

Potential Economic Feasibility of Grafted Blueberry Plants

2026 FBGA Fall Meeting & Short Course
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Economic Questions

1. What is the economic feasibility of grafted plants for blueberry production?
 - a. What additional price could **blueberry growers** pay for grafted plants and gain a positive return on the investment?
 - b. What additional price could **nurserymen** charge for grafted plants and still have willing buyers?

Answer: It depends.

Acknowledgments

Specialty Crop Block Grant awarded by FDACS

- Title: Evaluation of Exotic Germplasm for Use as Blueberry Rootstocks...
- PI: Dr. Jeffrey Williamson

Meetings & discussions with Jeff Williamson, Tim Logan, and Gerardo Nunez.

Quotes from 3 pine bark suppliers.

Brief conversations with 3 blueberry nursery growers.

References:

- Singerman, A. et al. 2016. Establishment and Production Costs for Southern Highbush Blueberry Orchards in Florida. UF/IFAS
- Casamali, B. et al. 2016. Vegetative and reproductive traits of two southern highbush blueberry cultivars grafted onto *Vaccinium arboreum* rootstocks. HortScience.
- Darnell, R.L. et al. 2020. Impacts of *Vaccinium arboreum* rootstocks on vegetative growth and yield in two southern highbush blueberry cultivars. HortScience.
- Nunez, G.H. et al. 2025. Blueberry grafting comes of age. The Blueberry News.

Advantages & Disadvantages of Grafted Blueberry Plants

Advantages	Disadvantages
Less or no need for pine bark	Higher cost for grafted plants
Less or no need for tree wraps	Suckering/sucker removal
Possibly higher yields after Year 3	Possibly lower yield in Years 1-3
Greater longevity	
Greater resistance to bacterial leaf scorch	
Higher berry weights	
Single trunk, mechanical harvest efficiency	
More drought tolerant	
Possibly lower fertilizer needs	

Assumptions for Economic Analysis

Grafted blueberry plants might cost \$3.00 to \$7.00 more than own-rooted plants.

Example: \$10.50 (grafted) – \$3.50 (own-rooted) = \$7.00 cost increase

Grafted plants have similar yields with 180 to 360 yards less pine bark per acre.

Example: 360 yards (own-rooted) – 90 yards (grafted) = 270-yard decrease.

Grafted blueberry plants will not need tree wraps but will need sucker removal in Years 1 & 2.

Three scenarios for differences in yields are considered.

Everything else is the same between grafted and own-rooted.

\$\$ Rates Used for Economic Analysis

Item	2025-2026 Values
Pine bark cost	\$19.50/yard, including delivery
Pine bark spreading & incorporation cost	\$43 to \$115 per acre
Tree wrap cost	\$1,800/acre, including labor
Sucker removal cost	\$25 per acre
Price of blueberries (FOB shipping point)	\$4.38 per lb
Harvesting & marketing costs	\$2.92 per lb

Three Yield Scenarios (Pounds/Acre)

Year	Scenario 1		Scenario 2		Scenario 3	
	Own Root	Grafted	Own Root	Grafted	Own Root	Grafted
1	1,500	1,500	1,500	1,050	1,500	1,050
2	6,000	6,000	6,000	4,800	6,000	4,800
3	12,000	12,000	12,000	10,800	12,000	10,800
4	15,000	15,000	15,000	15,000	15,000	15,000
5	15,000	15,000	15,000	15,000	15,000	15,000
6	15,000	15,000	15,000	15,000	15,000	15,000
7	15,000	15,000	15,000	15,000	15,000	15,000
8	15,000	15,000	15,000	15,000	15,000	15,000
9	15,000	15,000	14,000	15,000	14,000	15,000
10	15,000	15,000	13,150	15,000	13,150	15,000
11					12,000	15,000
12					10,500	15,000
Sum:	124,500	124,500	121,650	121,650	144,150	151,650

10-Year and 12-Year Discounted Cash Flow Analysis

Calculates the Net Present Value (NPV) of an investment with uneven future effects on revenues and costs.

Discounts future values to reflect the opportunity cost of capital.

A positive NPV indicates that the return on investment exceeds the cost of capital.

SCENARIO 2: 10-YEAR DISCOUNTED CASH FLOW ANALYSIS

What is the additional return on investment from grafted blueberry plants?

Initial Investment Date: 12/15/2025

Description of Investment & Financing

Analysis of differences in initial investment and annual cash costs between grafted and ungrafted SHB blueberries. 10-year, early & late yield differences. Cumulative yield is the same.

