

Costs and Potential Returns for Selected Orchard Crops

Orchard Field Day 2024

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OVERVIEW



Cost



Yield



Price



Profitability



Satsuma



Blueberry



Persimmon



Elderberry

COSTS

Fruit production costs include...

- Land, buildings, equipment
- Orchard establishment
- Annual orchard care
- Harvesting
- Packing, storing, hauling & marketing

Labor is typically the largest cost of fruit production at 35-40% of annual gross revenue.



INITIAL INVESTMENT COSTS*

- Land (average FL cropland value in 2024: \$10,170/acre)
- Land preparation: could be \$1,500 to \$3,000 per acre
- Well/pump/tanks: \$15,000 to \$30,000 for 4" to 8" well, pump, tanks
- Irrigation system: \$700 to \$1,000 per acre
- Fencing (if deer/wildlife/people deterrent needed): \$2-\$8/foot
- Tractor, sprayer, other farm equipment
- Buildings for packing, storage, equipment
- Electric hookup
- Orchard planting

*Sample estimates. Actual costs will vary.

YIELDS

Marketable yield per acre depends on...

- Crop & variety selected
- Plant spacing
- Orchard management
- Growing conditions
- Tree age
- Fruit quality & packout rate



Harvest & post-harvest costs depend on yield.

PRICES

Prices depend on...

- Market level & channel (what type of price)
 - Your choice of how/where to sell
- Consumer demand at place and time
 - Product quality & perceived attributes
 - Promotion
- Product supply at place and time

...also your market power and the quantity you need to sell.



Fresh Fruit Price Chain	Example Values (per pound)
Retail price	\$2.00
Retail margin	\$0.80
Wholesale price	\$1.20
Wholesale margin	\$0.30
FOB packinghouse price	\$0.90
Packing charges	\$0.30
Packinghouse door (PHD) price	\$0.60
Picking & hauling costs	\$0.15
On-tree (EOT) value	\$0.45

Higher prices and higher marketing costs



Lower prices and lower marketing costs

*These values serve as examples only. Actual values will vary.

PROFITABILITY

Profitability for any crop...

- will vary by farm and year.
- depends on your management and marketing choices.
- depends on forces outside your control.
- is a function of costs, marketable yields, and prices over time.



Annual Profit = (Marketed Quantity x Average Price) – Costs

Net present value = sum of discounted cash flows over multiple years.

Orchards are investments that may not generate a return for several years.

INVESTMENT ANALYSIS

Investment analysis evaluates the favorability of an investment when costs and revenues accrue unevenly over several years.

Payback period: the number of years it takes for cumulative revenues to exceed cumulative costs.

Net present value: the sum of discounted net cash revenue over a multi-year period.

Internal rate of return: the discount rate that makes the net present value equal zero.

SATSUMA COSTS

Initial investment estimates (not including land purchase):*

- Land prep, electric hookup, well & pump, irrigation system, machinery & equipment, etc.: \$18,000 per acre, based on 10-acre grove.
- First-year grove establishment cost: \$3,198 per acre

*Initial investment cost could be lower if some infrastructure & equipment are already in place.

Annual mature grove cost estimates:*

- Grove care operating cost: \$2,163 per acre
- Grove establishment capital recovery: \$1,292 per acre
- Fixed production overhead: \$1,297 per acre

*Not including land charge or picking and hauling costs.



Source: Athearn et al. 2017. Satsuma Mandarin Budget and Profitability Analysis for North Florida. UF/IFAS.

SATSUMA PRICES

Market Level	Reported Prices (\$/lb)
Retail, Southeast supermarkets, sold by pound, 2022-23 ¹	\$1.50
Retail, National supermarkets, sold in 3-lb bags, Oct 2022 to Jan 2023 ¹	\$1.61
Wholesale, FL-GA origin sold in 4/5 bushel cartons, Nov 2023 to Jan 2024 ¹	\$0.54 - \$0.72
On-tree, FL tangerines & mandarins 2023-2024 ²	\$0.46



¹Data source: USDA Agricultural Marketing Service

²Data source: USDA-NASS, Citrus Fruits Summary

SATSUMA YIELDS & REVENUE

Sample estimates for North Florida satsuma*

Year after planting:	4	5	6	7	8	9-30
Gross yield (lbs/acre)	7,480	14,795	21,815	28,800	35,620	46,631
#1 fresh fruit (lbs/acre)	2,992	6,658	10,908	15,840	21,372	30,310
PHD sales revenue (\$/acre)	\$1,683	\$3,617	\$5,726	\$8,122	\$10,686	\$14,899
Picking & hauling cost (\$/acre)	\$898	\$1,775	\$2,618	\$3,456	\$4,274	\$5,596
On-tree revenue (\$/acre)	\$785	\$1,842	\$3,109	\$4,666	\$6,412	\$9,303

*Actual yields, costs and revenues will vary.

