

FEED THE FUTURE INNOVATION LAB FOR HORTICULTURE PROJECT IN BRIEF

DETERMINING THE COST- BENEFIT OF INTEGRATING HORTICULTURE INTO STAPLE CROP PRODUCTION IN KENYA

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Development Innovation

Indigenous Vegetables

Commodity

Vegetables and staple crops

Targeted Population

Small-scale women indigenous
vegetable farmers

Country/Location

Kenya

Regions

Kisii, Vihiga and Muranga Counties

Timeline

2023-2024

Funding

\$157,000 (USAID)

Horticulture plays a critical role in the daily lives of Kenyan small-scale farmers particularly women through job creation, improved nutrition, and income generation. Kenya is a major producer of fresh vegetables owed to its varied favorable climatic and ecological conditions. However, the sector is mostly dominated by large-scale production and export market while the dominant small-scale production (> 80%) mainly women, have a history of production of cereal crops such as maize. Even with increasing local demand for indigenous vegetables, especially in urban areas, most small-scale farmers have not been observed to adequately integrate cereal crop production with the cultivation of different types of vegetables. Given the significant role that smallholder farmers could play in horticulture production for local consumption, there is a need to assess the economic viability of the horticulture sector and explore how market and household decisions influence land use at a small scale. The study output will inform policymakers and small-scale women farmers with regards to enhancing the capacity and effort to promote the integration of horticulture with food crops towards improved household nutritional status and income.

The Challenge

The demand for horticultural products has hugely expanded over the past two decades. The horticulture sub-sector is the third leading contributor to Kenya's national agricultural GDP after dairy and tea. In 2020, horticulture accounted for 33% and 1.5 % of Kenya's agriculture and national GDPs, respectively. Across the five broad horticulture commodities, vegetables are the leading contributor to the sector's GDP (44.6%), followed by flowers (20.3%), and fruits (29.6%). This surge in demand can be attributed to increased knowledge of the health benefits and the resulting dietary transition, rapid urbanization, and the growing middle-class and government and international development support (expansion of the export market, global food system transformation). Despite these forces to increase horticultural production, smallholder farmers are not still integrating traditional cereal production with indigenous vegetables in most parts of Africa.

RESEARCH INNOVATION

The project will collect data in three counties in Kenya purposively selected to capture variation in observations based on the agro- ecological conditions. A random sampling design will then inform the sample selection of 1,200 indigenous vegetable farmers. The research follows an observational research design where real-time qualitative and quantitative data will be collected to minimize errors in measurements. This exercise will be done in several waves defined by indigenous vegetable production cycles in the selected study sites. Data to be collected include household demographics, agricultural practices, crops, and varieties cultivated and cropping area, soil fertility indicators, agricultural practices and input use, seed sources, labor required for production of indigenous vegetables, decisions on indigenous vegetable production, production costs, yields harvested, consumption of indigenous vegetable harvests, marketing, and household expenditure. Qualitative data will be collected using Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs). A household questionnaire programmed in the survey CTO will be used to collect qualitative data. Descriptive, econometric, and mathematical programming approaches will be used in the analysis of data.

This could be attributed to the lack of a comprehensive cost-benefit assessment of indigenous vegetable production relative to cereal production and limited farmers' knowledge of efficiency in production. There is, therefore, a need for evidence generation on the cost and return relating to profitability, input use, and efficiency of resource usage.

The limited available literature on the cost and benefits associated with horticultural production has given inadequate attention to the role of women who play a significant role in the horticultural value chain.

Development Impact

Indigenous vegetables have grown in importance across Africa and beyond. They are seen as crucial for improving nutrition, ensuring food security, preserving biodiversity, supporting local economies, and fostering sustainable agricultural practices in Africa. They are seen to play a vital role in achieving multiple Sustainable Development Goals, including zero hunger, good health and well-being, and responsible consumption and production. In the recent past, Indigenous vegetable production has received attention and promotion by governments in Africa and other developing countries. This Innovation Lab for Horticulture project will generate evidence on the cost and return relating to profitability, input use and efficiency of resource usage in the production of indigenous vegetables at small-scale. This will inform both policy makers and smallholder farmers on aspects of the production process where more attention should be given. Further, this study will serve as a baseline

for all the other studies which will be done in the region focusing on this value chain. The project aligns with the objectives of Horticulture Innovation Lab, Feed the Future, particularly inclusive agricultural growth - by focusing on vegetables whose production and markets have been shown to have a huge impact in generating high economic returns per unit of land and is a more effective sector in lifting small-scale farmers out of poverty. It also aligns with improved nutrition - as increased dietary diversity of vegetables is highly correlated with better health and reduced malnutrition.



Woman small-scale producer with woman researcher in field of corn and other vegetable horticultural crops.



Local small-scale producer tending her vegetable field at one of the project sites.



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[Learn more about the Feed the Future Innovation Lab for Horticulture at horticulture.ucdavis.edu.](http://horticulture.ucdavis.edu)

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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.