

## Ontario Tree Fruit Innovation and Technology Roadmap

### Data Management Software / Spray Tracking Module

#### Evaluating New Technologies

	Feasibility and cost	Implement	Labour Reduced	Changes in production	Training for staff	Impact on risk of COVID-19 Transmission
Identified Technology	low, medium, high	easy, medium, challenging	% estimate	easy, medium, hard	none, medium, high	none, low, medium, high
Crop Protection - Data Management Software/Spray Tracking Module	low	medium	10-20	medium	medium	low-medium
Post Harvest - Data Management System (packing, inventory, storage, shipping)	low	medium	30%	medium	medium	high

### Crop Protection

Current Status - Data management software with a spray tracking module allows for quick and easy management of crop protection applications and product inventories. Crop protection spray records easily record applications by orchard block or row and can analyze usage and costs over time. Users can access crop protection product lists and create easy to follow treatment templates customized to individual orchard crop and target pest. Growing operations can record sprays and spray plans, safety equipment, spray rates, tanks used, and the cost of sprays.

Feasibility of Implementing – Software applications for tracking pesticides are affordable for most growing operations. Many applications are user-friendly; however, some level of training may be required.

Impact on Labour – Software applications for recording and tracking sprays help identify and reduce duplications of multiple sprays and other inefficiencies which can potentially create increased labour productivity.

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

Need for Change, Research and Training – Initial set-up require GPS mapping of orchards. Training may be needed depending on the user.

## **Post Harvest**

Current Status - Data management systems for packing include RFID technology to track fruit through from harvest, to storage, to packing and shipping and provides the data trail for traceability and recall purposes. Systems for packhouses can also include punch-clock systems for tracking labour hours used in warehouse. Data systems are an invaluable tool for growers making it possible for them to track product and analyze costs. Growers get real-time data, so they know exactly how long a team takes to pack and track inventory. Mobile apps and RFID makes the process more efficient.

Feasibility of Implementing – The cost to purchase data management software for packhouses can range from medium to high. Ease of implementation also ranges depending on the size and scale of the packhouse. Knowledge and training may be required.

Impact on Labour – The implementation of RFID technology has improved operational efficiency and productivity in distribution centres and warehouses around the world. RFID technology typically complements data capture technology (such as barcodes) already used in packhouses and fruit distribution centres.

*Cold storage and monitoring equipment* – 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 – The implementation of RFID technology and other innovative data management solutions can significantly reduce overall labour requirements for packhouse operations therefore implementation can lower the overall risk of COVID-19 exposure and transmission for orchard operations.

Need for Change, Research and Training – Implementation could be challenging, computer skills and system training would be required. Implementation of data management systems can produce process/operational changes through identifying weaknesses and efficiencies.