Abstract

Cold chain management in horticultural crops value chains: options for smallholder farmers in Africa

Maintenance of optimal low temperatures from the farm to the consumer (cold chain management) is critical to maintenance of the quality of perishable horticultural commodities and minimize deterioration after harvest. Postharvest losses in fruits and vegetables are estimated to range between 40 to 50% mainly due to poor cold chain. Conventional cold rooms are unaffordable for most smallholder farmers. Some low-cost technologies that have been tested and proven to be effective for cold storage of perishable commodities offer reprieve. Three of them including the Coolbot™, evaporative charcoal cooler (ECC) and zero energy brick cooler (ZEBC) were evaluated. The results revealed that temperature differences ranging between 2 and 10°C in comparison to ambient room conditions could be attained with the ECC and ZEBC. Furthermore, they significantly retained higher relative humidity, lowered temperature and preserved quality of perishable fruits and vegetables. These technologies can be promoted and scaled-up for adoption among smallholder farmers with the aim of reducing postharvest losses in perishable horticultural commodities.