Best Handling Practices to Export McIntosh Apples from Massachusetts to Central America

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In the previous articles of this series, we have suggested that there are currently opportunities for apple growers to export McIntosh apples to Central American markets. In this article, we wish to emphasize how best to handle apples from the grower through the Central American consumer such that apple export can be the most profitable.

Best handling practices (BHP) are known as the selection of the best technologies to be applied among a range of available pre-harvest and post-harvest technologies. When choosing technologies, the most significant factors mentioned by many researches are the product characteristics, the market distance and requirements, and the social and economic conditions of the actors involved. This article analyzes BHP for exporting McIntosh apples to Central America and how the actions of participants in the supply chain can affect the quality of McIntosh apples in Central America. In order to conduct this analysis, a commercial container of McIntosh apples was shipped to the primary importers in Central America to assess quality along the supply chain. During this study, it was observed that perceived quality is dependent on experience and knowledge of each actor participating in the whole chain; however there are some unavoidable practices that will affect apple quality in the final markets.

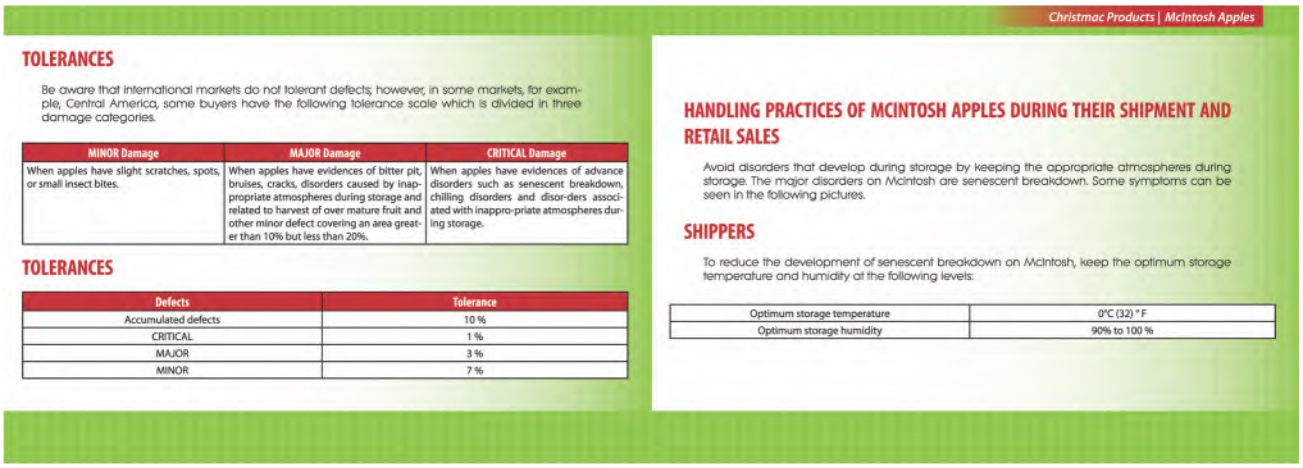
Growers, Packers, and Wholesalers

International shipping of apples is challenging to the quality of the fruit, and our experience with shipping to El Salvador was no exception. Therefore, the apples to be shipped should be optimally treated to assure the best quality in the market. Calcium applications should be a regular part of the growing season activities. Harvest should occur before a significant amount of ripening has occurred. Once harvested fruit should be cooled quickly, treated with SmartFresh™, and kept in controlled atmosphere storage (if at all possible).

Firmness is an extremely important criterion for apple evaluation, as retailers and wholesalers in Central America require apples to have at least 12 pounds of flesh firmness to be accepted as high quality.

Apples Size

Retailers and wholesalers in Central America require apples to have at least 12 lbs of flesh firmness to be



accepted as high quality. Smaller apples from 125-count had significantly greater firmness than apples from the 80-count fruit. It is strongly recommended to export smaller and firmer apples to Central America markets

Weight per Box of McIntosh Apples

The standard apple box in commerce is considered to be 40 pounds of fruit, and buyers in Central America require 40 pounds per box.

Temperature

The most important technique for controlling the loss of quality along the supply chain is temperature reduction, therefore while exporting McIntosh apples to Central America it is recommended to store at as close to 32°F as possible. Our experience suggested that there is the potential for a great deal of variation imposed during the supply chain in El Salvador. It is extremely important to emphasize to buyers the importance of temperature control throughout the supply chain.

