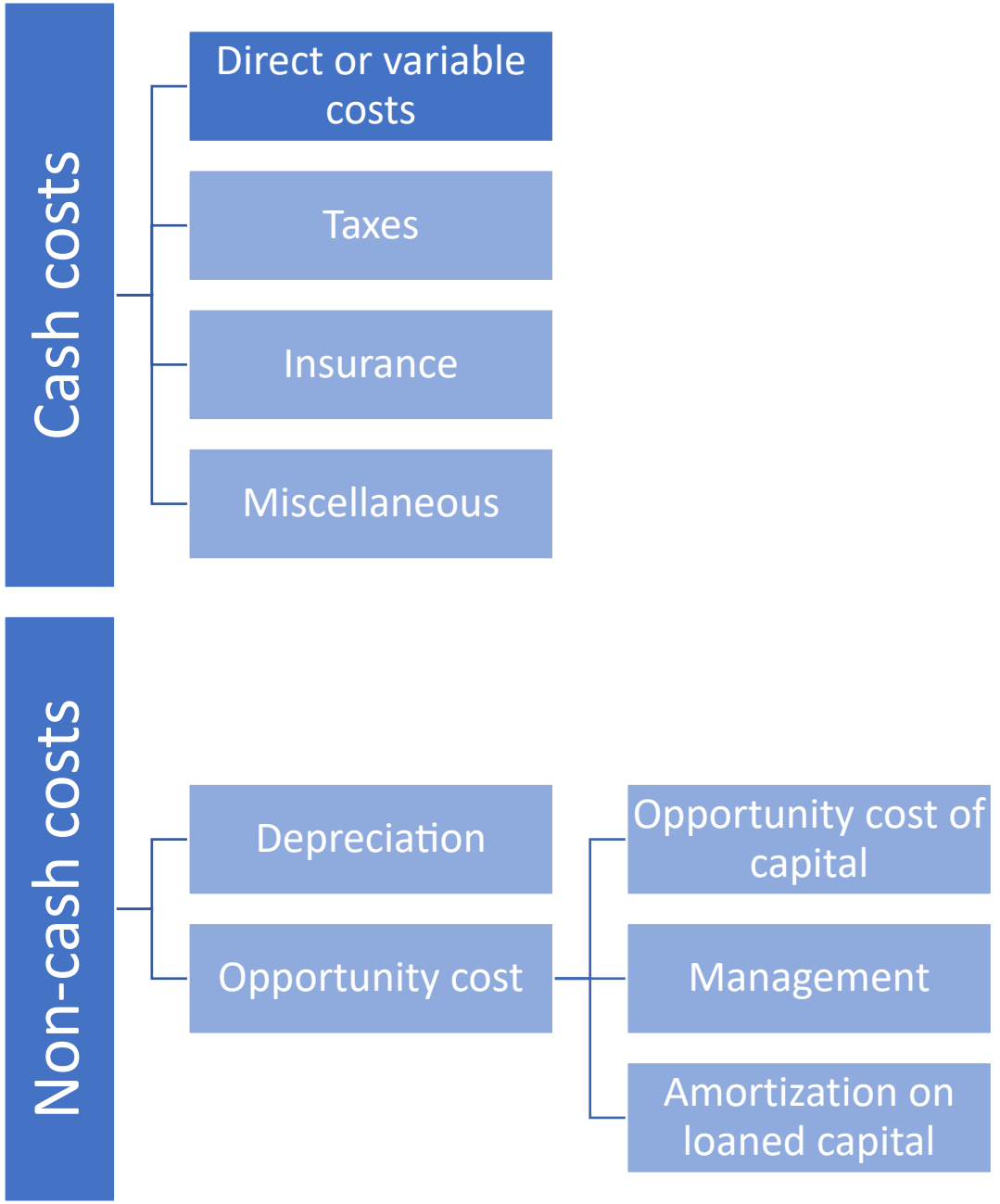
WASHINGTON STATE UNIVERSITY

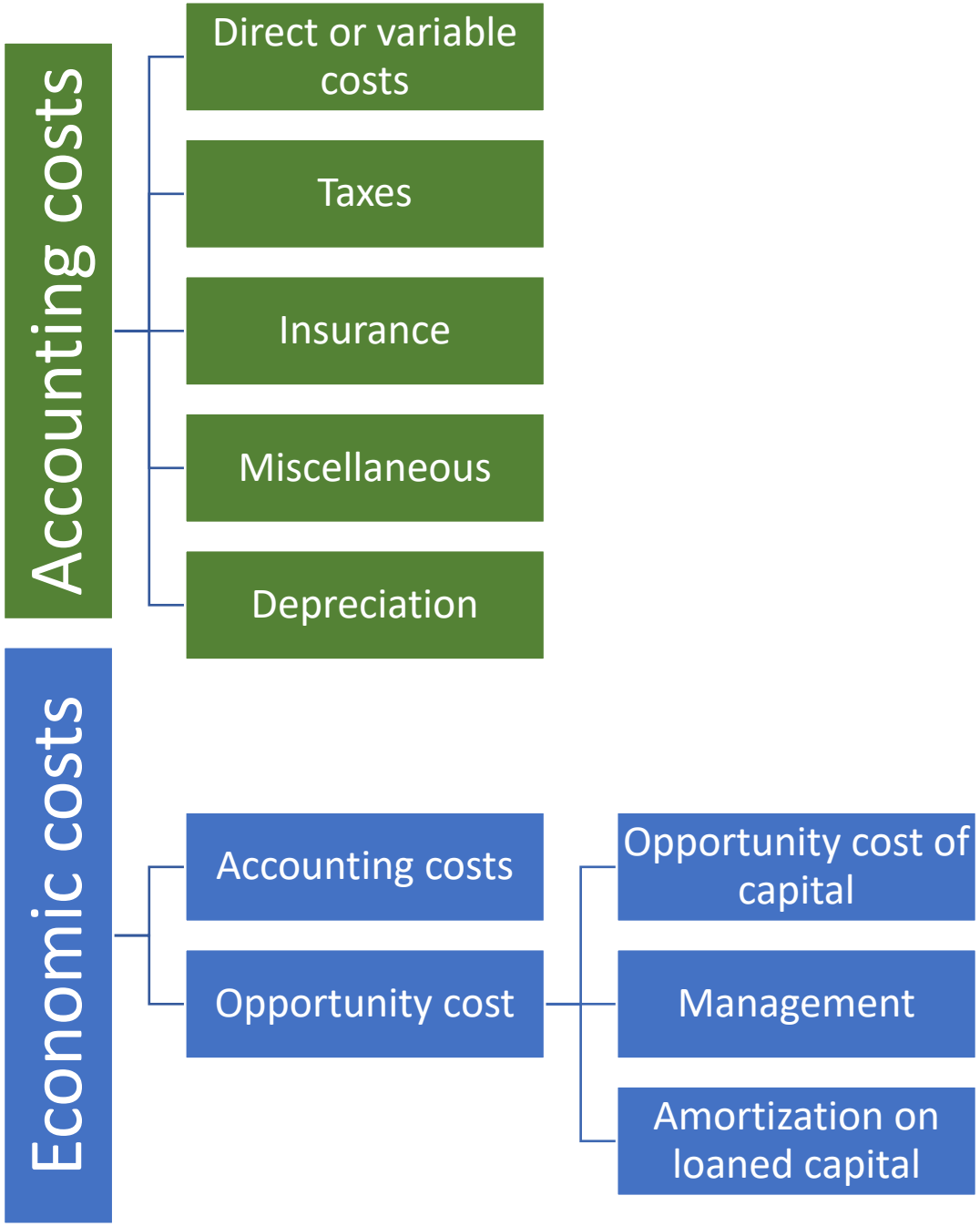
# Sweet Cherry Cost of Production Updates