Source: Athearn et al. 2017. Satsuma Mandarin Budget and Profitability Analysis for North Florida. UF/IFAS.

SATSUMA SUMMARY

High potential return, but also high risk

Payback period likely more than 10 years, even without major impacts from freeze, disease, or hurricanes.

North Florida and South Georgia satsuma production is increasing.

Can satsuma markets expand to absorb increasing supply?

Potential for other cold-hardy specialty citrus varieties.



Source: Athearn et al. 2017. Satsuma Mandarin Budget and Profitability Analysis for North Florida. UF/IFAS.

BLUEBERRY COSTS

Initial investment estimates for southern highbush blueberry:*

- Machinery, well & pump, and irrigation/fertigation/freeze protection systems: \$19,600 per acre, based on 20-acre orchard.
- First-year establishment cost: \$12,500 per acre

*Does not include cost of purchasing land. Initial investment cost could be lower if some infrastructure & equipment are already in place.

Annual mature orchard cost estimates:*

- Total variable costs: \$5,603 per acre
- Total fixed costs: \$3,425 per acre

*Not including land charge, harvesting, cooling, marketing, and brokerage costs.



Source: Singerman et al. 2016. Establishment and Production Costs for Southern Highbush Blueberry Orchards in Florida: Enterprise Budget and Profitability Analysis. UF/IFAS.

BLUEBERRY PRICES

Market Level	Reported Prices (\$/lb)
Retail, Southeast, 2023 average weekly, not organic in 1-pint containers ¹	\$2.70 - \$4.87
Wholesale, Atlanta, 2023, 12-pint flats ¹	\$1.83 - \$4.80
FOB shipping point, Florida 2024, not organic 12-pint flats ¹	\$0.91 - \$4.37
FL grower price, 2023 average ²	\$3.50



¹Data source: USDA Agricultural Marketing Service

²Data source: USDA Economic Research Service

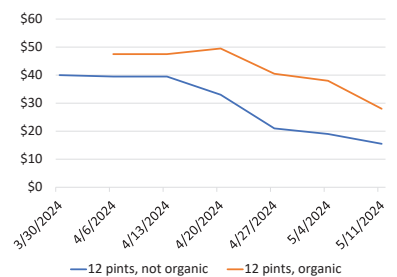
BLUEBERRY PRICES

Season average grower price (\$/lb)¹

Year	Florida	Georgia
2018	\$2.96	\$1.64
2019	\$2.64	\$1.41
2020	\$2.56	\$1.44
2021	\$3.03	\$1.26
2022	\$3.21	\$1.63
2023	\$3.50	\$1.58

¹Data source: USDA-NASS

Florida blueberry shipping point prices, 2024²



²Data source: USDA-AMS

BLUEBERRY YIELDS

Average statewide reported blueberry yields (2018-2023):¹

- Florida annual averages: 3,650 to 4,740 lbs/acre
- Georgia annual averages: 3,560 to 5,700 lbs/acre

Peak yields for mature SHB blueberry: 6,000 to 8,000 lbs/acre²



¹Source: USDA-National Agricultural Statistics Service (NASS).

²Source: Singerman et al. 2016. Establishment and Production Costs for Southern Highbush Blueberry Orchards in Florida.

BLUEBERRY YIELDS & REVENUE

Sample estimates for southern highbush in Florida*

Year:	1	2	3	4-7	8	9	10
Marketable yield (lbs/acre)	0	2,000	4,000	7,000	6,790	6,586	6,389
FOB sales revenue (\$/acre)	0	7,400	14,800	25,900	25,123	24,368	23,639
Harvesting, marketing, brokerage cost (\$/acre)	0	4,503	9,005	15,759	15,286	14,828	14,383
On-bush revenue (\$/acre)	0	2,897	5,795	10,141	9,837	9,540	9,256

*Based on FOB price of \$3.70. Average grower prices have been lower than that the last few years. Actual yields, costs and revenues will vary.

Source: Singerman et al. 2016. Establishment and Production Costs for Southern Highbush Blueberry Orchards in Florida: Enterprise Budget and Profitability Analysis. UF/IFAS.

