FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

FEED THE FUTURE INNOVATION LAB FOR HORTICULTURE PROJECT IN BRIEF

ENHANCING PRODUCTIVITY, POST-HARVEST MANAGEMENT AND MARKET ACCESS OF AFRICAN INDIGENOUS VEGETABLES (AIVs) IN KENYA

African indigenous vegetables (AIVs) play a critical role in food, nutrition and income security in Kenya. AIVs are rich in vitamins and minerals and are widely consumed by those most vulnerable to food insecurity. Thus, they could diversify and complement staple-based diets since they are a cost-effective and sustainable source of micronutrients. However, the AIVs value chain remains fragmented without strong linkages between actors from inputs to production, marketing, and consumption. Production, which is primarily by smallholder women, is largely inefficient, where individual farmers produce small quantities for a market that is erratic, uncoordinated, and often unrelated to demand. These issues lead to high transaction costs in AIVs marketing, which increase inefficiencies along the value chain, leading to low market performance and low social economic benefits. The overall goal of the project is to increase productivity, reduce post-harvest losses and enhance market access of AIVs for improved livelihoods of value chain actors, specifically smallholder women and youth farmers.

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Project Partners
University of Nairobi, North Carolina State University

Development Innovation
Increasing production and consumption of AIVs

Commodity
African Indigenous Vegetables

Targeted Population
Small-scale vegetable farmers

Country/Location
Kenya

Regions
Kisii, and Kakamenga Counties

Timeline
2023-2026

Funding
$731,796

The Challenge

The shortage of improved cultivars, use of low-quality seed, high fertilizer and seed prices, and being mainly rain-fed production are the primary pre-harvest factors that affect AIVs production. Other factors include diseases and pests, high cost of pesticides, inadequate irrigation facilities, limited production knowledge, and inadequate credit services. Further, fluctuations in production and product prices are other pre-harvesting factors contributing to the post-harvest losses of AIVs. Post-harvest losses are high in Kenya, estimated at 40-50% of the total production with a shelf-life of 1-2 days and primarily caused by poor storage and handling practices. Secondary causes of post-harvest losses include ancillary services that support the movement of goods from farm gates to market and consumers and consumer behavior. Development and use of appropriate post- harvest management technologies and processing into various value-added products would be critical in reducing post-harvest losses of AIVs. While small- scale

RESEARCH INNOVATION

The research aims to develop and catalyze the adoption of appropriate pre- and post- harvest and marketing Technologies, Innovations and Management Practices (commonly referred to as 'TIMPs') to improve the productivity of AIVs among female farmers. The research will also link smallholder female AIVs farmers to the input and output markets through the application of the LINK methodology for inclusive agri-businesses to sustainably improve their household incomes. The research will also facilitate the formation of farmer groups and strengthen the existing ones through capacity building to enhance their bargaining power and control of market prices of their produce. The LINK model will be piloted through farmer field and business schools (FFBS) anchored on the Connecting Research, Education and Outreach (CREdO) framework.

female farmers account for 70% of Kenya's agricultural production, they bear the brunt of the post-harvest losses due to a lack of knowledge of applicable pre- and post-harvest technologies. Women farmers have limited knowledge of food safety aspects in AIV production. Vegetable consumption in Kenya is low, especially among the low-income populations living in urban areas. More importantly, malnutrition is estimated at 25% of the population, with approximately 26% of children under 5 years being stunted. Thus, AIVs being rich in vitamins and minerals have the potential to address and mitigate these nutritional challenges in Kenya.

Research Design

This project is being implemented on a pilot scale in Kakamega and Kisii counties in Western Kenya and targeting more than 300 small scale farmers, in which 60% are women and youth. Different landraces of the popular AIVs will be collected from the two counties and evaluated for yield, nutritional content, consumer preferences and pests and disease tolerance. Performance of AIVs under various irrigation regimes will be analyzed. The best performing AIVs landraces will be selected. Evaluation of postharvest shelf life and quality of the selected AIVs will be performed. The project will further identify acceptable value added AIVs products in liaison with SMEs and processors. An in-depth review of the status of AIVs value chain regarding production, input, and output markets and policy will be conducted. This will include a detailed AIVs value chain mapping and market survey to characterize actors by gender. An in-depth gender analysis on AIV production and marketing will be done using the Harvard analytical framework. The project will integrate capacity strengthening programs for small-scale farmers and their associations on Good Agricultural Practices (GAP) for AIVs, postharvest management, food safety, nutrition and enhanced market access.

Development Impact

This project will lead to:

- Increased production and productivity of AIVs through identification and promotion of high yielding nutritious varieties of AIVs.
- Reduced post-harvest losses and increased value addition of AIVs.
- Increased incomes of smallholder farmers.
- Strengthened market linkages and skills of actors in AIVs value chain.
- Improved livelihoods of African indigenous vegetable farmers and other value chain actors.
- Improved nutrition and health due to increased consumption of AIVs.

Marketing AIVs in Bungoma.
Source - Lusike Wasilwa

Mumina Shibia
Principal Investigator

FEED THE FUTURE INNOVATION LAB FOR HORTICULTURE

This research project is funded by the United States Agency for International Development (USAID) through the Feed the Future Innovation Lab for Horticulture at the University of California, Davis and is being implemented by the International Centre for Evaluation and Development (ICED). Horticulture Innovation Lab global research network works with and promotes local leadership to advance horticulture and social innovations, empowering smallholder farmers to earn more income while better nourishing their communities. Established in 2009, Horticulture Innovation Lab research helps end hunger through inclusive agricultural growth, strengthened resilience and improved nutrition for women and children.

Learn more about the Feed the Future Innovation Lab for Horticulture at horticulture.ucdavis.edu.

INTERNATIONAL CENTRE FOR EVALUATION AND DEVELOPMENT (ICED)

The International Centre for Evaluation and Development (ICED) is an independent, African-owned and African-led think tank that works to use the outputs of evaluation to contribute to and enhance development outcomes and impacts, concentrating on Africa, where the need for its expertise is greatest. ICED has offices in Nairobi, Kenya; Accra, Ghana; and a satellite office in Maputo, Mozambique. The activities carried out by ICED through research, monitoring and evaluation are aimed at ensuring Africa's development. This includes supporting local governments and related entities in developing evidence-based policies and implementing sustainable programs.

Learn more at iced-eval.org

This brochure is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Feed the Future Innovation Lab for Horticulture and do not necessarily reflect the views of USAID or the United States Government.

ABOUT FEED THE FUTURE

As the U.S. Government's global hunger and food security initiative, Feed the Future, gives families and communities in some of the world's poorest countries the freedom and opportunity to lift themselves out of food insecurity and malnutrition. By equipping people with the knowledge and tools they need to feed themselves, Feed the Future addresses the root causes of poverty and hunger, helping people end their reliance on aid and creating important opportunities for a new generation of young people—all while building a more stable world.