R. Karina Gallardo
Suzette P. Galinato

# Production costs



# Net returns = Total returns - Total costs



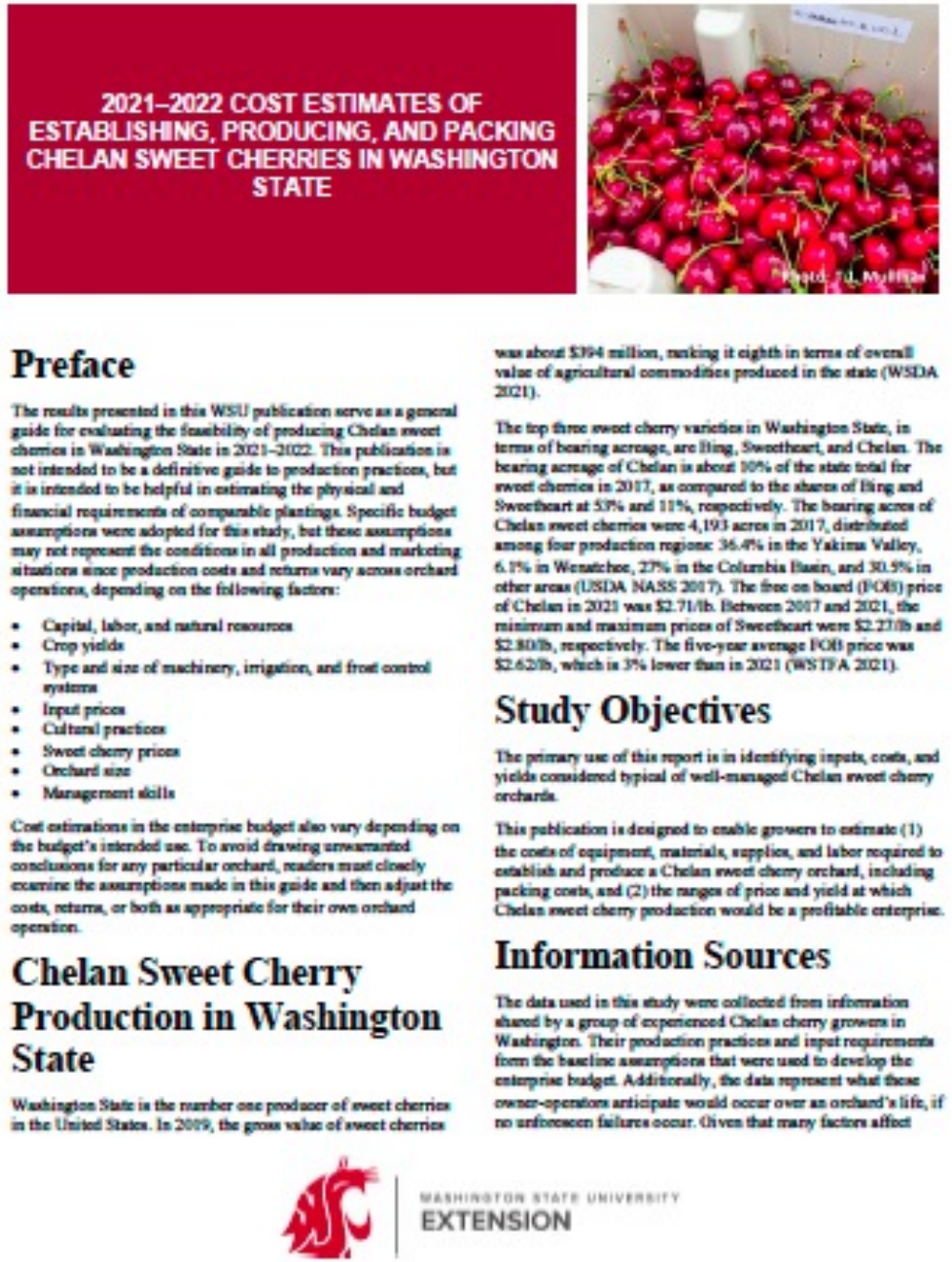
# Production costs

- Profits are not always > 0
  - Yield and price variability
- Short-term economic situation
  - Variable costs and cash costs
- Long-term economic situation
  - Cash and non-cash costs

Source: WSFC – Northwest Cherries

# WSU Sweet Cherry Enterprise Budgets

- 2009
- 2015
- 2021
- Update 2022- 4 varieties:
  - Chelan
  - Skeena
  - Coral Champagne
  - Sweetheart



2021–2022 COST ESTIMATES OF ESTABLISHING, PRODUCING, AND PACKING CHELAN SWEET CHERRIES IN WASHINGTON STATE

## Preface

The results presented in this WSU publication serve as a general guide for evaluating the feasibility of producing Chelan sweet cherries in Washington State in 2021–2022. This publication is not intended to be a definitive guide to production practices, but it is intended to be helpful in estimating the physical and financial requirements of comparable plantings. Specific budget assumptions were adopted for this study, but these assumptions may not represent the conditions in all production and marketing situations since production costs and returns vary across orchard operations, depending on the following factors:

- Capital, labor, and natural resources
- Crop yields
- Type and size of machinery, irrigation, and frost control systems
- Input prices
- Cultural practices
- Sweet cherry prices
- Orchard size
- Management skills

Cost estimations in the enterprise budget also vary depending on the budget's intended use. To avoid drawing unwarranted conclusions for any particular orchard, readers must closely examine the assumptions made in this guide and then adjust the costs, returns, or both as appropriate for their own orchard operation.

## Chelan Sweet Cherry Production in Washington State

Washington State is the number one producer of sweet cherries in the United States. In 2019, the gross value of sweet cherries was about $394 million, ranking it eighth in terms of overall value of agricultural commodities produced in the state (WSDA 2021).

The top three sweet cherry varieties in Washington State, in terms of bearing acreage, are Bing, Sweetheart, and Chelan. The bearing acreage of Chelan is about 10% of the state total for sweet cherries in 2017, as compared to the shares of Bing and Sweetheart at 53% and 11%, respectively. The bearing acres of Chelan sweet cherries were 4,193 acres in 2017, distributed among four production regions: 36.4% in the Yakima Valley, 6.1% in Wenatchee, 27% in the Columbia Basin, and 30.5% in other areas (USDA NASS 2017). The free on board (FOB) price of Chelan in 2021 was $2.71/lb. Between 2017 and 2021, the minimum and maximum prices of Sweetheart were $2.27/lb and $2.80/lb, respectively. The five-year average FOB price was $2.62/lb, which is 3% lower than in 2021 (WSTFA 2021).

## Study Objectives

The primary use of this report is in identifying inputs, costs, and yields considered typical of well-managed Chelan sweet cherry orchards.

This publication is designed to enable growers to estimate (1) the costs of equipment, materials, supplies, and labor required to establish and produce a Chelan sweet cherry orchard, including packing costs, and (2) the ranges of price and yield at which Chelan sweet cherry production would be a profitable enterprise.

