

EFAO 2024: Research Protocol

Efficacy of grafting methods for stone fruits

Farmer-researcher: Zack Muma, Silver Creek Nursery Ltd. - West

Project type: Research trial

Research priorities: Disease & pest control, Seed selection, production, & breeding

EFAO Contact: Sarah Larsen, sarah@efao.ca

Objective

To compare the efficacy of two different grafting methods on stone fruits (and possibly pears). Zack hypothesizes that rubber wrap with staples is faster but that buddy tape may hold moisture better, which is particularly important for stone fruits.

In 2023, they compared the two grafting methods on one variety and root stock. Through this observational study, they think they saw slightly better graft take with the buddy tape, but there wasn't enough data to be confident.

Experimental Design

Treatments

1. Rubber grafting wrap with staples
2. Buddy tape

Field layout

- For each variety, Zack will divide the block into two and randomly assign one half to each treatment (rubber + staples; buddy tape) - see random assignment table below.
- 20-50 trees per variety, with 1 graft per tree
 - Number each tree sequentially, to be able to record scionwood quality and graft take

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For report:

The trial included 743 trees spread across four rows.

- The team divided the trees into 38 sections.
- Each section consisted of 10–33 trees of the same combination of rootstock and scionwood.
- Different combinations of rootstock and scionwood were represented across sections.
- The team then randomly assigned the two grafting treatments to adjacent pairs of sections.
- See full details in the Appendix on page 5.

BT	SE	BT	SE	BT	SE	BT	SE	BT	SE
BT	SE	BT	SE	BT	SE	BT	SE	BT	SE
BT	SE	BT	SE	BT	SE	BT	SE	BT	SE
BT	SE	BT	SE	BT	SE				

Random number assignment

Variety	Rootstock	Scionwood	Graft method 1	# trees	Graft method 2	# trees
1			Buddy tape		Rubber w/ staples	
2			Rubber w/ staples		Buddy tape	
3			Buddy tape		Rubber w/ staples	
4			Buddy tape		Rubber w/ staples	
5			Rubber w/ staples		Buddy tape	

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6			Buddy tape		Rubber w/ staples	
7			Rubber w/ staples		Buddy tape	
8			Buddy tape		Rubber w/ staples	
9			Rubber w/ staples		Buddy tape	
10			Buddy tape		Rubber w/ staples	
11			Rubber w/ staples		Buddy tape	
12			Buddy tape		Rubber w/ staples	
13			Rubber w/ staples		Buddy tape	
14			Buddy tape		Rubber w/ staples	
15			Buddy tape		Rubber w/ staples	
16			Rubber w/ staples		Buddy tape	

Statistical model

We will use a paired t-test to test for differences between the grafting methods. This design will not allow us to test differences among varieties, but we will assess trends.

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Data Collection & Measurements

Scionwood quality

- At time of grafting, Zack will record notes on the quality of the scion wood being grafted including diameter, source, poor health appearance.

Labour time

Quantitative

- At time of grafting, Zack will record the time it takes to graft each tree.

Graft take

Quantitative

- In the spring or fall 2025, Zack will assess the graft take of each graft, evaluating it as a “yes” or “no”.
- Note that it can be hard to check buddy tape in the spring without damaging the graft, so they might have to evaluate in summer in the fall.

Photos

Please take the following photos:

- Photos showing both grafting methods
- Photos showing results of the grafting methods in spring 2025
- Photos showing results of the grafting methods in fall 2025

Video and/or social media (OPTIONAL)

Are you interested in saying you can make a social media post or video about your trial throughout the year?

If so:

Videos

Please capture video of "one or more of the following":

1. Yourself talking about the project in general and why you wanted to do this project/ what you hope to learn;

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2. Your observations of the subject of your research as you describe what you are seeing out loud and why it's relevant to your project;
3. A tour of the trial/bed layout and why it was chosen.

Please note:

- It is totally optional to film yourself as part of the video.
- You don't have to add captions or anything, just take the raw video and upload it to this GoogleDrive folder:
- Please also email your EFAO staff contact when you upload!

Example posts for inspiration:

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[Melanzana Eggplant](#) [Loofah](#) [Okra Trials](#) [Blue Icicle Tomato](#)
[Tsakoniki Eggplant](#) [Upright Ground Cherry](#) [Lettuce Variety Trials](#)

Social media

If you are posting about your trial on social media, please tag EFAO, @efao2.

Research Plan

Please note that if data is submitted after the submission deadline, EFAO staff cannot guarantee that your data will be analyzed and written up before the Research Symposium and/or the next growing season.

Time	Task	Methods & Measurements or Action Item ¹⁰
August 2024	Trial set-up	Assign treatments to the trees
August 2024	Grafting	Graft according to trial layout and record scionwood quality.
December 31, 2024	Farmer-fee and research expense invoice with receipts for expenses	Submit invoices at this site: https://efao.ca/data/
Spring 2025	Grafting check	Check and record grafting success
Fall 2025	Grafting check	Check and record grafting success

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October 15, 2025	Data submission	Submit photos and data to EFAO, including layout and fall grafting check.
December 31, 2025	Farmer-fee and research expense invoice with receipts for expenses	Submit invoices at this site: https://efao.ca/data/
Winter/spring 2026	Finalize and publish research report	Work with EFAO staff to review polished research report for publication.

Staff check-ins

Aug 1st (just before grafting), Oct 1st, May 1st 2025

Farmer-fee

Farmer-fees for this project are \$1000 in total. You are eligible for 50% (\$500) for implementing the trial (2024), and 50% (\$500) for submitting data and photos (2025). EFAO staff will be in touch in the fall with invoicing instructions and deadlines. If you decline, cancel, or defer the trial, you also forfeit the payment.

Memorandum of Understanding

Please fill out the MOU at <https://airtable.com/appPSElrt17OMWXia/shrgHQSEj7yONdGSm>. The terms of the MOU are listed below.