

RESEARCH

This brochure is a product of the **Ergonomic Evaluation of Emerging Technologies in the Tree Fruit Industry¹** project, Peter W. Johnson, PI.

This (field) research project was conducted in response to the WA Tree Fruit Industry's interest in new technologies. It investigated whether the harvest assist platform would improve safety and musculoskeletal comfort and reduce injury compared to harvesting from ladders.



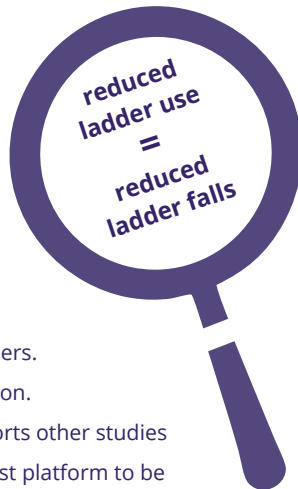
KEY HARVESTING SAFETY PRACTICES

Reduce body stress,
strain and injury



Key research findings:

- Workers using the harvest assist platform to pick apples had reduced ergonomic stressors compared to those using ladders. Factors included:
 - less reaching with arms above shoulders.
 - less repetitive motion.
- This field research supports other studies showing the harvest assist platform to be an effective harvesting method.



RESOURCES

Orchard ladder training:

- PNASH Video - Orchard Ladder: Life Changing Injury Stories, Real Workers, Real Events. (SPN/ENG) youtube.com/user/USagCenters
- WA State L&I Video - Orchard Ladder Safety (ENG) youtube.com/watch?v=wmBsN5fWq8Y
- OSU Extension Video - Tripod Ladder Safety (ENG) tfrec.wsu.edu/pages/safety/Ladder_Video
- OSHA - Safe Use of Tripod Orchard Ladders Factsheet (SPN/ENG) osha.gov/Publications/OSHA3728.html

CONTACT

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WA-DOSH lni.wa.gov.
800.426.7233, 360.902.5495

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Illustrations by Sarah Fish | Photographs by Stacey Holland | Rev. 01/19

- ✓ Harvest assist platform
- ✓ Orchard ladder
- ✓ All harvesting methods



**PACIFIC NORTHWEST AGRICULTURAL
SAFETY & HEALTH CENTER**

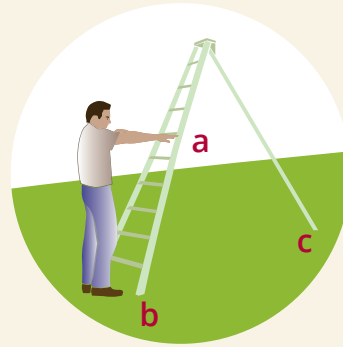
HARVEST ASSIST PLATFORM

Before using platform:

- Adjust platform height to minimize bending and reaching.
- Always use proper fall protection or railings system.
- Ensure that ground harvesters do not work in front of the harvest-assist platforms.

While picking:

- Keep both feet on platform at all times.
- Keep platform free of fruit and debris.
- Rotate workers between the ground and platform to more evenly distribute impact on the musculoskeletal system.
- Ensure workers do not climb on tires and moving parts.
- Provide access for climbing on and off platforms to prevent injuries.



The correct angle:

- a. Finger tips touch rails.
- b. Toes in front of ladder.
- c. Positioning third leg
(no slope=center, cross slope=slightly downhill).



ORCHARD LADDER

Before you climb:

- Inspect the ladder to be sure it is in good condition.
- Set-up ladder at the correct angle.
- Ensure ladder is stable by stepping firmly on the bottom rung.

While harvesting:

- Keep both hands on the rails when climbing up and down the ladder.
- Keep toes towards the front of the ladder at all times.
- Stay centered on the ladder by keeping your belt buckle between the rails.
- Do not step on the top step or top cap.
- Start with empty apple bag at the top of the canopy.
- Avoid stepping on tree branches or trellis wires.
- Place boot heels behind step.

ALL HARVESTING METHODS

Before harvesting:

- Wear shoes or boots with stiff soles and a heel.
- Adjust the apple bag to fit the worker's build.

While harvesting:

- Minimize raising your arm above the shoulder.
- Empty apple bag frequently.
- Minimize bending at the waist when emptying bags or buckets.
- Ensure breaks during the workday to allow musculoskeletal system to recover.
- Keep ground free of fruit and debris.

