

Field Grafting: The Economics

*Vineyard & Winery Technology Program, Chair, YVC
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Gambling with Grafting: Analyzing Risks and Benefits of Top–Grafting for Vineyard Profitability and Sustainability

Specialty Crop Block Grant Program

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Field Grafting

Year 1 activity: Estimate operating costs and returns of replanting versus top-grafting

Is field grafting financially advantageous compared to replanting?:

- Less expensive
- Quicker return to full production

Economic Evaluation

Assumptions:

- Vine spacing of 8' x 6'
- Materials and supply costs based on 2017 values
- Average grower costs used
- Fixed costs excluded



Grafting Scenario- Year 1

Segmented into three stages: Pre-grafting, Grafting, Post-grafting

- Pre-grafting
 - Remove the trunk and cordon
 - Pick up the wood and wire
 - Propagate (prepare the scion)

Grafting	Whip Graft
Total vines/acre	907
Cost/vine	\$1.45
Total grafting costs	\$1,316.60

Courtesy of Raul Rodriguez III, The (Graft) Corporation

Grafting Scenario- Year 1

Segmented into three stages: Pre-grafting, Grafting, Post-grafting

- Post-grafting
 - Sap bleeding cuts to rootstock
 - Trellis repair if necessary
 - Suckering (3-4 times per season)
 - Vine training (2-4 passes per season)
 - Regular vineyard maintenance

Grafting Scenario- Year 2

Caring for vines and training

- Post-grafting
 - Re-grafting if necessary (3% – 25%)
 - Suckering (3-4 times per season)
 - Vine training (cordon tying and training)
 - Fruit thinning
 - Regular vineyard maintenance

Grafting- Production and Returns

Assumed yield and returns for Cabernet Sauvignon:

	Year 1	Year 2	Year 3	Year 4+
Yield (T/Ac)	0	2.0	4.5	4.5
Price (\$/ton)	\$1,417	\$1,417	\$1,417	\$1,417
Return (\$/Ac)	0.00	\$2,834	\$6,377	\$6,377

Grafting costs

Period	1	2	3	4
REVENUE: (\$/acre)				
Grape Sales (Cab Sauv):	\$0	\$2,834	\$6,377	\$6,377
VARIABLE EXPENSES: (\$/acre)				
Pruning (hand and custom pre-prune) ^a	\$150	\$195	\$195	\$195
Pre-Grafting Costs ^b	\$977	-	-	-
Grafting Costs	\$1,317	\$0	\$0	\$0
Trellis Material/Ties	\$169	\$29	\$13	\$10
Fertilizer and Chemicals	\$38	\$122	\$105	\$97
Vineyard Labor ^c	\$1,270	\$1,151	\$953	\$948
Custom Mechanical Harvesting/Hauling	-	\$210	\$473	\$473
Irrigation (electrical, repairs, water)	\$130	\$130	\$130	\$130
Miscellaneous ^d	\$250	\$250	\$250	\$250
Trac/Mach Repair and Fuel/Lube	\$98	\$366	\$378	\$368
Interest on Operating Capital	<u>\$48</u>	<u>\$28</u>	<u>\$29</u>	<u>\$28</u>
Total Variable Cost:	\$4,446	\$2,480	\$2,525	\$2,498
Operating Return (\$/acre) ^e	<u>(\$4,446)</u>	<u>\$354</u>	<u>\$3,851</u>	<u>\$3,879</u>

Grafting versus Replanting

	Grafting	Replanting
Year 1 Operating Return (\$/acre)	(\$4,446)	(\$5,503)
Year 2 Operating Return (\$/acre)	\$354	(\$1,959)
Payback Period (years)	3.06	4.70

Practical Applications

- Grafting provides a faster economic return to replanting, assuming no disease infections
- Testing of the rootstock and scion for a grafting project should be conducted before proceeding
- Certified material is a good first step, but does not eliminate the risk of virus infection.

“The safest way to double your money is to fold it over and put it in your pocket” – Kin Hubbard

Concluding Thoughts

Impacts on the Cost Analysis:

- Acres
- Vine Spacing
- Yields
- Site conditions
- Health of the vine

Future Research Efforts

Minimize the risk of virus infection:



- Evaluate best sampling practices to minimize risk
- Estimate economic impact of virus infection on both top-grafting and replanting approaches

*“Don’t be afraid to go out on a limb. That is where the fruit is”
- H. Jackson Browne*



Thank you:

Dr. Naidu Rayapati

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Participating Growers

Trent Ball

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