

Costs and Potential Returns for Selected Orchard Crops

Orchard Field Day 2023

Kevin Athearn, PhD

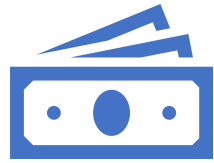
North Florida REC-Suwannee Valley



OVERVIEW



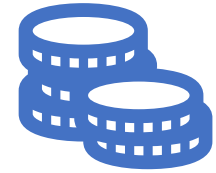
Profitability



Price



Yield



Cost



Satsuma



Blueberry



Persimmon



Elderberry

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 prices, marketable yields, and costs over time.



$\text{Profit} = (\text{Marketed Quantity} \times \text{Average Price}) - \text{Costs}$

Net present value = discounted sum of profits over multiple years.

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

RISK

Uncertainty and risk associated with orchard crops.

Types of risk:

- production
- market
- financial
- legal
- personal

Risk-return tradeoff

What is your risk tolerance?

How will you manage risks?



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	\$1.50
Retail margin	\$0.70
Wholesale price	\$0.80
Wholesale margin	\$0.20
FOB packinghouse price	\$0.60
Packing charges	\$0.20
Packinghouse door (PHD) price	\$0.40
Picking & hauling costs	\$0.15
On-tree (EOT) value	\$0.25

Higher prices and
higher marketing costs



Lower prices and
lower marketing costs

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

YIELDS

Marketable yield per acre depends on...

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

These factors also affect costs.

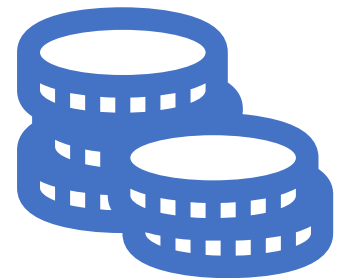


COSTS

Costs may include...

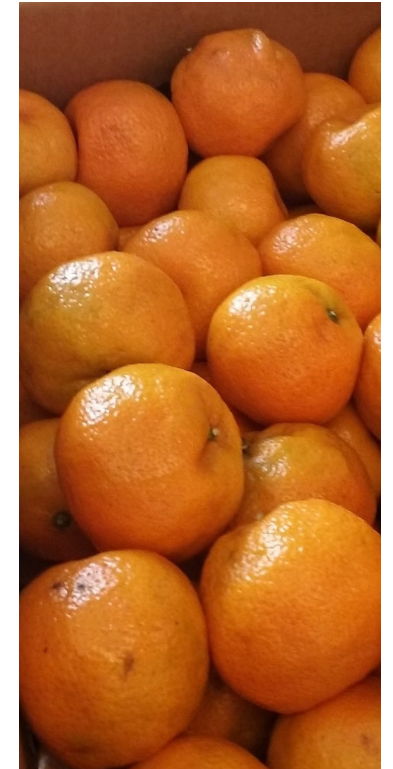
- Land, buildings, equipment
- Orchard establishment
- Annual grove care costs
- Harvesting
- Post-harvest & marketing costs

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



SATSUMA PRICES

Market Level	Reported Prices (\$/lb)
Retail, CA satsumas ¹	\$1.67 - \$3.65
Retail, FL-GA satsumas ¹	\$1.50
Wholesale, FL-GA satsumas ¹	\$0.55 - \$0.76
Packinghouse door, FL satsumas ²	\$0.40 - \$0.70



¹Source: USDA Agricultural Marketing Service, 2022-2023

²Source: Anecdotal, 2017-2022

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 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.

SATSUMA SUMMARY

High potential return, but also high risk

Payback period likely 10+ years, even without major impacts from freeze or disease.

North Florida and South Georgia satsuma production is increasing.

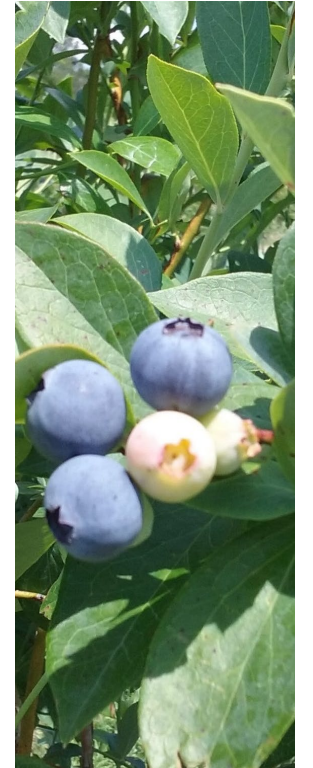
Can satsuma markets expand to absorb increasing supply?

Potential for other cold-hardy specialty citrus varieties.



