Supply Chain Strategies for Perishable Products: The Case of Fresh Produce

Abstract

This paper examines supply chain design strategies for a specific type of perishable product—fresh produce, using melons and sweet corn as examples. Melons and other types of produce reach their peak value at time of harvest; product value deteriorates exponentially post-harvest until the product is cooled to dampen the deterioration. Using the product’s marginal value of time, the rate at which the product loses value over time in the supply chain, we show that the appropriate model to minimize lost value in the supply chain is a hybrid of a responsive model from post-harvest to cooling, followed by an efficient model in the remainder of the chain. We also show that these two segments of the supply chain are only loosely-linked, implying that little coordination is required across the chain to achieve value maximization. The models we develop also provide insights into the use of a product’s marginal value of time to develop supply chain strategies for other perishable products.