

## Ontario Tree Fruit Innovation and Technology Roadmap

### Cold Storage and Monitoring Equipment

#### Evaluating New Technologies

	Feasibility and cost	Implement	Labour Reduced	Changes in production	Training for staff	Impact on risk of COVID-19 Transmission
	low, medium, high	easy, medium, challenging	% estimate	easy, medium, hard	none, medium, high	none, low, medium, high
Cold Storage and Monitoring Equipment	medium	medium	low	medium	medium	low

Current Status - More packers are using controlled atmosphere and low oxygen storage technology when adding new storages to their operation. There are new technologies used for monitoring gas levels and fruit conditions when the fruit is stressed in the cold storage. The computer sends an alert so the gas levels can be automatically adjusted before problems arise. SmartFresh™ - 1-Methylcyclopropene (1-MCP) is a fairly new commercial product that inhibits ethylene action and can maintain the quality of many crops. 1-MCP is commercially available as SmartFresh™ for use on apples. It is a tool that growers and packers can use to store fruit longer and achieve better eating quality. SmartFresh™ improves firmness, reduces storage defects such as scald, CO<sub>2</sub> injury, internal browning, and storage rots.

Feasibility of Implementation - Controlled atmosphere/low oxygen storage rooms have a high capital cost and implementation would be challenging, knowledge and training are required. SmartFresh™(1-MCP) cost is low about \$9-10 per bin and simple to apply. Improving overall storage capacity and the quality of stored fruit coming out of inventories to pack lines creates efficiencies across pack lines and increased labour productivity.

Impact on Labour – Since SmartFresh™ and monitoring equipment reduces the loss of apples due to storage issues there would be less culling in pack lines and a potential reduction in labour required for the overall packhouse operation.

COVID-19 Mitigation Risk This technology may help increase labour productivity but may not significantly reduce overall labour requirements and would not significantly lower the risk of exposure or transmission among workers.



**Ontario  
Tender Fruit  
Growers**

Need for Change, Research and Training - Implementation of monitored controlled atmosphere storages and the use of SmartFresh™ technology would require changes to operational processes in storages as well as knowledge and training.