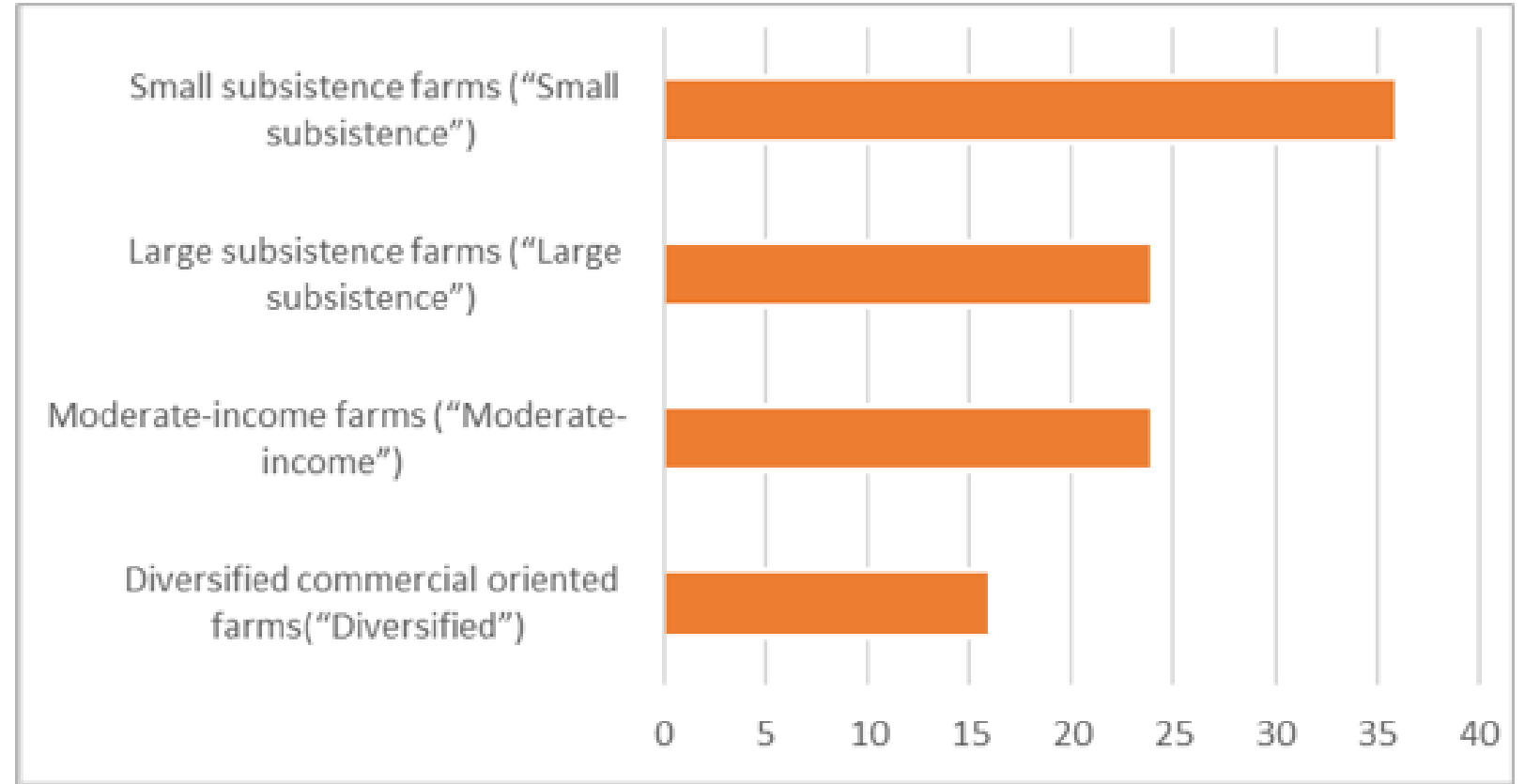
- Enhancing institutional capacities of local partners (participatory process in problem identification and prioritization, innovation bundling, and implementation)

