



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

“Bridging the gap between increasing knowledge and decreasing resources”

## Diversity of Mango (*Mangifera indica* L.) Cultivars from Motherblocks in Kenya: A Morphological Characterisation Approach

MONICA OMONDI, KATJA KEHLENBECK

*World Agroforestry Centre (ICRAF), Tree Diversity, Domestication and Delivery, Kenya*

### Abstract

Mango (*Mangifera indica* L.) is one of the most important fruit crops for commercial use and home consumption in the tropical and subtropical lowlands. In Kenya, mango production is mainly based on a few cultivars. Fruit tree mother blocks of the Kenya Agriculture Research Institute and prison farms in Central, Eastern and Coastal Kenya, the main mango producing areas, harbour a diversity of local and introduced mango cultivars. However, documentation of these cultivars, including morphological fruit characterisation, is largely missing, but this is a prerequisite for selecting most suitable mango cultivars for different climatic zones and use categories. The aim of this study was to document fruit morphological characteristics of the available mango cultivars to establish a mango cultivar database.

At six mother blocks in Central, Eastern and Coastal Kenya, twenty mature mango fruits each were harvested from 53 different cultivars, mostly improved cultivars from Florida and local Kenyan ones. Morphological fruit characterisation, including 44 qualitative and 20 traits, was done according to 'Descriptors for Mango' (IPGRI 2006). Differences in variable means and correlations were analysed.

Fruit shapes were mainly 'oblong' for the studied improved cultivars, but 'roundish' for the local Kenyan ones. Fruit ground colour was 'yellow, orange, purple or red' for 80 % of the improved varieties while 'green' for 95 % of the local varieties. A rootstock cultivar from Israel ("13-1") had the lowest mean fruit weight (96 g), pulp weight (42 g) and pulp proportion (44 %), but the highest stone proportion (30 %). Fruit length was lowest for the Kenyan landrace "Kimbole" (5.7 cm) and highest for the Florida cultivar "Anderson" (19 cm), which also had the highest fruit weight (680 g), pulp weight (531 g) and pulp proportion (77 %), but the lowest stone proportion (7 %). Proportion of juice from the pulp ranged from 35 % (landrace "Ndoto") to 87 % (landrace "Zanzibari"). Fruit length was significantly positively correlated with fruit weight ( $r=0.820^{**}$ ) and pulp weight ( $r=0.803^{**}$ ), but negatively with the proportion of the stone ( $r=-0.306^*$ ). The ongoing development of a mango cultivar database for Kenya will facilitate future variety identification and assist in selecting suitable cultivars.

**Keywords:** Descriptors, qualitative traits, quantitative traits, variety identification