Abstract

Moringa has increasing potential as a multipurpose agricultural commodity in semi-arid areas because its leaves, seeds and other products can be marketed in both raw and processed forms. However, limited empirical evidence exists on the organization, functional roles, product flows and value addition processes that shape the Moringa product value chain in semi-arid Kenya. This study examined the structure and functioning of the Moringa product value chain, identified the roles of participating actors, assessed product flows and value addition, and examined constraints affecting commercialization in Kibwezi East and West Sub-Counties of Makueni County, Kenya. A descriptive cross-sectional survey was conducted among 650 value-chain actors comprising 167 producers (25.7%), 90 middlemen/brokers (13.8%), 108 retailers (16.6%), 63 wholesalers (9.7%), 12 processors (1.8%) and 210 consumers (32.3%) across Makindu, Emali, Masongaleni and Thange Wards. Data were collected using structured questionnaires and analysed using descriptive statistics, crosstabulations and chi-square tests in SPSS version 26. Value-chain mapping was used to characterize product, financial and information flows among actors. The results showed that the Moringa value chain comprised interconnected producers, brokers, wholesalers, processors, retailers and consumers, although the intensity of participation varied spatially. Broker participation differed significantly across wards ($\chi^2 = 79.69$, $p < 0.001$), as did retailer participation ($\chi^2 = 19.07$, $p < 0.001$) and processor participation ($\chi^2 = 11.30$, $p = 0.010$), whereas differences in producer and wholesaler participation were not statistically significant. Fresh leaves and seeds were the most widely marketed products, while dried leaves, flowers and seed oil represented important diversification opportunities. Approximately 72.3–73.7% of Moringa production was marketed, while 26.3– 27.0% was retained for household consumption, demonstrating a predominantly commercial orientation. Value addition substantially increased product value. Fresh leaves generated net value added of KSh 17–20/kg, compared with KSh 300–420/kg for dried leaf powder, KSh 55–225/kg for seeds and KSh 1,080–1,620/kg for seed oil across the study wards. Higher-value processing was nevertheless concentrated among a small proportion of actors, reflecting constraints in processing facilities, technical skills, finance, market information, transport and market linkages. The study concludes that the Moringa value chain in semi-arid Makueni County is commercially active but unevenly developed. Strengthening decentralized processing, producer organization, access to finance, market information, product quality systems

and linkages between producers and processors would improve value capture and support inclusive commercialization.