Tropentag, September 17-19, 2014, Prague, Czech Republic

"Bridging the gap between increasing knowledge and decreasing resources"

On-Farm Fruit Tree Species Richness and Diversity and its Influencing Factors in Western Kenya

Loyce Jepkorir[1], Joseph Wakibia[2], Stepha McMullin[1], Roeland Kindt[1], Katja Kehlenbeck[1]

[1] *World Agroforestry Centre (ICRAF), Tree Diversity, Domestication and Delivery, Kenya*
[2] *Jomo Kenyatta University of Agriculture and Technology, Dept. of Botany, Kenya*

Abstract

Numerous wild and exotic fruit tree species are growing in Kenya, but overall fruit production and consumption are rather low, particularly regarding indigenous fruit trees (IFTs). Within a bigger project that aims at increasing production and consumption of fruits in Kenya, the objective of this study was to assess on-farm species richness and diversity of fruit trees and identify the bio-physical and socio-economic factors influencing fruit tree diversity in Kakamega and Siaya counties, western Kenya. In five agro-ecological zones, 100 households were randomly selected from 370 baseline households of the bigger project. Tree inventories were used to record all on-farm fruit trees and farmers were interviewed on basic socio-economic data and fruit farming information. A total of 26 fruit tree species were recorded, including 18 exotic and 8 indigenous species. In terms of abundance, exotic species clearly dominated with 89 % of the 5447 counted fruit tree individuals. On average, 55 fruit tree individuals (range 1–726) belonging to 4.5 fruit tree species (range 1–11) were cultivated per farm. The three most frequent species were the exotics *Mangifera indica* (occurred on 82 % of the surveyed farms), *Psidium guajava* (63 %) and *Persea americana* (60 %). The most abundant species were the exotics *Lantana camara* (35 % of all tree individuals), *P. guajava* (29 %) and *M. indica* (7 %). Indigenous species were rare as 73 % of the surveyed farms did not contain a single indigenous fruit tree (IFT). The most abundant and frequent IFTs were *Rhus* spp. and *Carissa edulis*, occurring on 16 and 12 % of the farms, respectively. While altitude and farm size had no influence on total fruit tree species numbers, number of indigenous species was negatively correlated with altitude (p=0.001) and positively with farm size (p=0.008). Multivariate regression analysis for identifying bio-physical and socio-economic factors influencing fruit tree species richness and diversity are currently being performed and results will be presented at the conference. Findings from this study will contribute to a better understanding of fruit farming in the research area and can be used to improve the ongoing programme on promoting fruit production and consumption in Kenya.

Keywords: Abundance, biophysical factors, diversity, indigenous fruit trees, socio-economic factors

Contact Address: Loyce Jepkorir, World Agroforestry Centre (ICRAF), Tree Diversity, Domestication and Delivery, P.O. Box 30677, 00100 Nairobi, Kenya, e-mail: Ljepkorir@cgiar.org