## Information Sources

The data used in this study were collected from information shared by a group of experienced Chelan cherry growers in Washington. Their production practices and input requirements form the baseline assumptions that were used to develop the enterprise budget. Additionally, the data represent what these owner-operators anticipate would occur over an orchard's life, if no unforeseen failures occur. Given that many factors affect

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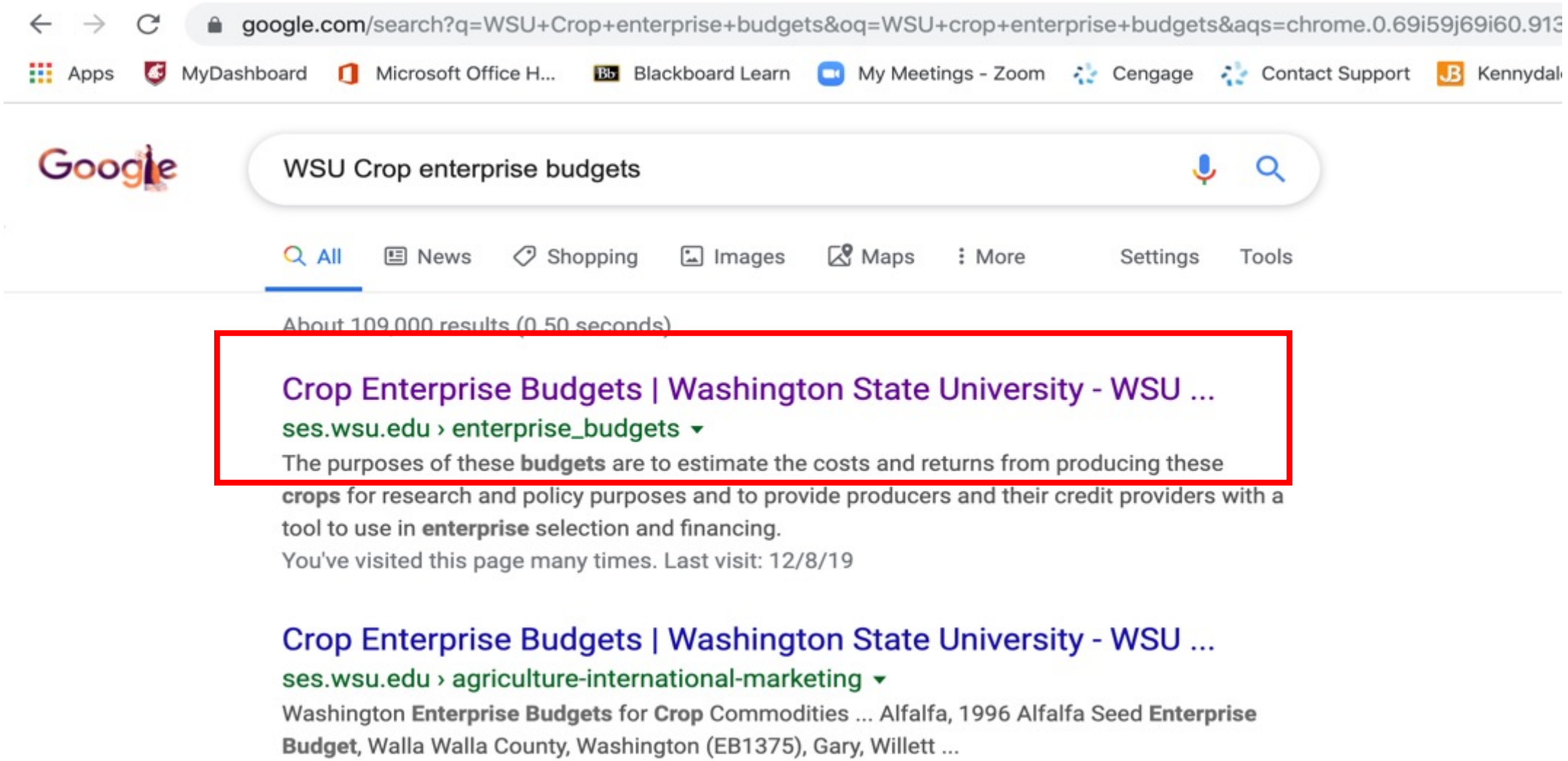
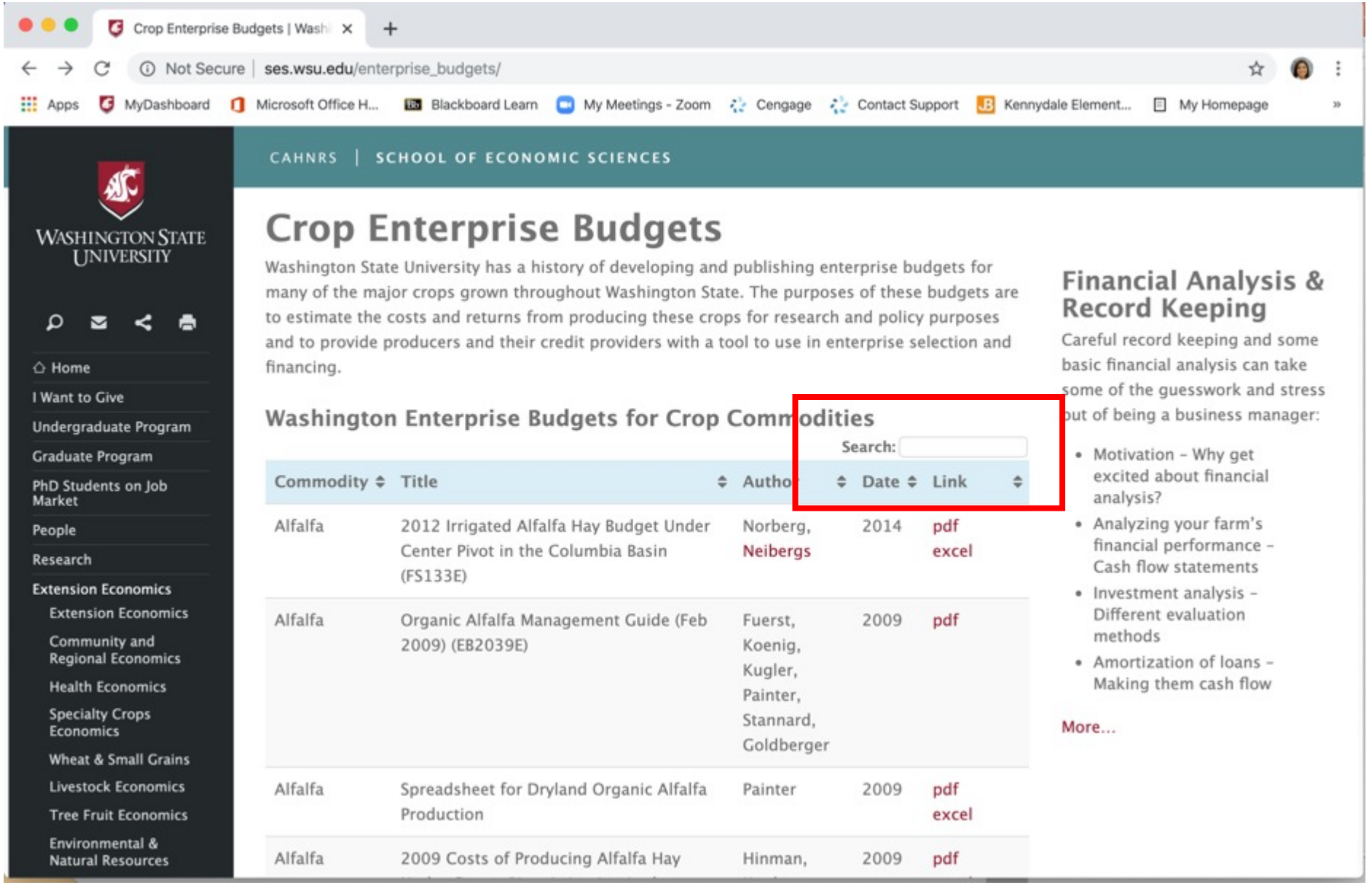
# How to find WSU Sweet Cherry Enterprise Budgets