# Description of the system: Farm typology



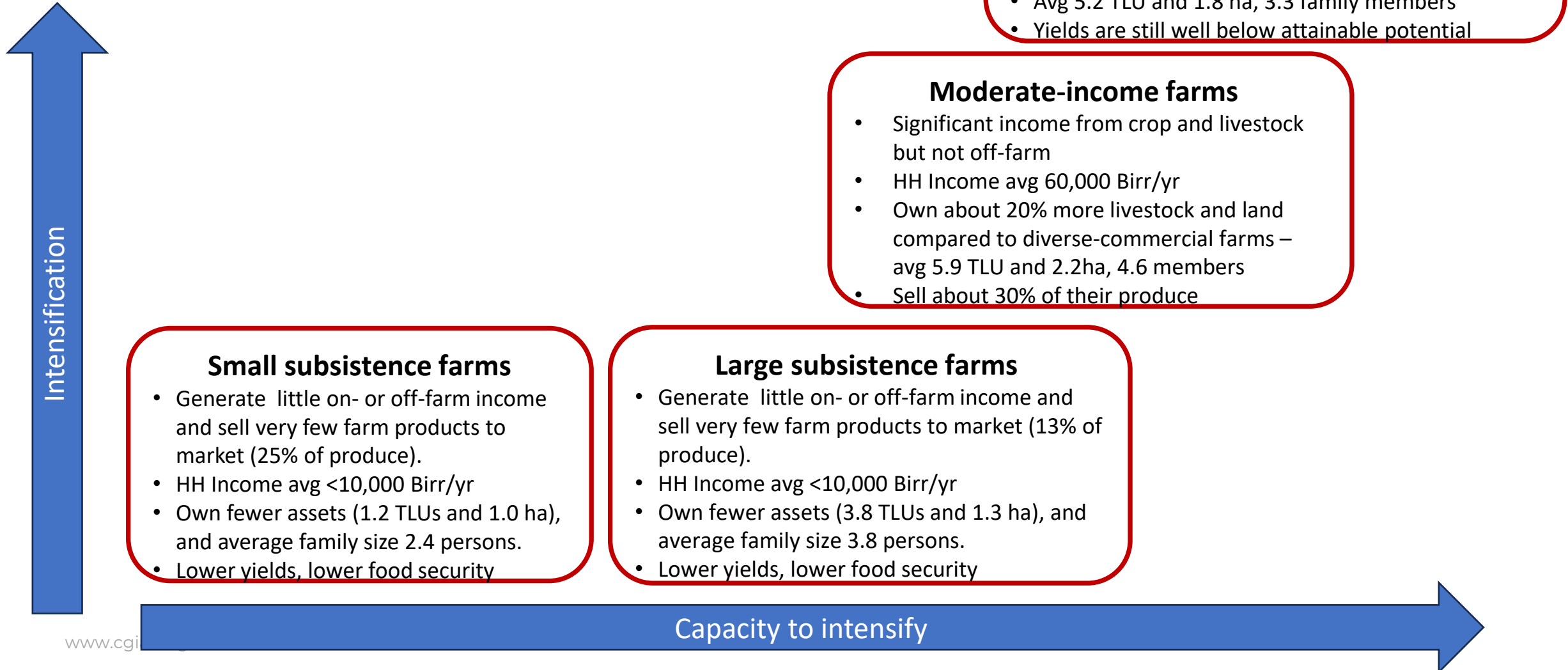
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- Based on farm-household survey data (from Africa RISING)
- Typology to segment the farming population into groups with distinct livelihoods, farm practices, and barriers to intensification.
- Segments may require different technical interventions AND different socio-economic enabling interventions