BLUEBERRY SUMMARY

Southern Highbush: higher cost and higher revenue potential

Rabbiteye: lower cost and lower revenue potential

Import competition has reduced profitability for FL growers.

U-pick is a popular marketing option for both SHB and Rabbiteye.



ELDERBERRY COSTS

Initial investment estimates (not including land purchase):*

- Well & pump, irrigation, machinery & equipment, storage & packing buildings, destemmer, freezer, etc.: \$21,900 per acre, based on 3-acre orchard.
- First-year orchard establishment cost:** \$11,900 per acre

*Initial investment cost could be lower if some infrastructure & equipment are already in place.

**Using organic management practices.

Annual mature orchard cost estimates:*

- Orchard operating cost, organic: \$6,059 per acre
- Orchard establishment capital recovery: \$1,996 per acre
- Fixed production overhead: \$2,033 per acre

*Not including land charge, harvesting or postharvest handling costs.

Source: Athearn, Jarnagin, Sarkhosh, Popenoe, & Sargent. 2021. Elderberry and Elderflower (*Sambucus* spp): Markets, Establishment Costs, and Potential Returns. UF/IFAS.



ELDERBERRY PRICES

Berries and flowers are marketable.

Florida markets are not well established.

Wide range of anecdotal prices in US:

- Fresh or frozen berries: \$0.50/lb with stems on to winery up to \$11/lb to nutraceutical manufacturer
- Dried berries: \$20/lb to \$31/lb online retail
- Dried flowers: \$4.10/oz to \$4.40/oz online retail

Source: Athearn, Jarnagin, Sarkhosh, Popenoe, & Sargent. 2021. Elderberry and Elderflower (*Sambucus* spp): Markets, Establishment Costs, and Potential Returns. UF/IFAS.



ELDERBERRY YIELD & REVENUE

Sample estimates for Florida elderberry and elderflower*

Year:	1	2	3	4	5	6-20
Berry yield (lbs/acre)	0	250	1,000	2,500	4,000	4,500
Flower yield (bunches/acre)	0	0	30	60	90	120
Gross sales revenue (\$/acre)	\$0	\$788	\$3,390	\$8,355	\$13,320	\$15,135
Harvest & postharvest cost (\$/acre)	\$0	\$246	\$1,068	\$2,642	\$4,216	\$4,792
On-tree revenue (\$/acre)	\$0	\$542	\$2,322	\$5,713	\$9,104	\$10,343

*Actual yields, costs, & revenues will vary.

Source: Athearn, Jarnagin, Sarkhosh, Popenoe, & Sargent. 2021. Elderberry and Elderflower (*Sambucus* spp): Markets, Establishment Costs, and Potential Returns. UF/IFAS.

ELDERBERRY SUMMARY

Profit potential and industry development depend on...

- developing varieties/cultivars well suited for FL commercial production.
- effective orchard management practices for FL conditions.
- markets for frozen, dried, or processed products.
- postharvest handling and processing into high-value products.



Photo credits: Hyldeemoer + Co.

PERSIMMON PRICES

Market Level	Sample Reported Prices
Retail (2022)	\$1.50 - \$3.00/lb \$1.00 - \$3.00 each
Wholesale (2023)	\$1.45 - \$2.18/lb \$0.92 - \$1.50 each
FOB shipping point (2023)	\$1.36 - \$2.09/lb \$0.62 - \$1.43 each



Data source: USDA Agricultural Marketing Service

PERSIMMON YIELDS

California statewide average: 11,662 lbs/acre (2012)

Mature orchard yield is higher.

Trees take up to 10 years to reach full production.



Source: UC-Davis, Fruit & Nut Research & Information Center.

RISK

Three main ways to manage risk:

1. Adjust production & marketing plans to reduce risk
2. Increase financial reserves or internal capacity to bear risk
3. Transfer risk through insurance or contracting

USDA-backed insurance options:

- Micro farm program
- Whole-farm revenue protection
- Crop-specific insurance



Suitability

The suitability of a crop for you may depend on...

- Your location, soil, climate, infrastructure
- Initial investment required
- Number of years before a return
- Level of risk
- Management intensity (e.g., pest control, freeze protection, labor)
- Marketing &/or processing
- Your knowledge, skill, preferences, & competitive advantages

"Your uniqueness is the only source of profitability that cannot be competed away, and thus, is the only source of sustainable profits."

-- Dr. John Ikerd

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