

Title Postharvest technology of tropical export produce: recent developments and challenges of a future free-trade world market

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Abstract

Tropical and subtropical fruits present special problems in conservation and transportation because they are much more perishable than temperate tree fruit and because of the long distances between the producing countries and their major export markets. Most of the tropical fruits tend to be climacteric, and as such very susceptible to the ripening effects of the naturally occurring gaseous hormone ethylene that promote texture change and softening, conversion of starch to soluble sugars, induction of aroma and flavour compounds and the promotion of additional ethylene synthesis. Considerable success has been obtained in the control of ethylene biosynthesis and action, using specific chemicals that target particular biochemical reaction. Biotechnology has the potential to influence many genes involved in ripening, including those concerned with ethylene synthesis and action, taste and flavour and resistance to postharvest pathogens. Most tropical fruits have a postharvest life of only a few weeks at the most. Modified (MA) and controlled atmospheres (CA) have been shown to ameliorate chilling sensitivity. Prolonged postharvest life for export to distant markets requires adequate postharvest handling systems, such as optimum harvesting time, control of insect and diseases, and the use of ideal postharvest temperature management. MA and CA can be of major benefit to preserve the quality of these fruits and to prolong their postharvest life. The establishment of both Sanitary and Phytosanitary (SPS) agreement and Technical Barrier to Trade (TBT) under GATT was to facilitate trade and avoid unjustified restrictions on trade. However, to date the export of fresh fruits from tropical and subtropical countries still faces problems in gaining market access in some countries especially the developed countries. Non tariff protectionism will play an increasing role in the future. Therefore biosecurity issues (quarantine pests and diseases) will become more stringent in many countries even when there is limited if any scientific reason for imports. Carbon footprints (or food miles) will be one form of non-tariff barrier used in some countries (especially in Europe) and this will clearly impact on growers of tropical fruit. More research on tropical fruits has to be carried out to gather scientific information in order to comply with the phytosanitary measures of the importing countries. The application of technology to tropical and subtropical fruits has seen dramatic changes over the last 20 years. These changes have been driven by

consumer demands for excellence and wholesomeness. Delivering high quality produce to consumers is a key postharvest goal. Development of appropriate vertically integrated supply chains for tropical fruits will need to be improved if industries in developing countries are to succeed. This will require greater cooperation between private companies and public institutions at all levels of the chain.