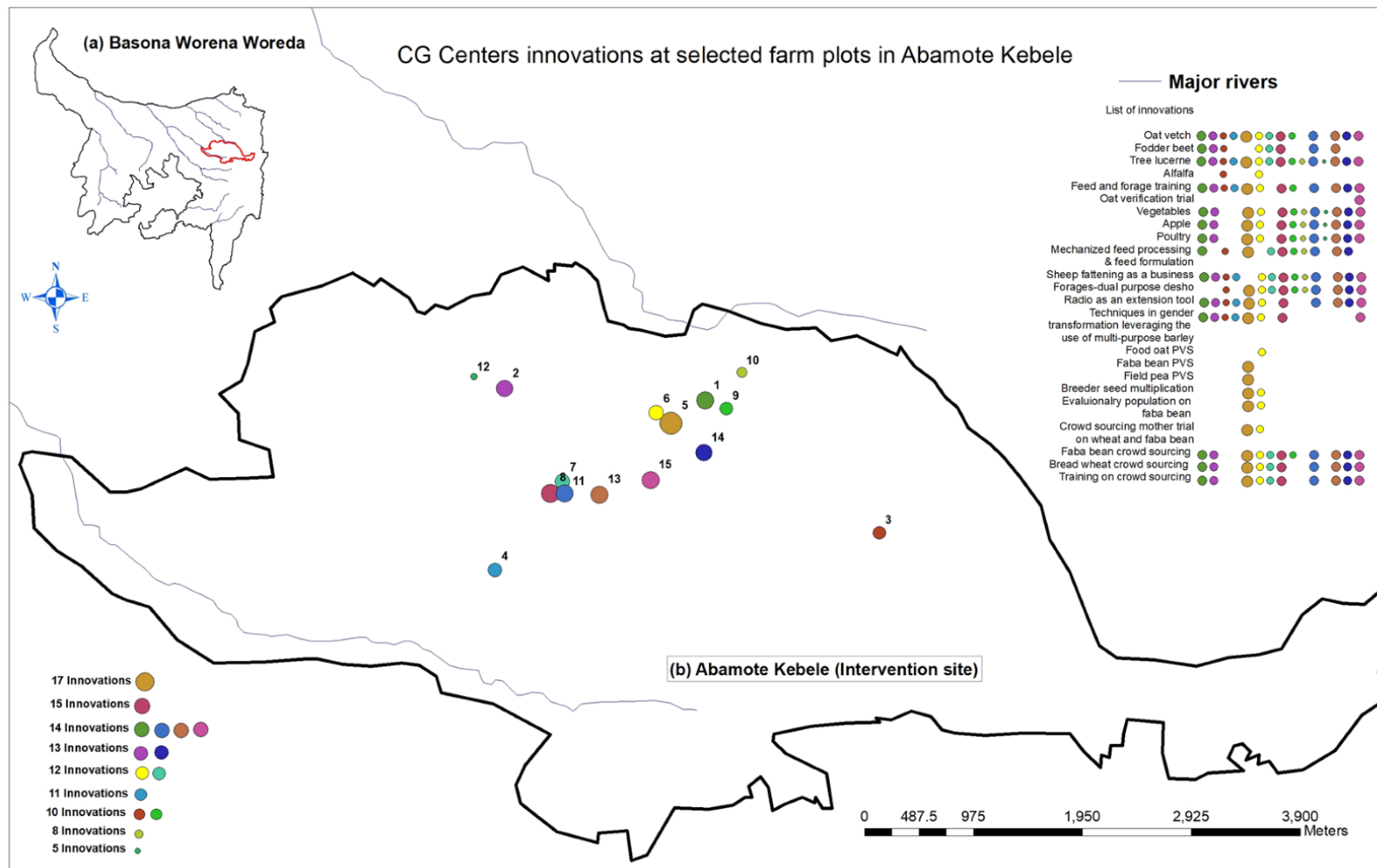


% of population

# Farm typologies: implications for STIB design



# “Experimental farmers” for on-farm integration studies



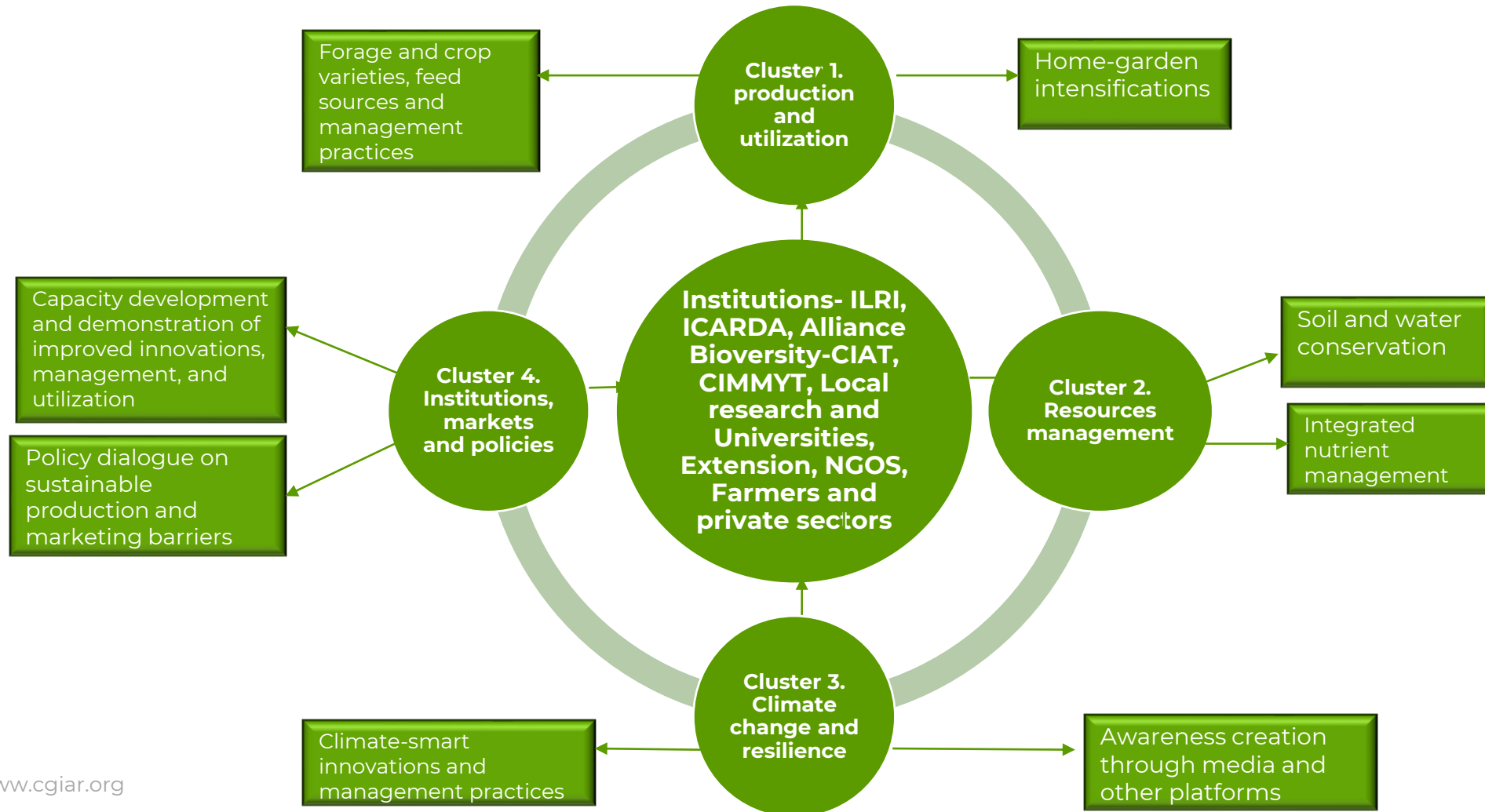
- The map shows the spatial distribution of sample plots for on farm integration studies
- 15 farmers/ plots were selected and implement innovations that fit to their interest.
- 8 farmers were in the "moderate income" farm type, 7 were in the "diversified-commercial" farm type.
- None were in the large or small subsistence types.
- ILRI, ABC Bioversity-CIAT and ICARDA supported various innovations.