# http://www.ses.wsu.edu/enterprise_budgets



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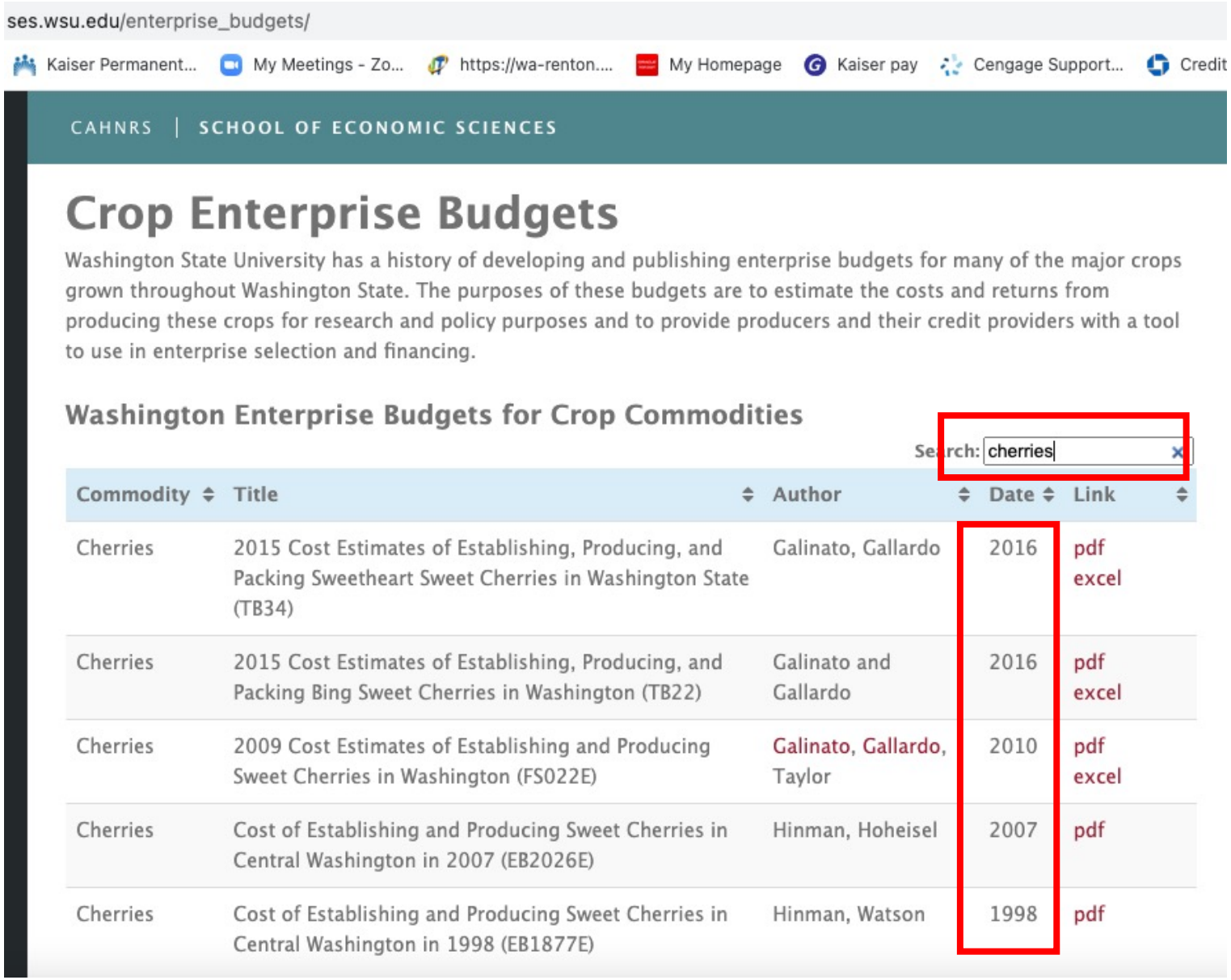

# WSU enterprise budgets – PDF & Excel

**2021–2022 COST ESTIMATES OF ESTABLISHING, PRODUCING, AND PACKING SWEETHEART SWEET CHERRIES IN WASHINGTON STATE**

## Preface

The results presented in this publication serve as a general guide for evaluating the feasibility of producing Sweetheart sweet cherries in Washington State in 2021–2022. This publication is not intended to be a definitive guide to production practices, but it is intended to be helpful in estimating the physical and financial requirements of comparable plantings. Specific budget assumptions were adopted for this study, but these assumptions may not represent the conditions in all production and marketing situations since production costs and returns vary across orchard operations, depending on the following factors:

- Capital, labor, and natural resources
- Crop yields
- Type and size of machinery, irrigation, and frost control systems
- Input prices
- Cultural practices
- Sweet cherry prices
- Orchard size
- Management skills

Cost estimations in the enterprise budget also vary depending on the budget's intended use. To avoid drawing unwarranted conclusions for any particular orchard, readers must closely examine the assumptions made in this guide and then adjust the costs, returns, or both as appropriate for their own orchard operation.

## Sweetheart Sweet Cherry Production in Washington State

Washington State is the number one producer of sweet cherries in the United States. In 2019, the gross value of sweet cherries was about $394 million, ranking it eighth in terms of overall value of agricultural commodities produced in the state (WSDA 2021).

Sweetheart is second to Bing in terms of acreage. In 2017, Sweetheart's share in the total bearing acreage of sweet cherries in Washington State was 11%, while Bing's share was 53%. The bearing acres of Sweetheart were 4,462 acres in 2017, distributed between two major production regions 40% in the Columbia Basin and 60% in the Wenatchee Valley (USDA NASS 2017). The free on board (FOB) price of Sweetheart in 2021 was $1.98/lb. Between 2017 and 2021, the minimum and maximum prices of Sweetheart were $1.49/lb and $2.81/lb, respectively. The five-year average FOB price is $2.03/lb, which is 2% higher than in 2021 (WSTFA 2021).

## Study Objectives

The primary use of this report is in identifying inputs, costs, and yields considered typical of well-managed Sweetheart sweet cherry orchards.

This publication is designed to enable growers to estimate (1) the costs of equipment, materials, supplies, and labor required to establish and produce Sweetheart sweet cherries, including packing costs, and (2) the ranges of price and yield at which Sweetheart sweet cherry production would be a profitable enterprise.

