



**2ND DRYLAND AGRICULTURE AND FOOD SYSTEMS IN THE FACE OF CLIMATE CHANGE  
CONFERENCE – JUNE 17-18, 2025 AT INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE (ILRI),  
NAIROBI, KENYA FACILITY**

**Theme**

Innovating Dry land Agriculture for Resilience, Sustainability, and Climate-Responsive Food Security

**Background and Rationale**

Dry land regions, which cover nearly 40% of the world's land area and are home to over 2 billion people, face unique challenges due to fragile ecosystems, scarce water resources, and vulnerability to climate change. In Africa, dry land agriculture is vital for food security and livelihoods, yet it is increasingly threatened by changing weather patterns, desertification, and resource scarcity. Climate change intensifies these issues, exacerbating droughts, irregular rainfall, and soil degradation, making it imperative to adopt innovative approaches that build resilience and sustainability in dry land food systems.

The inaugural Dryland Agriculture and Food Systems in the Face of Climate Change Conference 2024 organized by Lukenya University and Edsource Africa Ltd, established a platform to address these challenges by convening stakeholders from agriculture, research, academia, international organisations and the private sector. Building on this progress, the 2nd Conference will delve deeper into exploring innovations, technologies, and policies to transform these vulnerable regions into models of resilient and sustainable agriculture.

**Overview**

The 2<sup>nd</sup> Dry land Agriculture and Food Systems in the Face of Climate Change Conference aims to build on the proceedings from the first conference and deepen the conversation and action around dry land agriculture in Africa. The outcomes of the first conference underscored the vulnerability of marginalized communities whose livelihoods depend on fragile ecosystems. As these ecosystems degrade, the ability of agriculture to sustain food production and economic growth diminishes, with severe implications for food security and rural employment. In Kenya, where a significant portion of the population is engaged in agriculture, these challenges are felt most acutely by youth, who are integral to the future of agricultural transformation.



The conference aims to bridge gaps by connecting local stakeholders with platforms necessary to make informed decisions and secure their rights to manage natural resources, emphasizing sustainable development and resilience. As a follow-up event, it will deepen the dialogue on sustainable food security solutions tailored to Kenya and Africa's dryland regions, fostering collaborative strategies for resilient agriculture.

A key focus will be addressing the challenges of unplanned and inappropriate land use changes in dryland areas, which threaten the pastoral production systems overlooking the economic, social, and environmental value of pastoralism. Pastoralism plays a critical role as a source of income and subsistence for many, contributing significantly to Eastern Africa's GDP, supporting cultural norms, and efficiently utilizing scarce and dispersed natural resources through livestock mobility. Customary institutions traditionally manage these practices and the dynamic systems rely on the participation of men, women, and youth, whose roles are vital for sustaining pastoral livelihoods.

The conference will also spotlight *Agriculture 4.0*, a transformative approach leveraging advanced technologies such as artificial intelligence, IoT devices, drones, and big data analytics. For instance precision farming, a key component, maximizes efficiency by optimizing every seed, drop of water, and unit of fertilizer, boosting productivity while reducing waste and environmental impact. These innovations offer solutions to Africa's climate crisis, where unpredictable weather patterns and land degradation threaten yields. Case in point, sensor-guided drip irrigation can save up to 40% of water while maintaining high yields, and real-time weather monitoring systems help farmers mitigate risks.

Despite its potential, the adoption of *Agriculture 4.0* in sub-Saharan Africa, where agriculture contributes nearly 25% of GDP and employs over 60% of the population, faces significant challenges. High costs, inadequate infrastructure, and limited farmer training pose barriers. Modernizing the sector will require an estimated \$15 billion annually, yet a substantial funding gap remains despite investments from governments, private sector players, and international organizations. Moreover, reliance on imported technologies amplifies financial strain, highlighting the urgent need for local innovation and capacity-building initiatives to ensure that this agricultural revolution becomes accessible to all.

## **Objectives**

The primary objective of this second conference is to build on the previous discussions by:

- Enhancing understanding of dry land dynamics, food systems and the evolving roles and responsibilities of stakeholders in combating food insecurity.
- Assessing the cumulative impact of community actions and refining resource management strategies to ensure sustainability.
- Exploring new and emerging innovations that can transform dry land agriculture and food systems, with an emphasis on regenerative agriculture, prudent land use, and climate smart systems and resilience.
- Further engaging stakeholders to strengthen partnerships for sustainable solutions in dry land agriculture.

## Program Structure

The 2 Day Conference will feature two tracks:

1. Conference Track: In this track, presentations, panel discussions, and plenary sessions from leading experts on dry land agriculture and climate change will focus on updated trends, research findings, and policy developments impacting dry land agriculture, food systems in Kenya and the broader region. The agenda will emphasize actionable insights gained from the previous conference, highlighting new data, emerging challenges, and future opportunities.