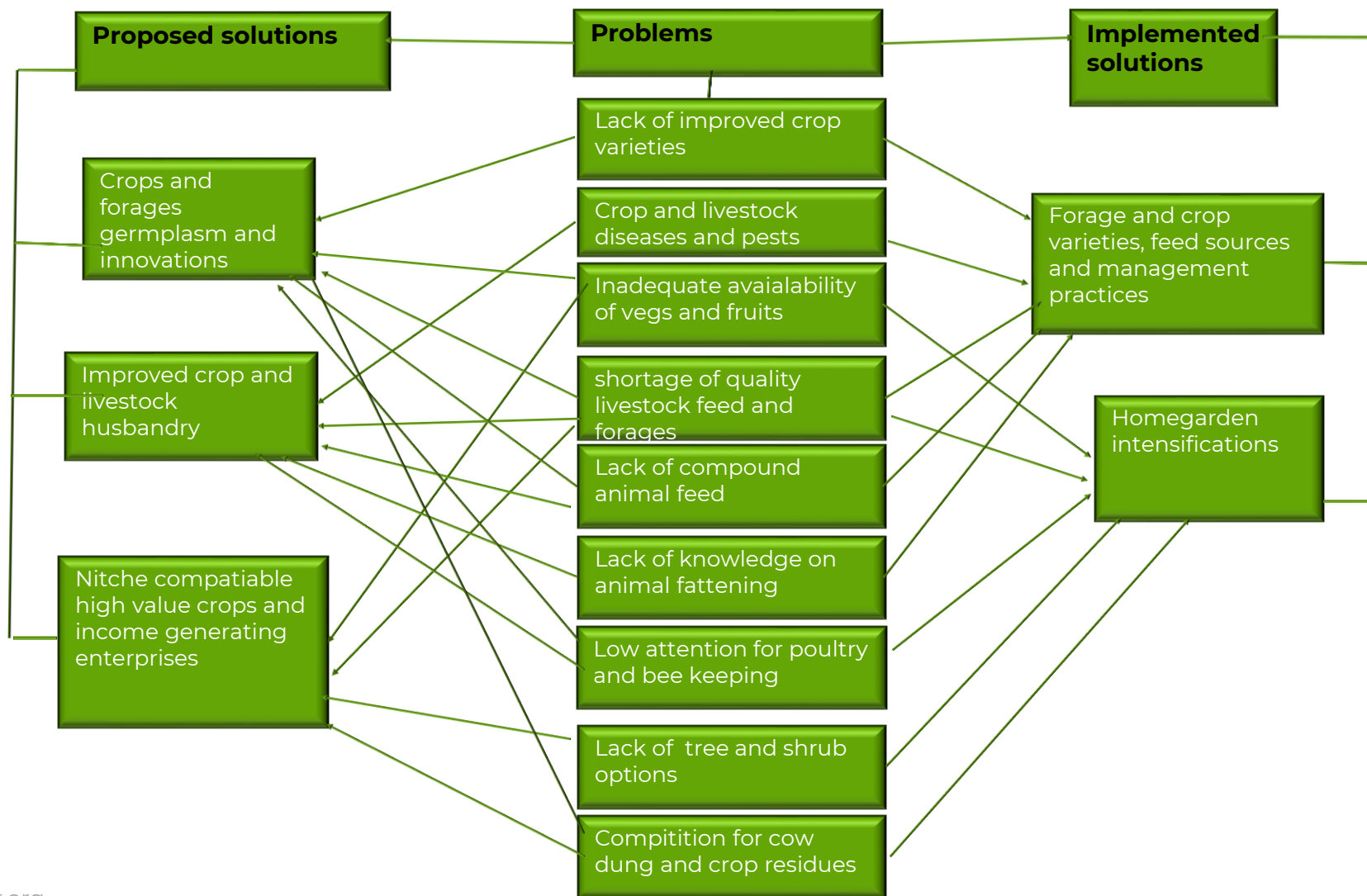
# Socio-technical innovation bundles



- More than 27 problems have been identified through consultation meetings.
- The problems are clustered into four categories based on their functional relationships.
- Integrated and bundled solutions that address multiple problems are implemented.