## Information Sources

The data used in this study were collected from information shared by a group of experienced Sweetheart cherry growers in Washington. Their production practices and input requirements form the baseline assumptions that were used to develop the enterprise budget. Additionally, the data represent what these owner-operators anticipate would occur over an orchard's life, if no unforeseen failures occur. Given that many factors affect production costs, packout, and returns, individual growers can

**Table 2. Cost and Returns per Acre of Establishing, Producing and Packing Sweetheart Sweet Cherries on a 12-Acre Block**

| | Establishment Years | | | | | Full Production[A] |
|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | |
| Estimated Net Production, Fresh (lb/acre)[B] | | | 1,600.00 | 8,000.00 | 14,400.00 | 19,200.00 |
| FOB Price, Fresh ($/lb)[C] | | | 2.05 | 2.05 | 2.05 | 2.05 |
| Estimated Net Production, Cull (lb/acre) | | | 400.00 | 2,000.00 | 3,600.00 | 4,800.00 |
| FOB Price, Cull ($/lb) | | | 0.04 | 0.04 | 0.04 | 0.04 |
| **Total Returns ($/acre)** | | | 3,296.00 | 16,480.00 | 29,664.00 | 39,552.00 |
| **Variable Costs ($/acre):** | | | | | | |
| Establishment | | | | | | |
| Soil Preparation | 2,439.52 | | | | | |
| Trees (including labor) | 3,900.00 | | | | | |
| Orchard Activities | | | | | | |
| Pruning & Training[D] | 108.80 | 456.96 | 609.28 | 783.36 | 1,218.56 | 870.40 |
| Green Fruit Thinning[D] | 0.00 | 0.00 | 0.00 | 0.00 | 435.20 | 435.20 |
| Irrigation Labor[E] | 115.05 | 161.07 | 161.07 | 207.09 | 207.09 | 207.09 |
| Chemicals[E,F] | 629.57 | 1,094.94 | 1,616.26 | 1,770.07 | 1,842.59 | 1,842.59 |
| Monitoring & Testing[G] | 66.00 | 66.00 | 206.00 | 206.00 | 206.00 | 228.00 |
| Fertilizer[E,F] | 84.89 | 170.00 | 254.89 | 284.26 | 284.26 | 284.26 |
| Frost Protection (Labor)[E] | | | 17.26 | 17.26 | 17.26 | 17.26 |
| Beehives | | | 114.00 | 114.00 | 114.00 | 114.00 |
| General Farm Labor[H] | 225.00 | 225.00 | 225.00 | 225.00 | 225.00 | 225.00 |
| Irrigation Water & Electric Charge | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 |
| Drying Cherries[I] | | | 350.00 | 350.00 | 350.00 | 350.00 |
| Harvest Activities[J] | | | | | | |
| Picking Labor | | | 500.00 | 2,500.00 | 4,500.00 | 6,000.00 |
| Other Labor (checkers, tractor drivers) | | | 100.00 | 500.00 | 900.00 | 1,200.00 |
| Hauling | | | 30.00 | 150.00 | 270.00 | 360.00 |
| Warehouse Packing Charges[K] | | | 1,200.00 | 6,000.00 | 10,800.00 | 14,400.00 |
| Maintenance and Repairs | | | | | | |
| Maintenance & Repair | 265.00 | 265.00 | 300.00 | 300.00 | 300.00 | 300.00 |
| Fuel & Lube | 240.00 | 270.00 | 280.00 | 320.00 | 360.00 | 360.00 |
| Other Variable Costs | | | | | | |

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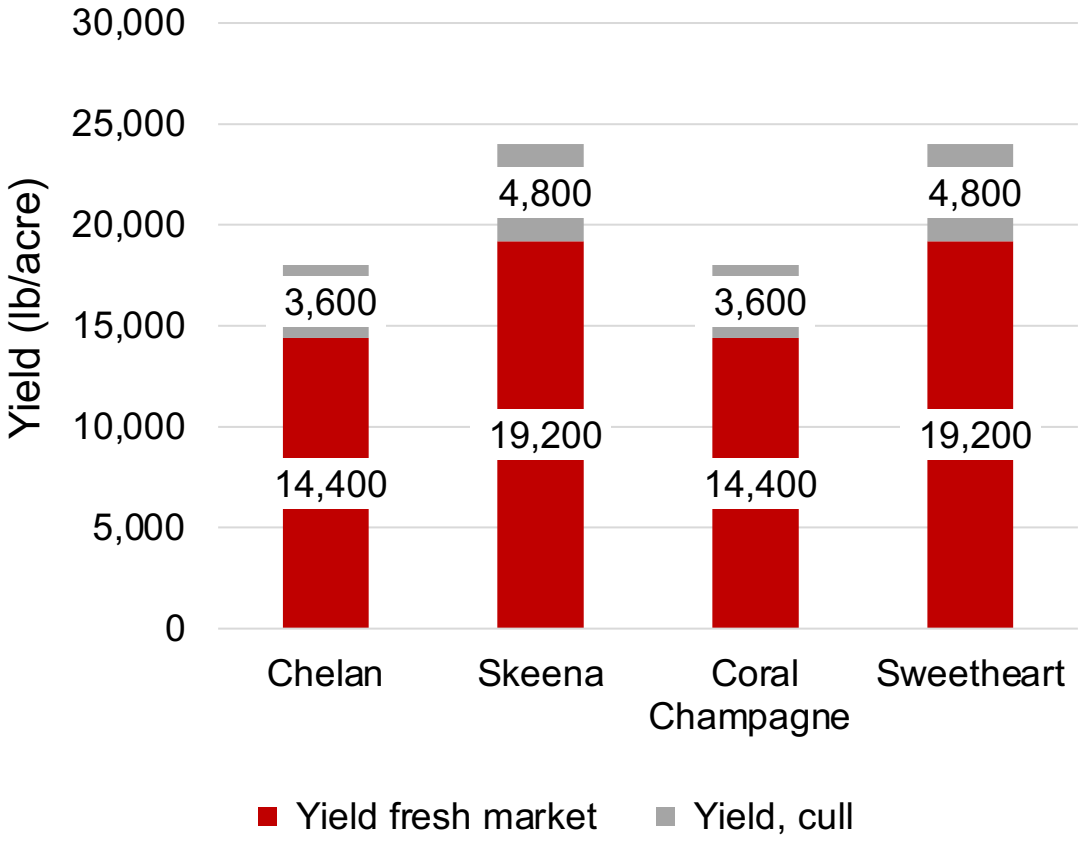
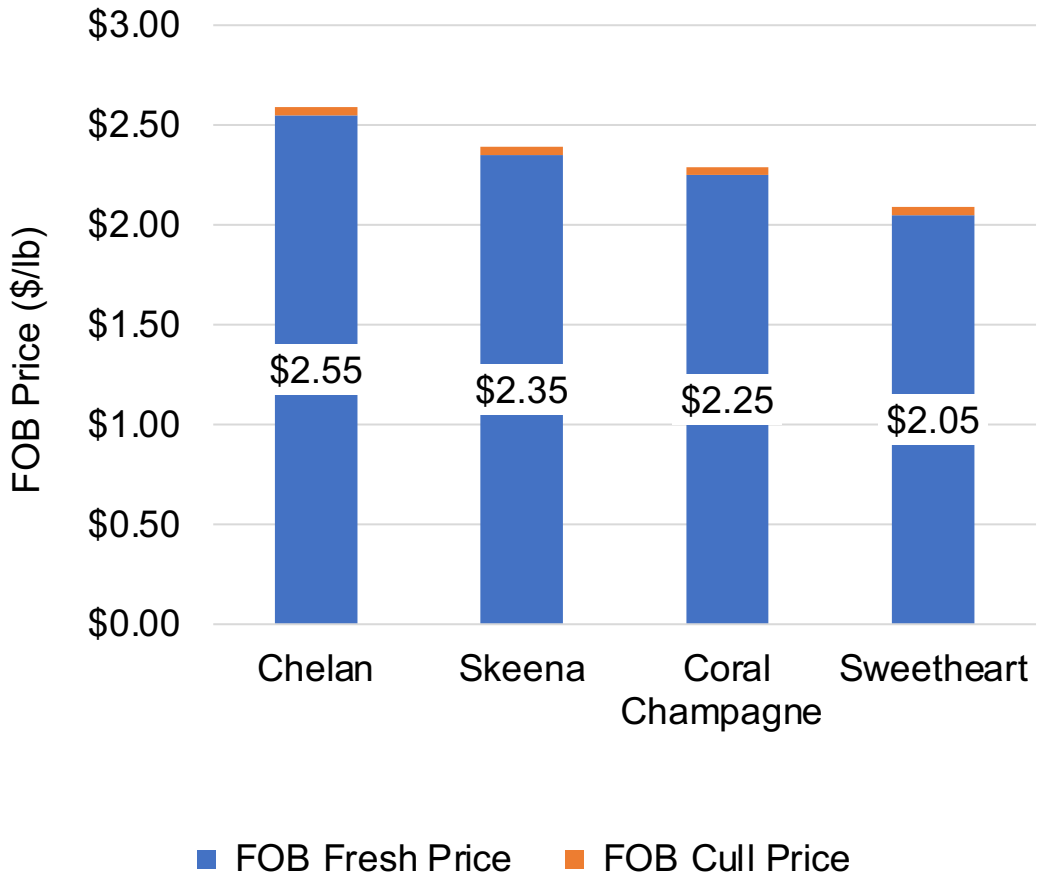
# WSU budgets are based on assumptions and data collected from a group of experienced growers

