

## Ontario Tree Fruit Innovation and Technology Roadmap

### Platforms

#### Evaluating New Technologies

	Feasibility and cost	Implement	Labour Reduced	Changes in production	Training for staff	Impact on risk of COVID-19 Transmission
Crop Production Activity	low, medium, high	easy, medium, challenging	% estimate	easy, medium, hard	none, medium, high	none, low, medium, high
Pruning	medium-high	easy	30-50	easy	medium	high
Thinning	medium-high	easy	30-50	easy	medium	high

### Pruning

Current Status - High-density trellised orchards can be easily mechanized using labour positioning platforms to reduce labour requirements. Platforms are multi-use and very suitable for partial mechanization of several **orchard** tasks including dormant pruning, hand thinning, building trellis, leader selection, tree training, summer pruning and harvest. It is estimated by manufacturers that one platform is needed for 50 acres.

Feasibility of Implementation - Platforms are costly, but it has been a relatively swift transition for apple growers with high density orchards. Because platforms are multi-purpose and used for several in-orchard tasks the return on investment is greater for growing operations. The payback can be fairly quick (2-3 years) if the grower has 80 acres or more. For tender fruit, it is a technology that is more difficult to adapt to open centre training systems. Some tender fruit growers have also been using “home-made” versions of platforms that create labour efficiencies and replace ladders in the orchard.

Impact on Labour - High-density trellised orchards can be easily mechanized using labour positioning platforms to reduce labour requirements. Studies have quantified labour savings of 30-50%. In addition, sidewall shearing to produce a narrow fruiting wall can reduce summer pruning costs and further facilitate partial mechanization of harvest. Pruning on platforms is reported by growers to be approximately 25% faster than workers using ladders. Training and tying tree leaders to stakes was 77% faster in an OMAFRA study in 2011. Workers reported in the study, that they liked working on the platforms, had only one task to do and had less fatigue at the end of the day. Less labour is required when growers use platforms.

COVID-19 Mitigation Risk- The benefits of platform technologies help to reduce labour for pruning throughout the orchard, as such this technology helps lower the risk of COVID-19 exposure and transmission for growing operations. As well, workers on platforms can be spread far enough apart from each other and barriers can be installed for increased protection to reduce the risk of transmission and mitigate exposure.

Need for Change, Research and Training - Implementation would require training and a specialized set of skills for the operator of this equipment. It would also require the need for various operational process changes for the farm. However, very little additional training is needed for workers when working from the platforms. Innovative autonomous platforms would require a skilled operator.

## **Thinning**

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Feasibility of Implementation – Platforms are costly, but it has been a relatively swift transition for apple growers with high density orchards. The payback can be quick (2-3 years) if the grower has 80 acres or more. For tender fruit it is a technology that is more difficult to adapt to open centre training systems. Some tender fruit growers have also been using “home-made” versions of platforms that create labour efficiencies and replace ladders in the orchard.

Multi-purpose equipment used for several in-orchard tasks has a greater return on investment for growers.

Impact on Labour - Most apple growers that use platforms report that this is one of the best labour savings devices for thinning. Thinning was 46% faster from a platform compared to using a ladder in an OMAFRA study in 2011. Workers reported in the study that they liked thinning from the platforms, had only one task to do and had less fatigue at the end of the day. This technology creates an overall positive impact by increasing labour efficiencies and reducing labour requirements for thinning tree fruits.

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**Ontario  
Tender Fruit  
Growers**

Need for Change, Research and Training - Very little additional training is needed for workers when working on the platforms. Innovative autonomous platforms are on the horizon for implementation and would require a skilled operator.