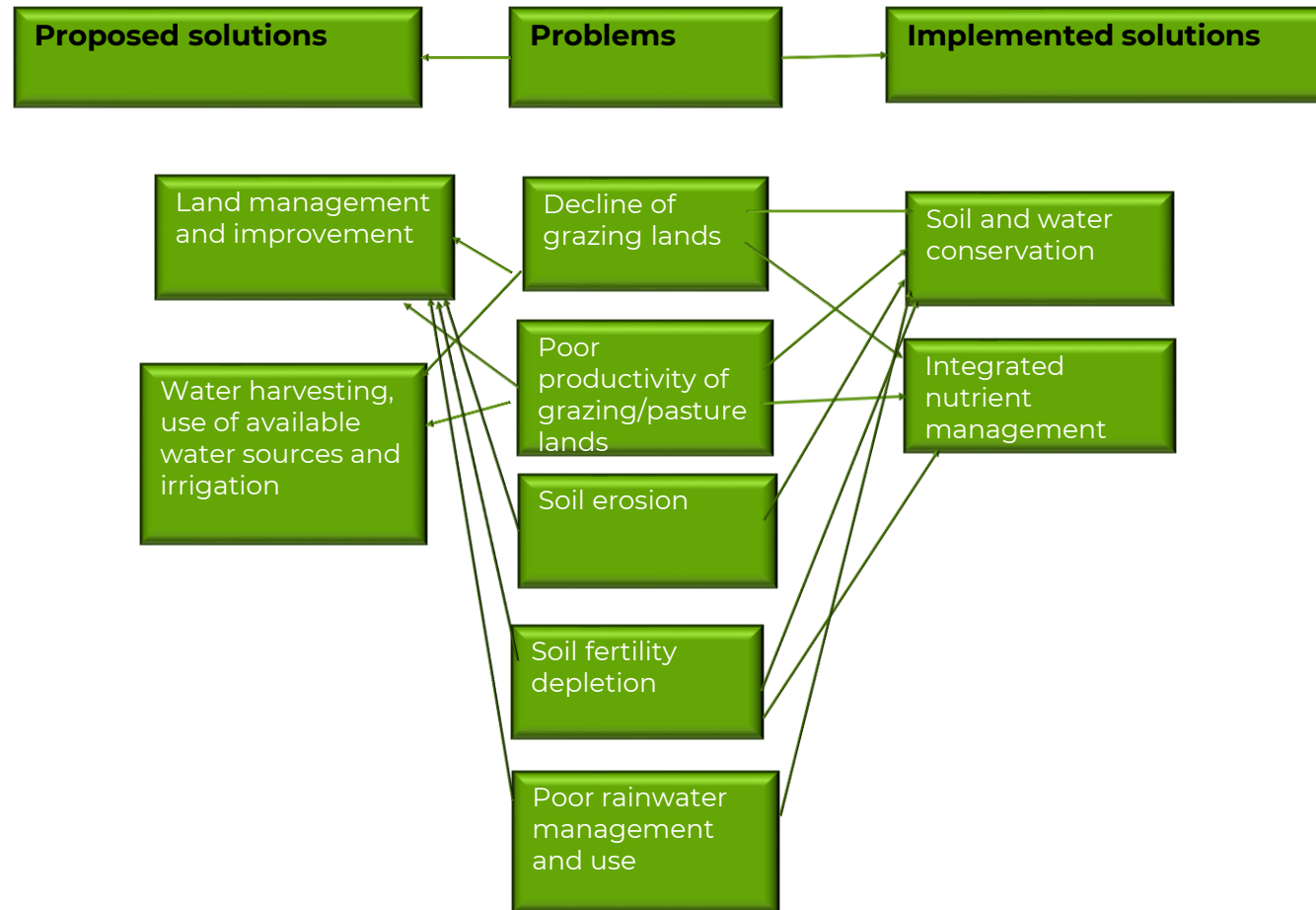
### Cluster 1. Production and utilization