| | Chelan | Skeena | Coral Champagne | Sweetheart |
|---|---|---|---|---|
| Farm size (acre) | 300 | 300 | 300 | 300 |
| Productive block size (acre) | 12 | 12 | 8 | 12 |
| Gross yield full production (lb/acre) | 18,000 | 24,000 | 18,000 | 24,000 |
| Packout (%) | 80 | 80 | 80 | 80 |
| FOB price ($/lb) | 2.55 | 2.35 | 2.25 | 2.05 |
| In-row spacing (feet) | 6 | 6 | 6 | 10 |
| Bet. row spacing (feet) | 12 | 12 | 12 | 16 |
| Root stock | G12 | G12 | G12 | Mazzard |
| Life of planting (years) | 25 | 25 | 25 | 25 |
| Tree density (trees/acre) | 605 | 605 | 605 | 272 |
| Trellis system | Vertical trellis | | | No trellis |
| Block architecture | Central leader, three dimensional | | | |

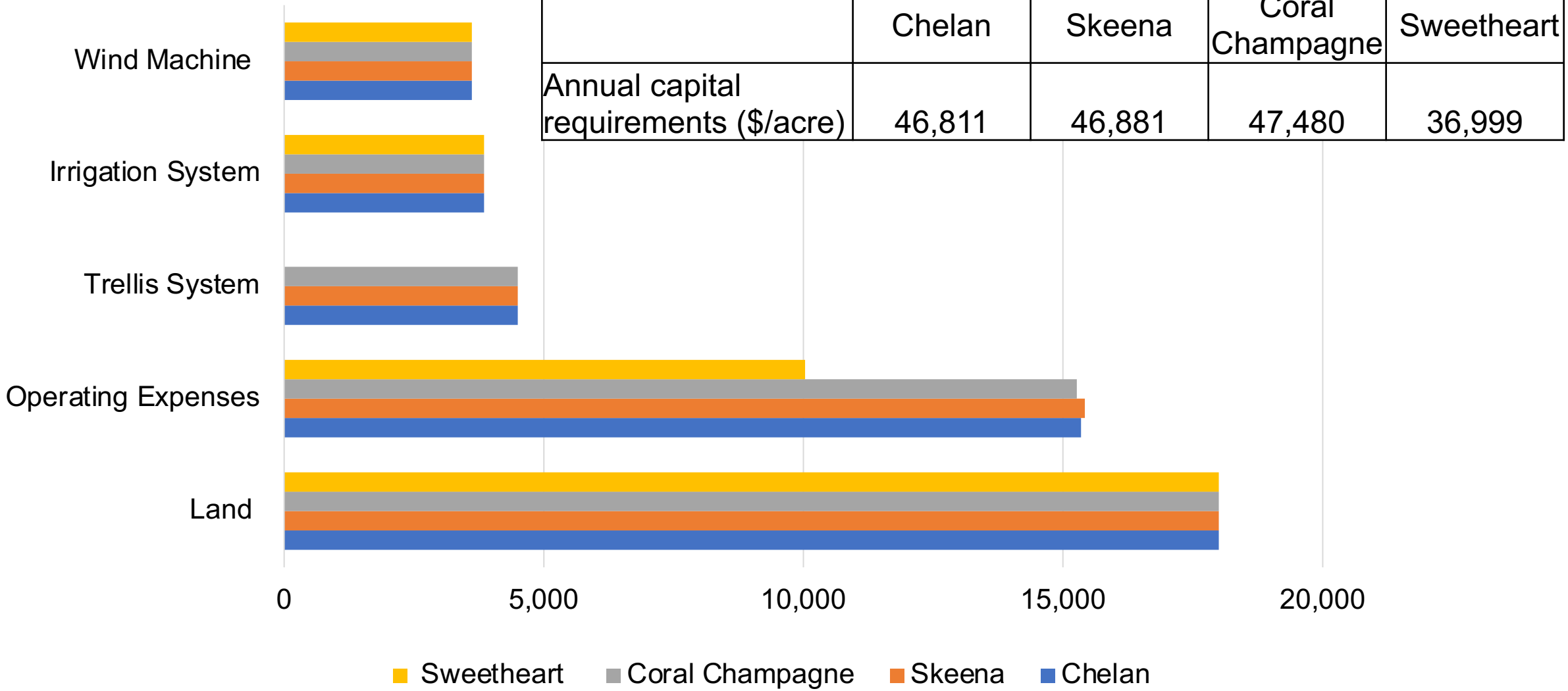
# 2022 sweet cherry yield and FOB prices during full production



