CIAT/NeilPalmer

CGIAR INITIATIVE | SUSTAINABLE INTENSIFICATION OF MIXED FARMING SYSTEMS

KEY MESSAGES

- This initiative addresses coordination and integration challenges. It will respond to prioritized needs of focal farming systems co-identified with CGIAR regional integrated initiatives and their partners, and support harmonization of the use of proven tools and methods to guide and capitalize on other relevant CGIAR initiatives.
- An inclusive, participatory, gender-transformative approach will be used to identify, co-develop, and adapt sustainable intensification (SI) pathways for more productive, effective, resilient mixed farming systems (MFS). This will ensure equitable distribution of the benefits among MFS actors, increasing the acceptability and sustainability of proposed MFS adjustments.
- The initiative will generate evidence-based, context-specific design and assessment toolboxes to support the improvement of MFS. These toolboxes will guide the co-design and assessment of future development investments in SI and farming systems research within and beyond the CGIAR.
- The initiative adds value to the achievements of existing efforts by CGIAR and other institutions to sustainably intensify MFS, placing previous disciplinary component research within a holistic systems approach. It harnesses synergies among different objectives, reduces tradeoffs and unintended consequences, maximizes synergies, and bundles social and technical innovations.

THE CHALLENGE

Most agricultural production in the global south takes place in mixed farming systems (MFS). Key drivers – climate change, population pressure, urbanization, water scarcity, changing diets, volatile food prices – mean that flexible and accelerated changes in MFS will be needed to achieve global targets such as the UN Sustainable Development Goals.

Sustainable intensification (SI) research outputs must address multiple biophysical and socio-economic issues to deliver critical outcomes, involving a range of farm products and stakeholders, that result in inclusive multiple desired impacts at scales. Two types of hurdles must be overcome for the CGIAR to adequately meet the challenge at farming systems level. One hurdle is to ensure efficient coordination, integration, and transfer of innovations, information, tools, and standardized methodologies. A second hurdle is to integrate multiple biophysical and socio-economic thematic-level outputs and identify strategies that minimize tradeoffs and maximize synergies, resulting in multiple impacts at scale.

Accelerating SI of MFS will require well-coordinated, prioritized, and focused efforts that efficiently bring together multiple thematic elements (e.g. agronomy, plant health, genetics, livestock, aquaculture, soil and water management, mechanization, socio-economics) in order to minimize sectoral tradeoffs (e.g. between productivity and environment) and maximize synergies (e.g. women's empowerment and mechanization). This will only be possible with streamlined coordination, integration, and transfer of innovations, information, tools, and standardized methodologies from thematic levels to regional and global levels. Similar coordination, integration, and transfer activities are also critical across each level (e.g., farming systems levels).

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OBJECTIVE

This Initiative aims to provide equitable, transformative pathways for improved livelihoods of actors in mixed farming systems through sustainable intensification within target agro-ecologies and socio-economic settings.

Activity

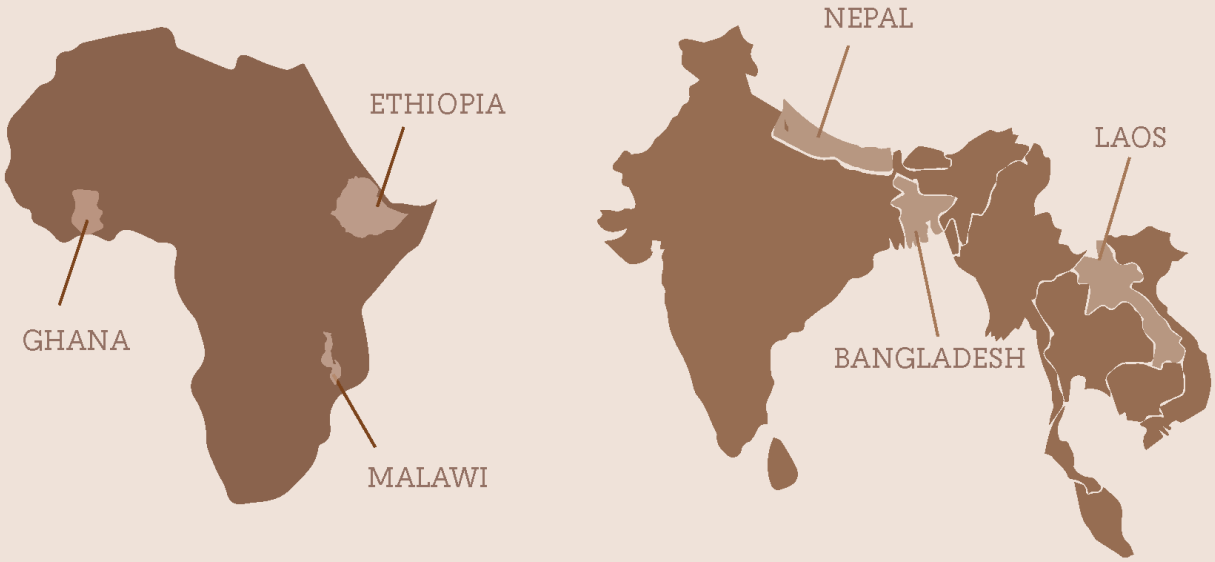
- Analyzing status, trends, and future dynamics of mixed farming systems to identify entry points for equitable sustainable intensification, to mitigate negative impacts of change and seize emerging opportunities for livelihoods.
- Building methods and tools for sustainable intensification of mixed farming systems to support decisions on what kind of sustainable intensification might work where, and for whom, in specific contexts.
- Participatory co-design of mixed farming systems with evidence-based, validated sustainable intensification innovation packages that are responsive to improving efficiency, equity and resilience, in regions where mixed farming systems dominate the landscape.
- Advancing and supporting scaling of innovations, through strategic partnerships and building the capacity of relevant actors in scaling approaches — a gender-transformative approach will be central to all innovation and scaling design to enhance equity.
- Capacity-building for mixed farming system design and analyses, to support long-term impact on university and college students, scientists, extension agents, farmers, private sector, policy makers and development actors.