## Cluster 2. Resources management



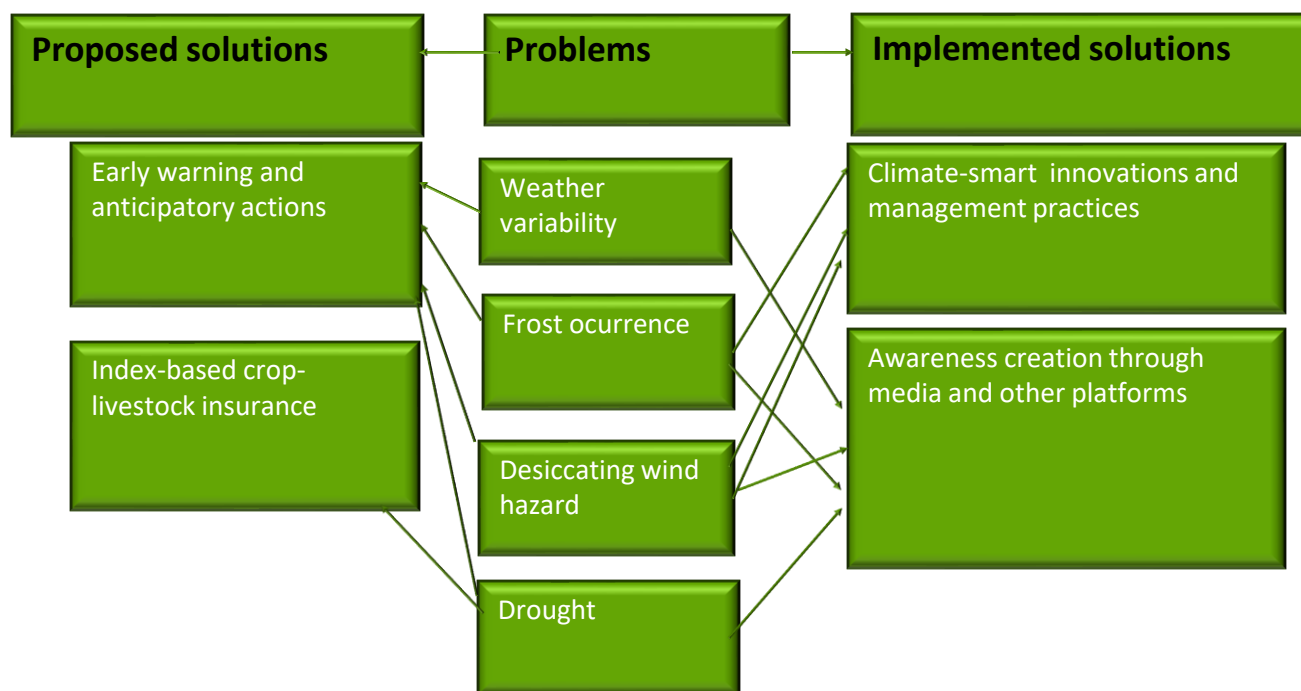
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## Cluster 3. Climate change and resilience



