

# Mango Sea Freight Technology



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Mango is a premium fruit crop of Pakistan with high export market. However, due to its short shelf life at ambient conditions, it has a limited market window, under normal or ambient conditions. It is normally exported by air. Transport by air is costly and allows only a limited quantity of fruit to export. Further, availability of cargo space is also an issue. In view of these limitations, sea freight options become an attractive alternate for example. Sea freight charges (Rs. 25-30 per kg) to Europe are 5-6 times lower than air freight (Rs. 150-160 per kg).

The economic significance of CA technology can be visualized that there will be around Rs 2.0 million saving in freight charges (compared to air) for one container of mangoes; with additional benefit of exporting bulk volumes (one 20-foot container taking 16-18 tons of mango). This supports the commercial viability of sea transport of mango. Although, sea freighting offers the most economical transport option but it takes extended time (up to 4 weeks) as compared to air transport (usually 2-3 days). Most of the commercial Pakistani mango varieties have shelf life 7-8 days at ambient conditions while storage potential up to 2 weeks under ordinary low temperature storage. Therefore, for successful shipment of mango fruit from Pakistan to the distant markets like Europe, use of controlled atmosphere (CA) technology is important, which extends the useful marketing period of the commodities during storage, transport and distribution with maintained quality and nutritive or market value. These containers are commercially available. However, for successful sea shipment, a complete protocol needs to be followed starting from good quality mango production at farm, harvesting at optimum maturity with right techniques, de-sapping, and subsequent processing including washing, hot water treatments for postharvest disease control, grading and packing, pre-cooling, loading into containers, maintaining required shipping conditions and mango conditioning after arrival at destination port, and ripening before distribution in market. Hence, an integrated approach is required along with the use of CA technology to help to extend its shelf life, in order to deliver best quality at

overseas markets. This technology has been developed under PARB funded project and commercially tested under Australian funded mango value chain improvement project, in collaboration with Sindh mango growers. The most successful variety for sea shipping is Sindhri, which has potential postharvest life (harvest to retail display) of 40 days. The success of this technology will help the local exporters to exploit potential market opportunities in high end markets and benefits are expected to trickle down through to the farmers. The complete sea freighting protocol of mango cv Sindhri is given

## Protocol for Sea-Freight of Sindhri Mangoes to Europe

Outcome of PARB CA-Research project, and Commercially Tested under Australian funded Mango Value Chain Project.

