Low-cost Processing Technologies for Fruits and Vegetables

Fresh Fruits and Vegetables (FFV) are highly perishable with a short shelf life. During periods of oversupply, farmers are forced to sell their produce at low prices or leave them to rot away on the farm due to lack of market. Application of simple processing technologies to transform the FFV into shelf-stable products such as juices, jams, chips, leathers and other dehydrated/dried products can contribute to reduction of the high postharvest losses (40-50%) reported in FFV. Processing of fruits and vegetables into high quality products has potential to increase profits for smallholder farmers and while spurring growth of cottage manufacturing in the rural areas.

- **Tunnel Solar Dryer™** developed at the University of Hohenheim. Can be fabricated from locally available materials thereby reducing the cost. It can be used to dry different kinds of products including fruits, vegetables, tubers, roots, mushrooms etc.

- **Dehytray™** is an cheap solar drying solution developed at Purdue University for home, small and medium growers. It can be used to dry various products including grains, fruits and vegetables, fish, meat etc. It is made from non-absorbent material that is easy to clean Ergonomically designed for easy handling, storage and transport.

- **DryCard™** is an inexpensive device developed by UC Davis researchers for determining if dried food is dry enough to prevent mold growth during storage. The DryCard incorporates a cobalt chloride humidity indicator strip that changes color with changing relative humidity: it turns from blue to pink as it absorbs moisture from the surrounding. It can be used to establish dryness in grains, dried fruits & vegetables among other commodities.

Examples of processed vegetable products

- A small-scale juice processing unit fabricated by DK Engineering, Kenya. The unit is comprised of a blancher, pulping machine, pasteurizer, water purifier, mixing tank, filling tank, stainless steel working tables.
- The pulper has different sieves which can be changed depending on the fruit being processed.
- Pulp (the first product from fruits such as mango) can be further processed into ready-to-drink juices, concentrates etc.
- Other specialty products can be developed from the pulp.

- **Mining the ‘Gold’ in Mango**

- **Juice Processing Unit**

- **Dehytray™**

- **DryCard™**

- **Tunnel Solar Dryer™**

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