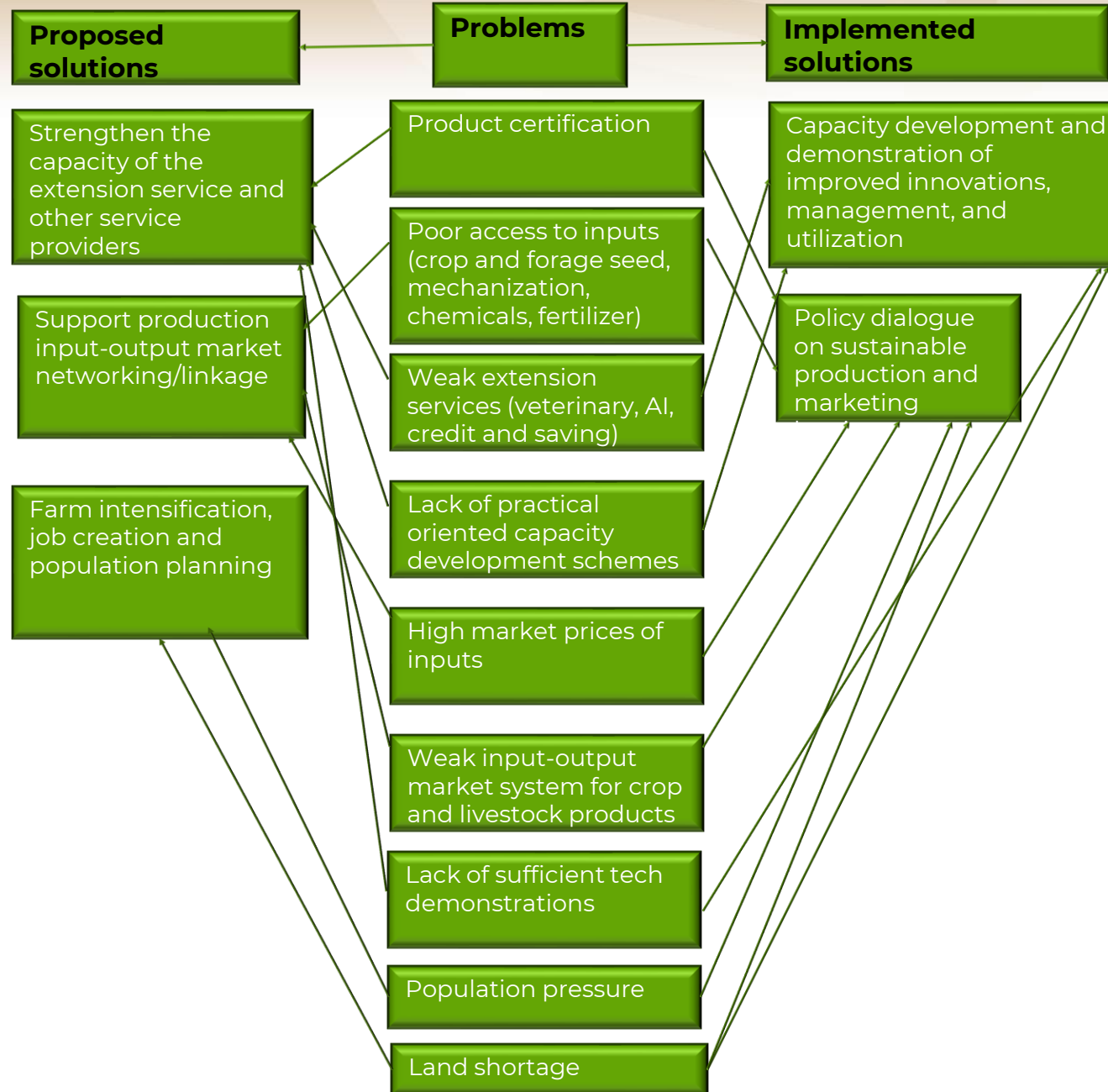
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## Cluster 4. Institutions, markets and policies



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## Way forward

- The system analysis presented is a work in progress.
- 2023 next step: Validation of the analysis with farmers and other stakeholders.
- 2024 next step: System adaptation for 2024 intervention based on lessons learnt so far.





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**Thank you**