This track will also feature case studies and success stories from dry land regions showcasing practical, scalable solutions focusing on specific sub-themes, encouraging active participation and knowledge sharing.

2. Exhibition Track: The exhibition will showcase innovative solutions in dry land agriculture, with a dedicated focus on new technologies, practices, and interventions. Exhibitors will include key players who have contributed to recent progress, offering attendees an immersive experience in the latest solutions addressing food security in arid areas.

It will provide networking opportunities to foster collaboration and partnerships between stakeholders.

## Conference Themes and Sub-Themes

### Sub-themes

1. Climate-Smart Innovations for Dry land Agriculture

- Drought-resistant crops and seeds
- Water-efficient technologies in dry lands
- Climate information services for farmers
- Soil health improvement techniques
- Landscape restoration and combating desertification

## 2. De-risking Agriculture and leveraging Insurance for Resilience and Sustainability

- Digital platforms to enhance insurance penetration in remote areas and scaling insurance accessibility for smallholder farmers.
- Public-Private Partnerships and policy innovations in agriculture insurance (Developing policy frameworks to support insurance adoption, discussing the role of subsidies, incentives and collaborations in reeducating premiums)

## 3. The Pivotal Role of Organizations in Research Utilization for Advancing dry land Agriculture and Food Systems amid Climate Change:

- Bridging research and practice
- Fostering partnerships for scaling impact
- Enhancing implementing monitoring and feedback loops
- Innovating financing models
- Role of regional cooperation in scaling innovations

## 4. Navigating Challenges and Harnessing Pathways for Sustainability and Development of Pastoralist Communities

- Building adaptive capacity for pastoralism in a changing climate
- Livestock management and sustainable grazing practices
- Examining policy reforms, technological advancements, and multi-stakeholder collaborations that create sustainable and scalable models for pastoral development

## 5. Generational Change in Agriculture: Pathways for Sustainable Youth Engagement and Succession, the Role of youth as agents of change in food systems

- Enhancing Youth Access to Resources and Land Ownership
- Modernizing Agricultural Practices to Attract Young Farmers
- Fostering Financial and Institutional Support for Youth in Agriculture

## 6. Private Sector Engagement and Market Access

- Role of agribusiness in transforming dry land food systems
- Value chain development for dry land agricultural products
- Strengthening market access for smallholder farmers

## 7. Breaking Barriers: Supporting Women's Access to Land and Resources in Agriculture

- Addressing Gender Disparities in Land Ownership
- Reducing Gender-Based Administrative Hurdles
- Empowering Women through Modernization and Support Systems in Agriculture
- Promoting Access to Technology for Women Farmers
- Enhancing Financial Support and Skill-Building Opportunities for Young Women

## 8. Driving Innovation and Investment for Agriculture 4.0 in Sub-Saharan Africa

- Building Capacity for Sustainable Agriculture 4.0 Solutions
- Addressing the annual funding need for innovative financing models, public-private partnerships, and the role of stakeholders in driving investment.
- Developing Infrastructure and Indigenous Technologies for Resilient Agriculture

### Expected Outcomes

- Development of actionable strategies to integrate climate-smart agricultural practices into dry land regions
- Enhanced partnerships and networks between governments, research institutions, NGOs, the private sector, and local communities to foster ongoing collaboration.
- Generation of policy recommendations to inform national and regional strategies for sustainable agriculture and climate resilience.
- Increased investment interest and financing options for women and youth for climate-resilient dry land agriculture
- Increased understanding by researchers on knowledge gaps that need to be addressed to inform policy and program efforts

### Target Audience

- Policymakers from agriculture, environment, and climate change sectors



- Researchers and Academics specializing in agricultural innovation, climate resilience, and sustainability
- Agricultural Practitioners (farmers, agro-entrepreneurs, NGOs)
- Private Sector Representatives in agribusiness, technology, and finance
- Development Partners and Donors focused on food security and climate adaptation
- Students and Young Entrepreneurs interested in agricultural innovation and sustainability.

### **Important Deadlines**

Submission deadline: 16th May 2025

Abstract acceptance: 27th May 2025

Final versions of accepted research papers: 3rd June, 2025

The research papers will be subjected to pre-screening and double-blind peer review. They should include the title and name(s) of author(s), institutional affiliation(s) and complete mailing address (es) including e-mail of the author(s) with an indication of the correspondence author.

Registration link: <https://lnkd.in/dXmi3iFu>

Mode: FTF and online (Hybrid)

Questions and abstract submission: [manuscripts@lukenyauniversity.ac.ke](mailto:manuscripts@lukenyauniversity.ac.ke)