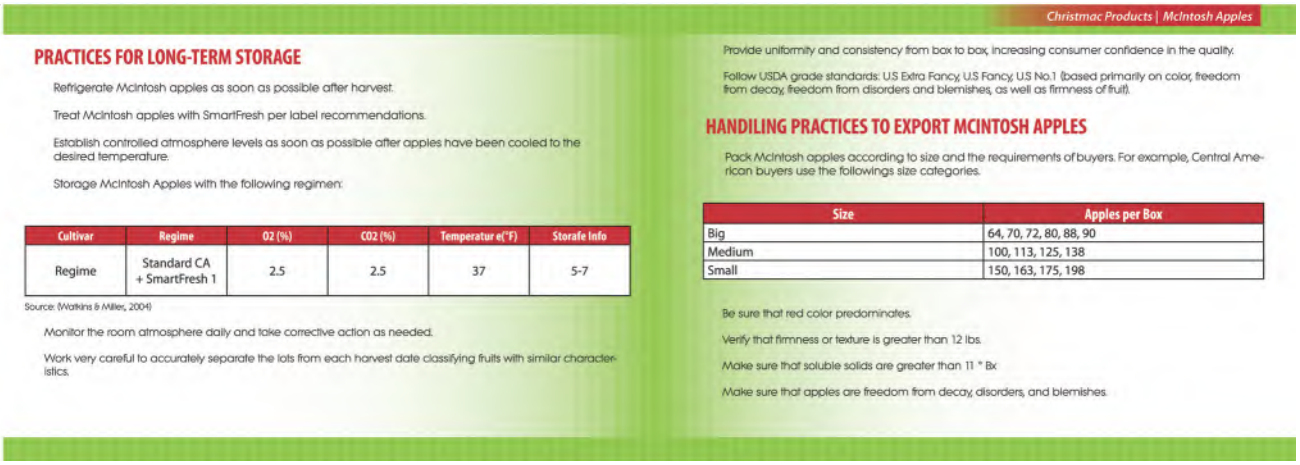
Packing

Furthermore, packing must be carefully planned to provide uniformity and consistency from box to box in order to increase buyer and consumer confidence in the quality. During the packing process, growers must also follow the USDA grade standards: (U.S Extra Fancy, U.S Fancy, and U.S No.1) based firstly upon color, but also on freedom from decay, disorders and blemishes, as well as the firmness of the fruit.

McIntosh apples should also be packed according to the size of the apple, standard industry requirements, and requirements of buyers. Central American buyers use the following size categories: Large = 90-64 count; Medium = 138-100 count; and Small = 198-150 count. We do not recommend exporting large apples since they are more prone to storage deterioration and are not preferred in the Central American markets.

Inspection

During this study, officers from the Massachusetts



Department of Agriculture came to the packinghouse to inspect the apples for the export certificates to Central America. At this point, key factors such as appearance quality were assessed by the inspector. However, firmness and weight were not assessed for the export certificates. Taking into account their importance on the final markets, these factors should be part of the criteria used for determining the suitability of apples for export.

Shippers, Exporters, and Importers

The main goal of shippers, exporters and importers is to avoid losses due to disorders that develop during storage by keeping apples at the lowest possible temperature. The major problem affecting apples during transport is softening, so to reduce the softening of McIntosh apples, keep the storage temperature at 32°F and humidity 90-100%.

During this study, temperature and humidity through the ocean freight were kept at the recommended levels, and there was not any mismanagement observed during the transportation of the apple container from the port of loading to the port of discharge. As a result, this study found that shipping companies understand the handling practices of apples.

Once the apples arrive at customs, they must keep at the right temperature. It is highly recommended to negotiate FOB (Free On Board) price in order to avoid delays and excessive payments in this part of the process.

Distributors

Apples must be kept at the right temperature in the distributor's warehouse. Workers should avoid handling the apples too often, as sometimes workers are unaware of how to handle the apples appropriately.

Retailers

Once the apples are delivered to the supermarket, apples must be kept at as close to 32°F as possible, and workers must be trained in the best handling practices for apples before the McIntosh delivery.

Some other recommendations for retailers and distributors are not to overlap more than 7 boxes of 40 pounds in order to avoid compression bruising, to handle the apples carefully and always arrange them by hand, and to keep damaged or bruised apples off the shelf.

Consumers

The practices for consumers are very similar to those for retailers; however, it is strongly recommended to store the apples in a refrigerator when possible, and if there is no refrigerator, consumers should place the apples in a cool area.

Conclusions

Throughout the supply chain for McIntosh apples from Massachusetts to Central America, it was determined that each one of the actors forming this supply chain has an important role in maintaining apple quality. Factors of particular importance that affect apple quality include the apple source, fruit size, and proper temperature maintenance.

These results and conclusions are only part of the picture. To make the decision to export McIntosh apples to Central America, there needs to be an economic analysis indicating that it is profitable for growers in Massachusetts.

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On June 10, 2014 Rutgers Cooperative Extension held a Horticultural Twilight Meeting at the at Donaldsons Farm, Hackettstown, NJ. Professors Peter Nitzsche and Bill Hulibk presented an Update On The Rutgers NJAES Project To Release New Strawberry Varieties For Eastern US and NJ growers. Farmer Greg Donlandson had extensive plots of our Rutgers strawberry selections on site. He has worked closely with Rutgers for the past 4 years in their testing. "This project is funded by a grant from the Walmart Foundation and administered by the University of Arkansas System Division of Agriculture Center for Agricultural and Rural Sustainability." Forty-two growers were in attendance. Photo credit: Peter Nitzsche.