Initial Investment Items Full Cost

Additional cost of plants	\$ 9,680
Savings on pine bark, spreading & incorporation (-)	\$ (5,319)
Savings on tree wraps and installation (-)	\$ (1,800)

New Term Loans Loan Amount

	\$ -
	\$ -
	\$ -

Total Investment Costs	\$ 2,561
Total Loan Proceeds	\$ -
Initial Net Cost after Loans	\$ 2,561

Expected Annual Inflation Rate:	varied
Annual Risk-Free Discount Rate, Nominal:	5.0%
Risk Premium:	1.0%
Risk-Adjusted Discount Rate, Nominal	6.0%

FINANCIAL RESULTS

Payback Period (years)*	9
Internal Rate of Return (%)	8%
Net Present Value (\$)	\$821

10-Year and 12-Year Discounted Cash Flow Analysis

NET CHANGE IN EXPECTED ANNUAL CASH FLOWS AFTER INITIAL INVESTMENTS

Years from Initial Investment Date:	1	2	3	4	5	6	7	8	9	10
Year:	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Changes in Cash Revenues										
Sale of fresh blueberries at FOB price	\$ (2,042)	\$ (5,581)	\$ (5,693)						\$ 5,343	\$ 10,082
Changes in Cash Costs										
Harvesting & marketing costs	\$ (1,361)	\$ (3,721)	\$ (3,795)						\$ 3,562	\$ 6,721
Sucker removal labor	\$ 25	\$ 26								
Replacement plants										
Replacement planting labor										
Pine bark mulch			\$ (1,901)			\$ (2,016)			\$ (2,141)	
Spreading & incorporation of pine bark			\$ (47)			\$ (49)			\$ (52)	
Pruning										
Fertilizing										
Irrigation										
Change in Annual Net Cash Flow	\$ (706)	\$ (1,886)	\$ 49	\$ -	\$ -	\$ 2,066	\$ -	\$ -	\$ 3,975	\$ 3,361
Change in Annual Discounted Net Cash Flow	\$ (666)	\$ (1,679)	\$ 41	\$ -	\$ -	\$ 1,456	\$ -	\$ -	\$ 2,353	\$ 1,877
Change in Cumulative Net Cash Flow	\$ (3,267)	\$ (5,153)	\$ (5,104)	\$ (5,104)	\$ (5,104)	\$ (3,038)	\$ (3,038)	\$ (3,038)	\$ 937	\$ 4,298
Change in Cumulative Discounted Net Cash Flow	\$ (3,227)	\$ (4,906)	\$ (4,864)	\$ (4,864)	\$ (4,864)	\$ (3,408)	\$ (3,408)	\$ (3,408)	\$ (1,055)	\$ 821

Scenario 1 Sensitivity Analysis

10-year, no differences in yield

Net Present Value per Acre

Pine bark savings in establishment year		Additional Cost per Plant for Grafted Blueberries				
		\$3.00	\$4.00	\$5.00	\$6.00	\$7.00
360 yds	\$7,092	\$7,427	\$5,491	\$3,555	\$1,619	(\$317)
270 yds	\$5,319	\$5,654	\$3,718	\$1,782	(\$154)	(\$2,090)
180 yds	\$3,546	\$3,881	\$1,945	\$9	(\$1,927)	(\$3,863)

Scenario 2 Sensitivity Analysis

10-year, early & late yield differences, cumulative yield the same.

Net Present Value per Acre

Pine bark savings in establishment year		Additional Cost per Plant for Grafted Blueberries				
		\$3.00	\$4.00	\$5.00	\$6.00	\$7.00
360 yds	\$7,092	\$6,466	\$4,530	\$2,594	\$658	(\$1,278)
270 yds	\$5,319	\$4,693	\$2,757	\$821	(\$1,115)	(\$3,051)
180 yds	\$3,546	\$2,920	\$984	(\$952)	(\$2,888)	(\$4,824)

Scenario 3 Sensitivity Analysis

12-year, early & late yield differences, higher grafted cumulative yield

Net Present Value per Acre

Pine bark savings in establishment year		Additional Cost per Plant for Grafted Blueberries				
		\$3.00	\$4.00	\$5.00	\$6.00	\$7.00
360 yds	\$7,092	\$13,622	\$11,686	\$9,750	\$7,814	\$5,878
270 yds	\$5,319	\$11,849	\$9,913	\$7,977	\$6,041	\$4,105
180 yds	\$3,546	\$10,076	\$8,140	\$6,204	\$4,268	\$2,332

Takeaways

With a 10-year horizon, similar yields but no benefit from additional longevity, a grower could pay up to \$5.00 additional for grafted plants and gain financially.

With a 12-year horizon and higher grafted yields in Years 9-12, a grower could pay more than \$7.00 additional for grafted plants and still gain financially.

Open question: Could nurseries make a profit selling grafted 1-gallon blueberry plants for \$8.50 to \$10.50 per plant?

Further research ideas:

- Optimal management of grafted plants
- Other benefits & costs of using grafted plants
- Ways to improve grafting efficiency & lower costs

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