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Fruit and vegetable species richness and seasonal availability on smallholder farms in Kilifi county, Kenya

FRIEDERIKE KRÜGER¹, FABIO PUGIN¹, QUINTER AOKO², KATJA KEHLENBECK³, ROSE KIGATHI⁴,
ROBERT NGALA⁵, MARCEL ROBISCHON¹

¹Humboldt University Berlin, Albrecht Daniel Thaer Institute, Germany

²Pwani University, Community Development, Kenya

³Humboldt Universität zu Berlin, Center for Rural Development (SLE), Germany

⁴Pwani University, Dept. of Biological Sciences, Kenya

⁵Plant Village, Plant Village, Kenya

Abstract

Fruits and vegetables are important for healthy diets, providing vitamins, minerals and phytochemicals, and could thus contribute to addressing micronutrient deficiencies. However, these crops are highly seasonal, often depending on rainfall patterns. Diversified cultivation of several fruit and vegetable species in an agroforestry system can potentially mitigate the impacts of seasonal food scarcity, a severe problem of many smallholder farming households in sub-Saharan Africa, including Kenya. This study aimed at determining richness and seasonal fruit and vegetable species availability in Kilifi County, Kenya. Four farms that participated in an agroforestry project (AfriNutriForest) were selected and wild and cultivated fruit and vegetable species inventoried. After assessing seasonal availability of the documented fruit and vegetable species in Focus Group Discussions (FGD) with local farmers, harvest calendars were developed.

In total, 37 vegetable species were documented, including 19 wild native ones. Only 10 vegetable species were present on all four farms, including cultivated ones, like spiderplant (*Cleome gynandra*) and moringa (*Moringa oleifera*) and wild species, including bitter lettuce (*Launaea cornuta*) and *Oxygonum stuhlmannii*. Regarding fruits, 41 species were recorded, including eight wild species. Nine fruit species were found on all four farms, most commonly coconuts (*Cocos nucifera*), bananas (*Musa* spp.) and mangoes (*Mangifera indica*).

The harvest calendars indicated that availability of mature fruit and vegetable species ran asynchronously throughout the year. Vegetable availability peaked just after the ‘long rains’ (March-May) in May and June, followed by a lean season in Aug-Sep and a second peak during/after the short rains in Oct-Dec, followed again by lower availability from Jan-March. Contrarily, fruit availability reached a clear peak in Nov-Jan and a less pronounced peak in July-Aug, while from Feb-May fruit availability was low. These asynchronous harvest patterns may help farming households cope with food insecurity, as vegetables were generally available when fruits were not and vice versa, however, only if a diverse set of both fruit and vegetable species are produced on the farm throughout the year. Diversified horticultural production in agroforestry systems could thus be promoted, but more robust data should be collected.

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