BLUEBERRY PRICES

Market Level	Reported Prices (\$/lb)
Retail, southeast ¹	\$3.83 - \$6.13
Wholesale ¹	\$2.30 - \$6.39
FOB shipping point ¹	\$2.30 - \$5.62
FL grower price, 2021 average ²	\$3.03



¹Source: USDA Agricultural Marketing Service, 2022-2023

²Source: USDA Economic Research Service

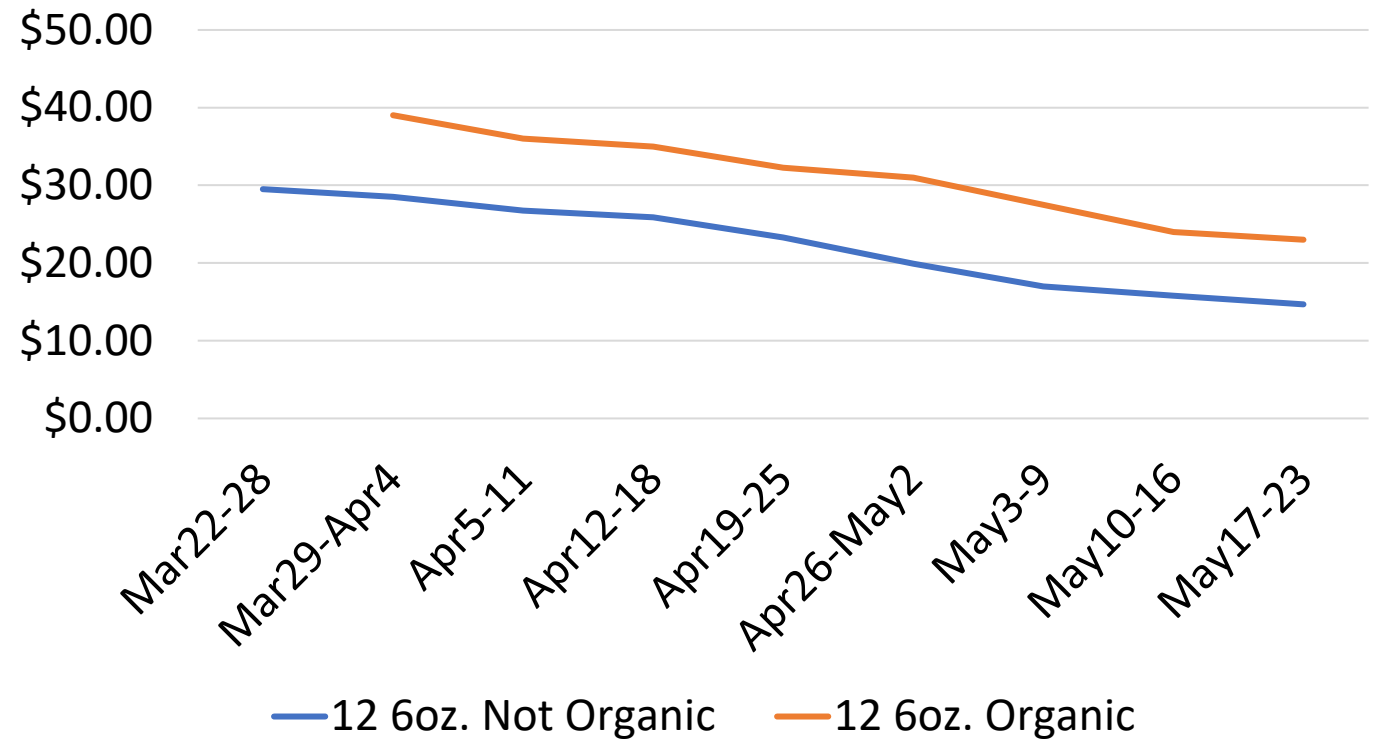
BLUEBERRY PRICES

Season average grower price (\$/lb)¹

Year	Florida	Georgia
2017	\$4.23	\$2.42
2018	\$2.96	\$1.64
2019	\$2.64	\$1.41
2020	\$2.56	\$1.44
2021	\$3.03	\$1.26

¹Source: USDA-ERS Fruit & Tree Nuts Yearbook Tables

Florida Shipping Point Prices
(2014-2018 Average Weekly)²



²Source: USDA-AMS Run a Custom Report

BLUEBERRY YIELDS

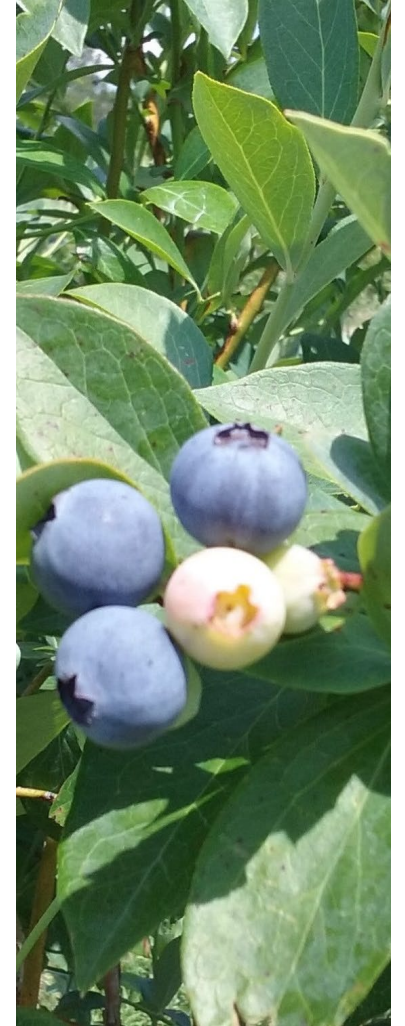
Average statewide reported blueberry yields, utilized (2012-2020):¹

- Florida annual averages: 3,110 to 4,790 lbs/acre
- Georgia annual averages: 3,730 to 5,700 lbs/acre

Peak yields reported for 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 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 SUMMARY

Southern Highbush: higher cost and higher revenue potential

Rabbiteye: lower cost and lower revenue potential

Low prices the last few years have reduced profitability for FL growers.