CGIAR researchers and their partners will work in Ghana, Ethiopia, Malawi, Bangladesh, Nepal, and Laos to co-create packages to achieve intermediate outcomes by 2024.

Work Packages

Work Package 1	Status, trends, and future dynamics of MFS	Build links with CGIAR regional integrated initiatives (RIIs) and locally active partners to describe and contextualize mixed farming systems (MFS), and with thematic initiatives and their networks to identify research priorities and capitalize on outputs of separate disciplines for integration in MFS.
Work Package 2	Building methods and tools for SI of MFS	Develop proven methods and tools for foresight, targeting and implementing sustainable intensification innovations for MFS in specific agro-ecological and socio-economic settings. Capture the diversity of farming systems and how SI innovations may be integrated in MFS, allowing assessments of what might work, where, and for whom.
Work Package 3	Participatory co-design of MFS with evidence-based, validated SI innovation packages	Co-design MFS and validate SI innovations for improved efficiency and resilience using proven tools and methods, mainly through RIIs and local partners, taking into account local realities and multiple objectives at different scales
Work Package 4	Advancing and supporting scaling of innovations	Scale proven approaches to SI and build an enabling environment for more sustainably intensified MFS. Generate policy, market, and institutional innovations to ensure the scalability of interventions that amplify the synergies of MFS components in context, together with local partners and actors.
Work Package 5	Capacity building for MFS design and analyses	Develop training materials and build capacity of MFS actors in socio-technical, inclusive, participatory, and gender-transformative approaches for systems design and analyses to support understanding of context-specific challenges and identification of opportunities for systems intensification with suitable SI innovations.

COUNTRIES OF IMPLEMENTATION



CGIAR impact area contribution

Nutrition, health, and food security	Higher efficiency and diversity of products generated by mixed farming systems (MFS) will provide more and diversified food and nutritional security to rural and urban households through healthy and affordable diets, contributing to SDGs 2 and 3.
Poverty reduction, livelihoods, and jobs	Increased incomes from sustainably intensified MFS, along with participation by rural households in multiple associated value chains, will be crucial for generating jobs, reducing poverty, and improving livelihoods, contributing to SDGs 1 and 8.
Gender, equality, youth, and social inclusion	Redressing discriminatory norms and institutions in MFS will result in enhanced and equitable livelihoods for women, youth, and other disadvantaged social groups through increased co-design of and benefits from innovations, contributing to SDGs 5 and 10.
Climate adaptation & greenhouse gas reduction	Diversity in MFS will allow farmers to adapt resource allocation to different climatic situations, increasing efficient use of renewable and non-renewable resources by whole systems, thus reducing greenhouse gas emissions, contributing to SDG 13.
Environmental health & biodiversity	Sustainably intensified MFS will generate more agricultural production with less use of water, pesticides, fuel, and in many cases external inorganic nutrients, reducing their release into natural ecosystems and water bodies and thus shrinking the environmental footprint of MFS, contributing to SDGs 14 and 15.

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END-OF-INITIATIVE OUTCOMES

1. Five international research institutions, six national research institutions, seven policymakers, and two donors (key strategic actors) are transitioning research priorities, policies, and strategic financial investments towards SI of MFS.
2. 50% of key innovation, demand, and scaling partners are jointly using a systems approach and a set of existing and novel tools adapted to different scales, agro-ecologies, and socio-economic settings to identify potential context-specific, integrated solutions for SI of MFS.
3. Twelve research institutions (local and international), local partners, and 1.5 million farmers are developing, implementing, and validating SI options in selected MFS through participatory and inclusive processes.
4. 1.5 million MFS actors (farmers and other value chain participants) are adopting, adapting, and scaling socio-technical, gender-transformative innovation packages for SI of MFS.
5. 50% of partners (key strategic actors) and CGIAR scientists are adopting MFS thinking and gender-transformative approaches, mainstreamed through a global virtual institute for SI of MFS set up by the Initiative, and by regional scaling hubs promoting capacity building.

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