

Focus Orchard Case Study: Grafting Trial

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Background

Following the June 2012 Orchard Walk at Muralappi Orchard - Batlow, there was considerable interest in providing more information and practical demonstrations of grafting techniques for reworking orchards. Given the difficult financial times the industry is facing, re-working is an increasingly attractive option for growers needing to change underperforming varieties.

Objective

To demonstrate the techniques and advantages/disadvantages of two popular common grafting techniques, step grafting and crown bark grafting, as a method of reworking established apple trees.

Method

Two popular grafting methods were trialled on mature Pink Lady trees on M26 rootstock. One treatment was notch (step) grafting and the other treatment was crown grafting. Half of each treatment was either stapled or wrapped using grafting tape. The wounds were painted with a common product used in Batlow called "Doc Farewell's Grafting Sealant".



Notch graft staples (left) and wrapped (right).



Crown graft stapled (left) and wrapped (right)

Results

The survival rate of each treatment was measured in the middle of February. The wrapped treatments in both grafts methods survived at 100% and the stapled scions had a higher mortality rate at 10-30%. Although stapling may be faster and cheaper, wrapping provides the grafts with extra benefits that assists survival rate of the scions.

The crown grafts produced on average at 67.6 mm of scion shoot growth and the notch grafts only 35.2mm shoot growth. Both stapled treatments grew around 50% shorter shoot growth than the wrapped scions.

Graft method	Crown Grafts		Notch Grafts	
	Stapled	Wrapped	Stapled	Wrapped
Survival (%)	90	100	70	100
Average scion growth (mm)	15.4	67.6	20.3	35.2

What has to be remembered with these results is that the notch grafted trees produced a crop of apples in the same year as the grafting whereas the crown grafted trees did not produce any fruit, except for that left on the sap draw/side branch.

Note: Experience with crown grafting in Adelaide Hills several years ago highlighted better grafting survival when sap draws/side branches were left on until mid-summer. Scion take/survival was lower at 50% when sap draws were not used, however those scions that did take and survive, had significantly more shoot extension.



Crown grafted stapled scions (above) with less growth than the crown grafted wrapped scions (below).





Similar results can be seen with the notch grafted stapled scions (above) showing less growth than the notch grafted wrapped scions (below).



Conclusion

This demonstration trial highlights that there are differences between grafting methods and care needs to be taken to achieve the best results when transitioning to new improved varieties.

- Crown grafting showed more scion growth
- Grafts should be wrapped instead of stapled.

Further work will be done next season on this trial. Growers should treat these results as a guide only. There may be other factors that influenced these trial results which have not been identified yet.