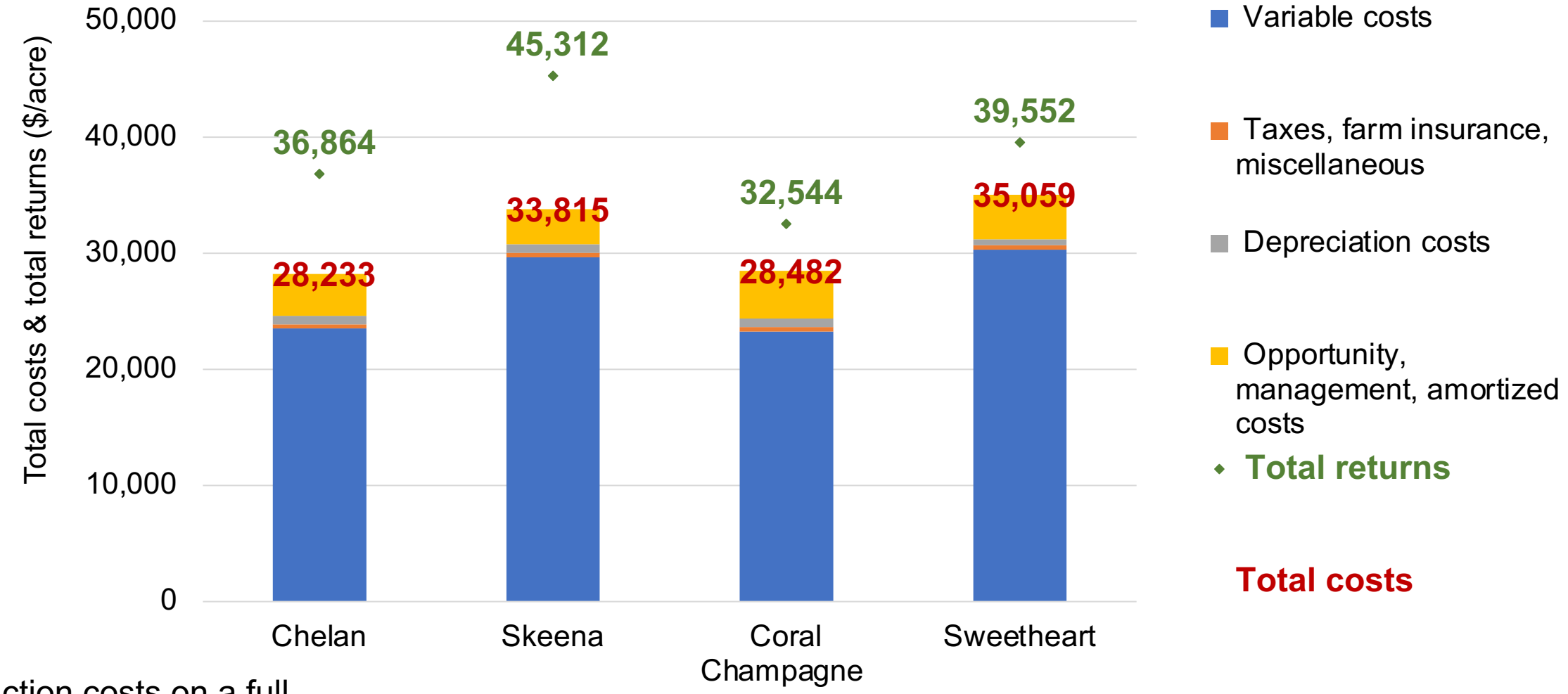



# Capital requirements, 2022

| | Chelan | Skeena | Coral Champagne | Sweetheart |
|---|---|---|---|---|
| Annual capital requirements ($/acre) | 46,811 | 46,881 | 47,480 | 36,999 |

