Title Postharvest losses due to gaps in cold chain in India-a solution

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Abstract

About 30% of the fruits and vegetables grown in India (40 million tons amounting to US$ 13 billion) get wasted annually due to gaps in the cold chain such as poor infrastructure, insufficient cold storage capacity, unavailability of cold storages in close proximity to farms, poor transportation infrastructure, etc. This results in instability in prices, farmers not getting remunerative prices, rural impoverishment resulting in farmers' frustrations and suicides. India wastes more fruits and vegetables than it consumes. Enough attention has been paid at the pre-harvest stage for boosting the levels of production by techniques like crop rotation, soil conservation, pest control, fertilizers, irrigation, etc., but, postharvest issues have been addressed inadequately. Despite having achieved national food security, the well-being of over 200 million Indian farmers and farm workers who have been the backbone of Indian agriculture continues to be a matter of grave concern. Operating costs for Indian cold storage units are over $60 per cubic metre per year compared to less than $30 in the West. Energy expenses make up about 28% of the total expenses for Indian cold storages compared to 10% in the West. These factors make setting up cold storages difficult, unviable and uneconomical. About 30-35% of the losses can be reduced by transporting the freshly harvested fruits and vegetables in refrigerated containers thus closing this gap in the cold chain. We would need about 20,000 refrigerated containers of standard TEU size (with about 0.24 million sq. meters using solar PV panels fixed on their rooftops to be totally independent of the power grid or DG sets using fossil fuels, valued at US$ 0.53 billion), to transport the freshly harvested produce, placed strategically at various locations in the farms all across the country. Commercially, the payback period for this mammoth project is quite attractive. Refrigerated containers score substantially over conventional refrigerated trucks in terms of suitability for this application in Indian terrain.