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“Reconcile land system changes
with planetary health”

Empowering youth for climate-resilient crop-livestock systems: A policy-aligned model from Rwanda

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Abstract

In 2023, a youth boot camp was conducted in Busengo Parish, Gakenke District to tackle animal feed shortages and climate risks in Rwanda's livestock sector. Rooted in the ambitions of Rwanda's Vision 2050, the National Strategy for Transformation (NST1), and the Strategic Plan for the Transformation of Agriculture (PSTA5), the programme aimed to empower youth through climate-resilient forage systems that enhance livestock productivity and promote sustainable, inclusive development.

This study employs a mixed-methods approach, combining qualitative interviews with 700 participating youth and local stakeholders, alongside field data collection on forage performance and soil quality. The camp mobilised 1,000 youth to plant 600 hectares of drought-tolerant forage species—including *Juncao*, *Leucaena*, and *Brachiaria*. It integrated indigenous knowledge with innovations such as biosensors, biochar from feed residues, and solar-powered feed choppers. Civic education and entrepreneurship training were also delivered, with a strong emphasis on gender inclusion.

Participants acquired practical skills in climate-smart forage cultivation, renewable energy use, and agribusiness. Over 70 % were young women. The use of biochar improved soil fertility and reduced methane emissions from livestock. In 2024, a follow-up confirmed that 400 hectares of the initial plantations were actively maintained by cooperatives, indicating long-term sustainability and local ownership.

This initiative presents a scalable, policy-aligned model for resilient crop-livestock systems in Rwanda. By integrating climate-smart technologies, youth leadership, and gender inclusion, it advances the goals of Vision 2050, NST1, and PSTA5. Sustained support is essential to scale impact, particularly through mobilising funds for forage processing and postharvest loss reduction. The model offers a transformative pathway to enhance climate resilience, food security, and inclusive green growth across rural communities.

Keywords: Climate-Smart Agriculture, Forage Systems, Policy Integration, Resilient Livestock Production, Youth Empowerment