

It is estimated that 40-50% of fruits and vegetables produced in Kenya are lost/wasted along the supply chain. The losses are caused by various factors including lack of access to affordable and appropriate technologies for handling and storage of the highly perishable commodities. Some of the applicable technologies depicted in this banner have been tested/validated through research and can be promoted for wide-scale adoption by smallholder farmers. Better postharvest management and postharvest technology adoption is key to the realization of reduced postharvest losses in horticultural value chains while ensuring better returns for the farmers.



Evaporative Charcoal Cooler (Modular Design)

- ❑ Made from durable materials – galvanized aluminum pillars, coated wire mesh, absorbent roofing materials, solar system to pump water
- ❑ Adjustable size – 4 x 4 M; 3 x 3 M; 2 x 2 M
- ❑ Cooling capacity between 5 – 15°C below air ambient temperature
- ❑ High relative humidity (> 40% above ambient air RH)
- ❑ Cool temperature and high humidity helps preserve quality of fruits and vegetables
- ❑ Estimated cost – USD 3,000 to 5,000 depending on the size



Zero Energy Brick Cooler (ZEB)

- ❑ Made from locally available materials – bricks, sand, water tank and drip lines, cover
- ❑ Can be easily fabricated on-farm
- ❑ Optimal size 2M (width) X 3 M (length)
- ❑ Cooling capacity between 5 – 15°C below ambient temperature
- ❑ High relative humidity (> 50% above ambient air RH)
- ❑ Cool temperature and high humidity helps preserve quality of fruits and vegetables
- ❑ Estimated cost – USD 500 to 1,500 depending on availability of materials



Pot-in-pot Evaporative Cooler

- ❑ This is an evaporative cooler where a small pot is inserted into a larger pot leaving a cavity between the two pots
- ❑ The cavity is filled with sand which serves as a medium to hold water for evaporative cooling
- ❑ The technology is best suited for household use because of the small volume of produce storable



Coolbot™ Cold Room

- ❑ The CoolBot™ is an electronic gadget that overrides thermostat installed in a compatible air conditioner (AC) thereby 'tricking it' to attain lower than set temperature
- ❑ The Coolbot makes it possible for the AC to attain temperatures as low as 0°C without ice building up on its evaporator coils
- ❑ Fitted onto a compatible AC, the Coolbot turns an insulated room into a walk-in cold room
- ❑ The cost of a Coolbot cold room is a fraction of the cost of a conventional cold with the same storage capacity



Fruit Waxing Technologies

- ❑ The shelf life of perishable fruits like mango can be extended by coating them with wax and other coatings
- ❑ Artificial waxes and other coating applied on fruits replace the natural wax (cuticle) found on mature fruits and which is often washed off or removed during handling
- ❑ Waxing slows down diffusion of water and gas from the fruits thereby reducing water loss and respiration
- ❑ Respiration and transpirational water loss are key processes that contribute to deterioration of fruits and vegetables after harvest.



Plastic Crates

- ❑ Packaging fruits and vegetables in crates (instead of sacks) reduces mechanical injury during transportation
- ❑ Plastic crates are recommended for handling and storage of produce because they can be cleaned and sanitized regularly to avoid contamination of packaged food
- ❑ Good quality plastic crates can be reused for a long time
- ❑ Nestable crates are a space-saving alternative to the ordinary bread crates
- ❑ They are recommended for transporters who often have to transport empty crates after delivering produce to the market



Modified Atmosphere Packaging (MAP)

- ❑ Modified atmosphere (MA) refers to elevated concentrations of carbon dioxide and reduced levels of oxygen and ethylene in the storage environment
- ❑ This can be achieved by enclosing/wrapping the commodity in selected polymeric films
- ❑ Benefits of MA include reduced respiration, ethylene production/sensitivity; slowed softening and compositional changes; reduced decay among others
- ❑ These benefits contribute to extended shelf life of the packaged commodities
- ❑ A suitable MA package (MAP) should be selected for each commodity due to their differences in nature which affects effectiveness of the MAP

Fruit and Vegetable Sanitizing Agents

- ❑ Fruit and vegetable sanitizers are used to reduce populations of microorganisms that are of public health importance without affecting the product or its safety for the consumers
- ❑ Sanitization is primarily intended to minimize redistribution and reduce transmission of microorganisms in batches
- ❑ Efficacy of the sanitizers varies depending on the commodity, the target microorganisms, environmental factors etc.