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



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 et al. 2021. Elderberry and Elderflower (*Sambucus* spp): Markets, Establishment Costs, and Potential Returns. UF/IFAS.



Photo credits:
Hyldemoer + Co.

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 et al. 2021. Elderberry and Elderflower (*Sambucus* spp): Markets, Establishment Costs, and Potential Returns. UF/IFAS.

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 et al. 2021. Elderberry and Elderflower (*Sambucus* spp): Markets, Establishment Costs, and Potential Returns. UF/IFAS.

ELDERBERRY SUMMARY

Uncertain as a new commercial crop in Florida.

Profit potential depends 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: Hyldemoer + Co.

PERSIMMON PRICES

Market Level	Reported Prices
Retail	\$1.50 - \$3.00/lb \$1.00 - \$3.00 each
Wholesale	\$1.36 - \$2.72/lb \$0.68 - \$1.86 each
FOB shipping point	\$0.84 - \$1.24/lb \$1.00 each



Source: USDA Agricultural Marketing Service, 2022

PERSIMMON YIELDS

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

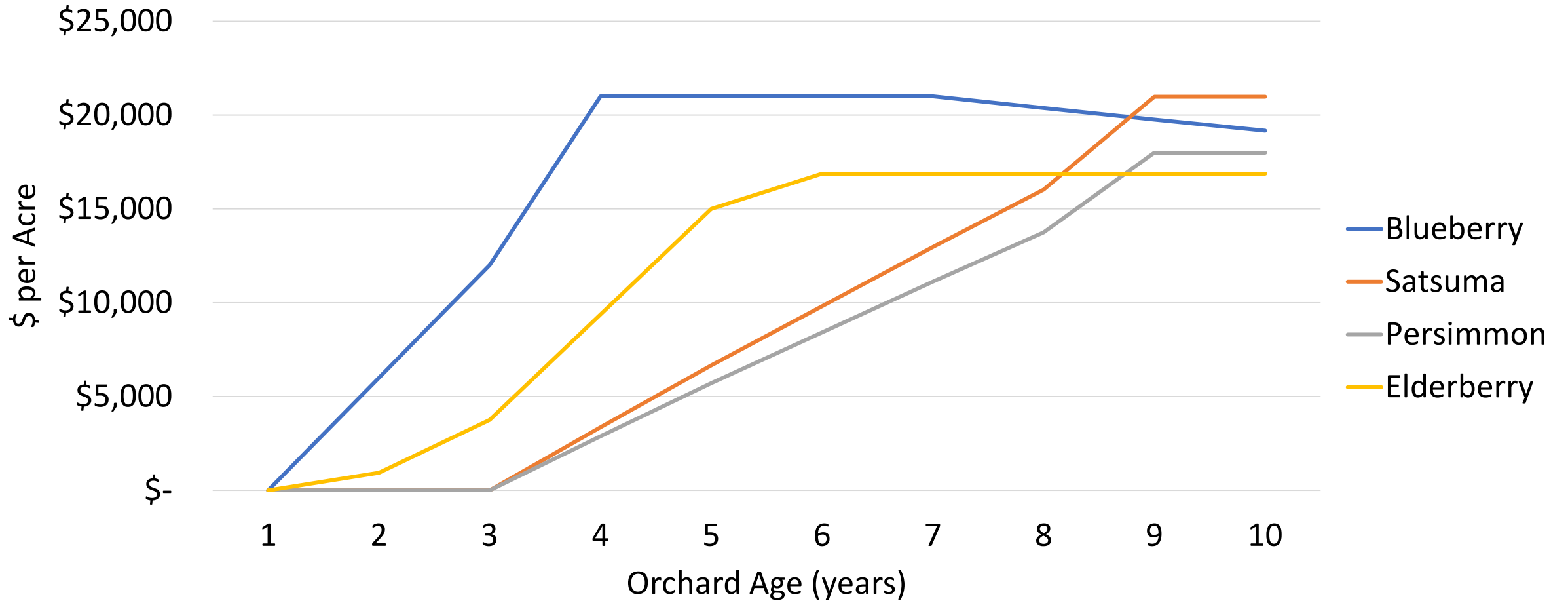
Mature orchard yield is higher.

Trees take up to 10 years to reach full production.



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

Potential Gross FOB Revenue per Acre*



*Sample estimates. Actual gross revenue will vary. Also, consider costs and risks.

COMPETITIVE ADVANTAGE

“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

What is Florida's/your competitive advantage?

- Lower cost?
- Product quality?
- Product differentiation?
- Season/market timing?
- Location?



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