



CIFOR-ICRAF's Kuza Matunda app puts fruit-tree guidance in farmers' hands.

PHOTO CREDIT: DENIS WAKABA AND CAROLINE NJOKI/CIFOR-ICRAF

Right fruit trees in right places: CIFOR-ICRAF app closes information gap for farmers

By Zablon Oyugi

For smallholder farmers facing increasingly unpredictable rainfall, rising temperatures and other climate pressures, planting a fruit tree is more than an agricultural decision.

The choice of species, where it is planted and how it is managed can determine whether the tree becomes a source of food and income or struggles to survive.

A new smartphone application developed by the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF) is putting information to make those decisions within easier reach of farmers and agricultural extension officers.

Called Kuza Matunda, meaning “grow fruits” in Kiswahili, the application is designed to help farmers in Eastern Africa integrate fruit trees into their farms in ways that strengthen resilience while improving household incomes and food and nutrition security.

The app was developed through an Australian Centre for International Agricultural Research (ACIAR)-funded project focused on Kenya and Rwanda.

At the centre of the initiative is a simple idea: more strategically selected and managed trees can make farming systems more diverse and better equipped to cope with climate-related shocks.

The ACIAR project, which ran from March 2022 to March 2024, sought to

improve farm-level climate adaptation and household food security by increasing the stocking and strategic siting of fruit trees.

It also examined whether the carbon stored by fruit trees could eventually provide farmers with access to international climate finance.

Turning research into practical digital resource

Kuza Matunda turns some of the research generated through this work into a practical digital resource. The application draws on an extensive database of suitable tree species and provides guidance on selecting trees according to local growing conditions.

Farmers can access information on





site selection, seedling establishment, irrigation, fertilisation, pruning, pest and disease management and other aspects of tree production.

The importance of choosing the right tree for the right place is reflected in CIFOR-ICRAF's interactive suitable-tree database for Kenya.

The resource allows users to explore species according to factors such as location, ecological services, products, origin and preferred niches.

Individual species profiles provide information on rainfall, temperature, altitude, soils, propagation and management requirements.

For example, the database describes mango as suitable from lowlands to midlands and notes its ability to grow in a range of fertile soils, while papaya is identified as a fast-growing fruit tree suited to particular well-drained, fertile conditions.

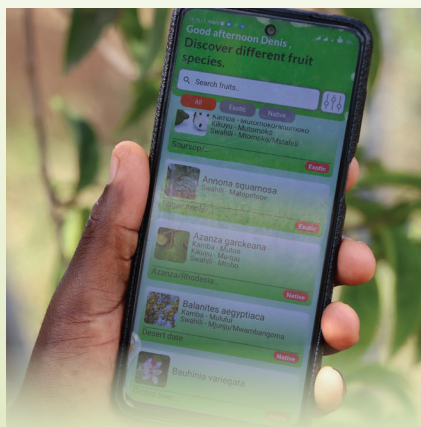
Such information matters because fruit trees are not simply another crop occupying space on a farm as they can provide multiple benefits at the same time.

According to ACIAR, fruit trees can diversify diets, increase food supplies and create saleable surplus, while also supplying products such as firewood, poles and stakes.

Their roots, leaf litter and interactions with soil organisms can contribute to soil fertility, while trees can also provide shade and help protect land from erosion.

For farmers living with uncertain weather, these multiple functions can provide an important form of insurance. A household that grows fruit alongside annual crops can potentially draw income and food from different parts of its farming system rather than depending entirely on a single seasonal harvest.

Prof Catherine Muthuri, the ACIAR



CIFOR-ICRAF smartphone app.
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project leader and CIFOR-ICRAF Director and Regional Convener for East Africa, said the app was developed partly in response to strong demand from farmers and extension officers for accessible technical information.

"This digital innovation brings useful information closer to farmers and extension agents," she said, adding that access to relevant information is critical to sustained fruit production, productivity, food and nutrition security, climate resilience and sustainable livelihoods.

The app's accessibility

Accessibility is also built into the application through local languages. Kuza Matunda is available in Kikuyu, Kamba and Kiswahili and contains information on nearly 180 native and exotic tree species.

Users can find information covering growing conditions, nutritional value, pollination, growth rates, propagation and the management of pests and diseases.

The approach reflects a wider shift in agroforestry research from simply encouraging farmers to plant more trees towards helping them make informed decisions about which trees to plant and

where to place them.

Dr Nora Devoe, ACIAR Research Program Manager for Forestry, said the application would support farmers and extension agents in getting "the right trees in the right places", while helping increase tree stocking on farms and in the wider landscape.

The project has already produced broader evidence and tools for supporting tree-based farming. ACIAR reports that its suitable-tree selection and management tool for Kenya and Rwanda attracted thousands of views and downloads, while the project also helped establish a farmer-led cooperative in Kiambu to improve marketing and price negotiation.

Shaping future investment

The longer-term ambition extends beyond individual farms. By demonstrating how fruit trees can contribute simultaneously to food production, income generation, environmental restoration and climate adaptation, the research is expected to inform future investment in agroforestry and landscape restoration.

The exploration of carbon finance could add another potential incentive. If farmers can eventually benefit from climate finance linked to the carbon sequestered by trees, fruit production could become part of a broader climate mitigation strategy as well as an adaptation measure.

Kuza Matunda therefore represents more than a digital catalogue of trees. It is an attempt to close an information gap that can prevent farmers from fully benefiting from agroforestry.

By putting locally relevant knowledge into a smartphone and making it available in familiar languages, CIFOR-ICRAF and its partners are giving smallholders another tool to make their farms more productive, diversified and prepared for a changing climate.