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Introducing Solar Cooling Chamber to Reduce Post Harvest Losses of Tomatoes in Machakos County, Kenya

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Abstract

Agriculture is central to Kenya's economy accounting to 24% of GDP. Horticulture sub sector is a vital source of income for smallholder farmers especially vegetables, fruits, herbs, root crops. Tomato production constitutes 14% of total vegetable production and 7% of horticultural crops. Tomato is a short duration crop and gives high yield, hence is economically attractive. Almost all households consume tomatoes and they are rich in vitamin A, C and lycopene. Tomatoes can be eaten fresh, added to salads, cooked as vegetable or processed into tomato paste, jam, sauce, puree and juice. Tomato production in Machakos is through irrigation, rainfed, greenhouses and some farmers rent land. Other vegetables grown are French beans, capsicums, eggplant, onions, kales, black nightshade. The demand and supply of tomatoes varies over the year. Food supply can be improved either by increase in production or reduction in loss. The combination of seasonal glut production and high perishability makes tomatoes more vulnerable to Post harvest losses (PHL). This leads to farmers accepting low prices for their tomatoes. Introducing solar cooling chambers in the high producing areas will reduce the PHL, improve their bargaining power and eliminate middlemen. A group of farmers will manage the solar cooling chamber. Forming groups has its own benefits like contract farming, collection and aggregation of produce/inputs as well as easy access to extension services. Solar cooling chamber is off grid, hence can be installed anywhere. It can be transported in individual parts and assembled easily and has low operational costs after installation. Higher quality products can be marketed over a longer period.

Keywords: Kenya, post harvest loss, solar Cooling Chamber, Tomato