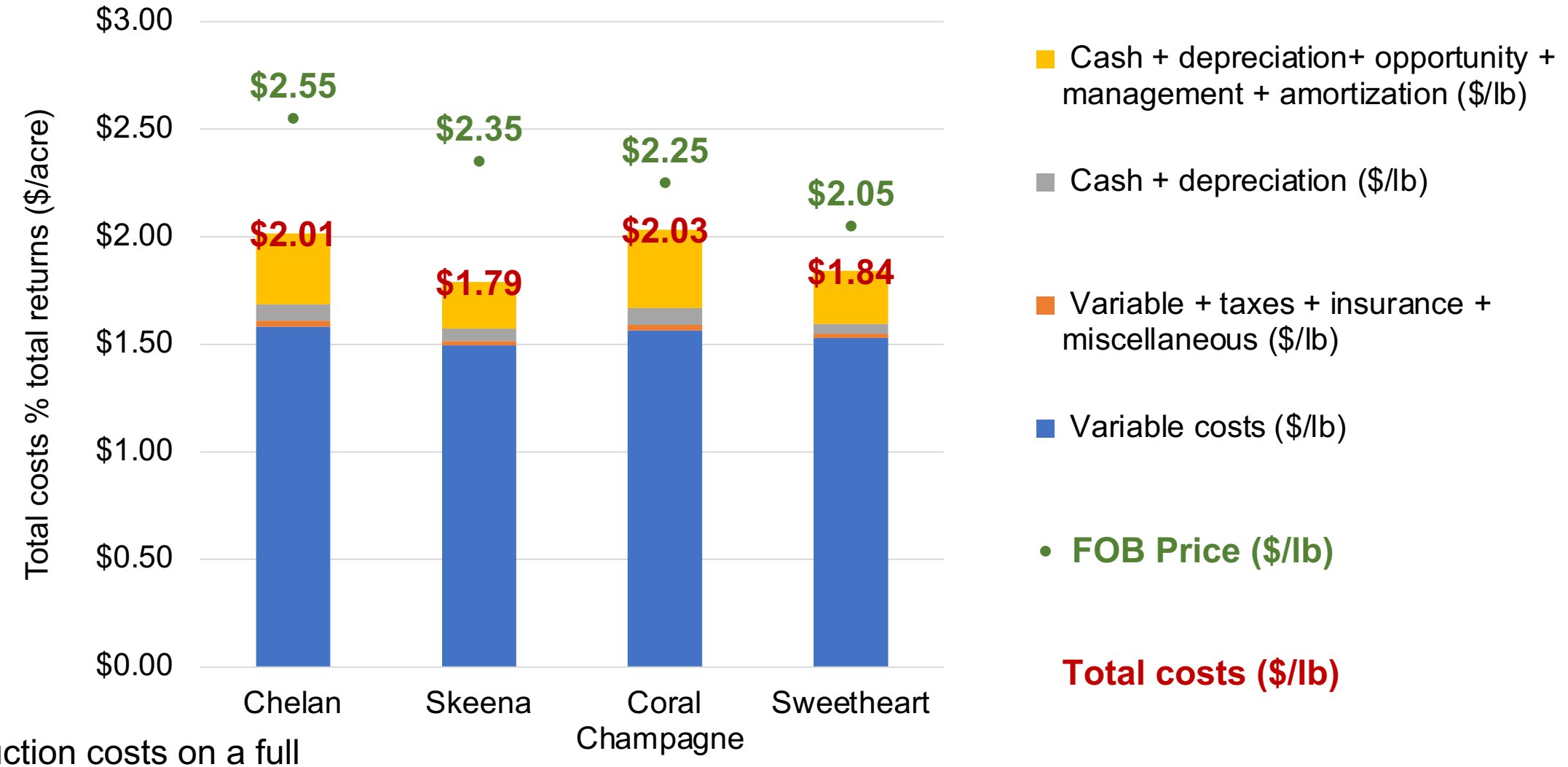


# Total returns versus total costs ($/acre)



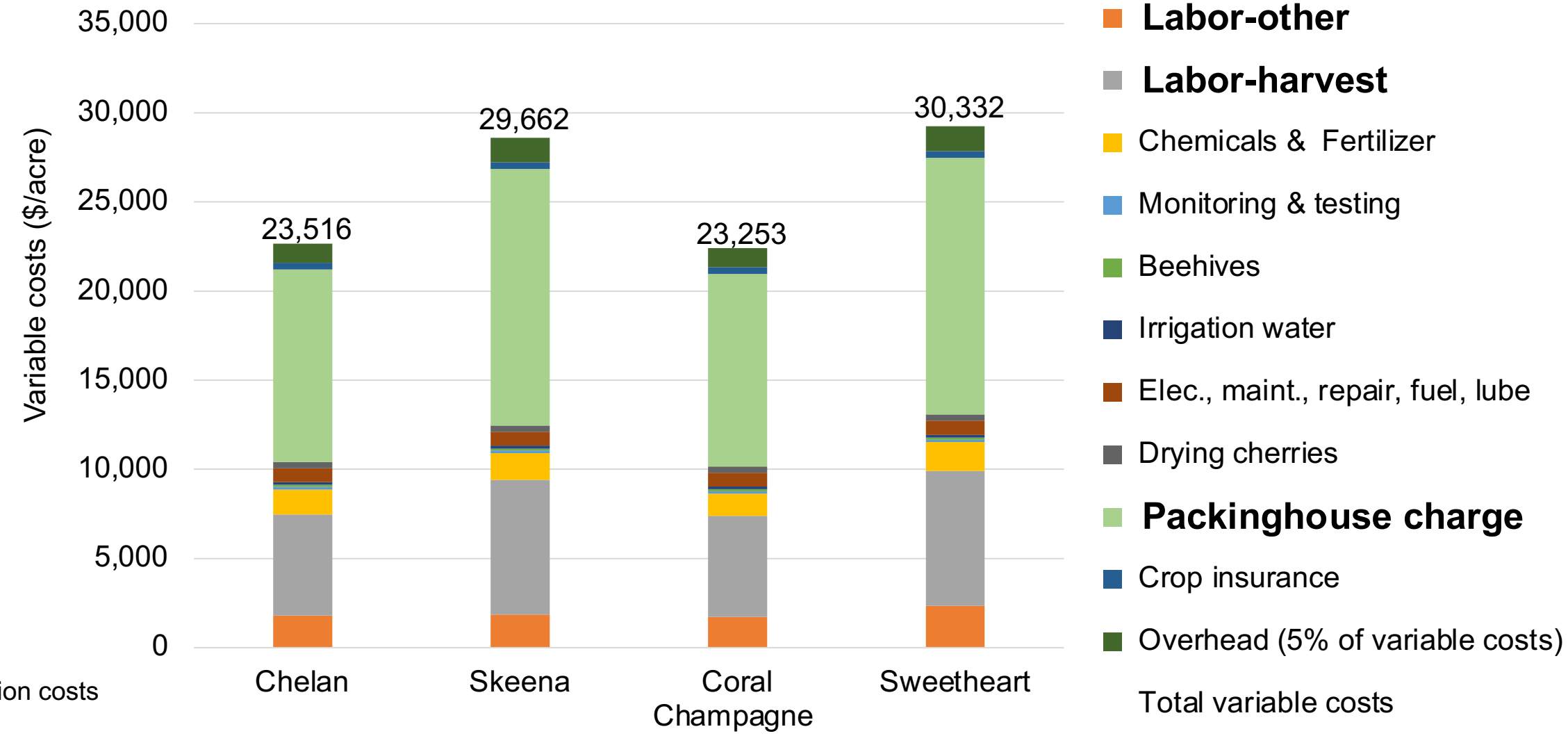

Production costs on a full production year

# Total returns versus total costs ($/lb)



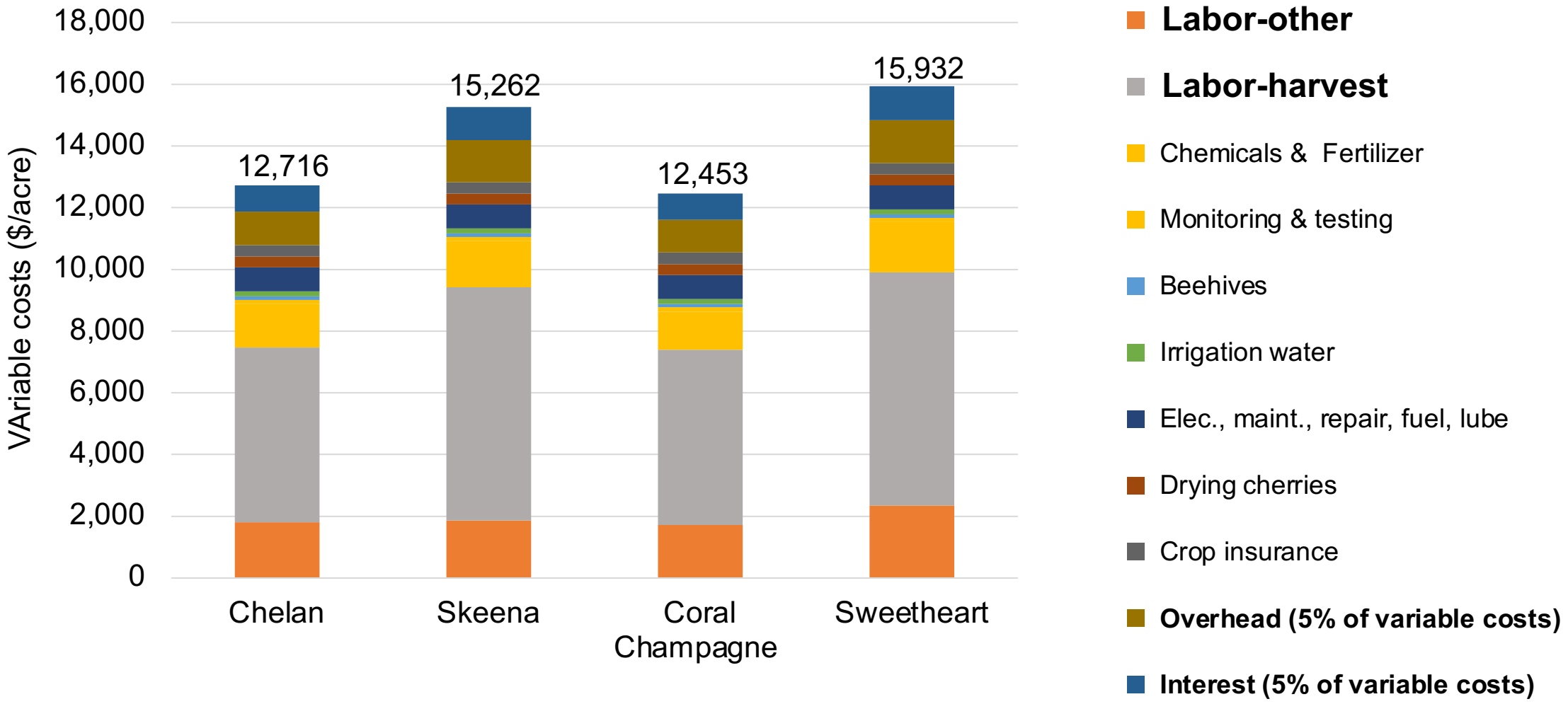

Production costs on a full production year

# Variable costs: How do labor costs compare to all variable costs-packinghouse included.



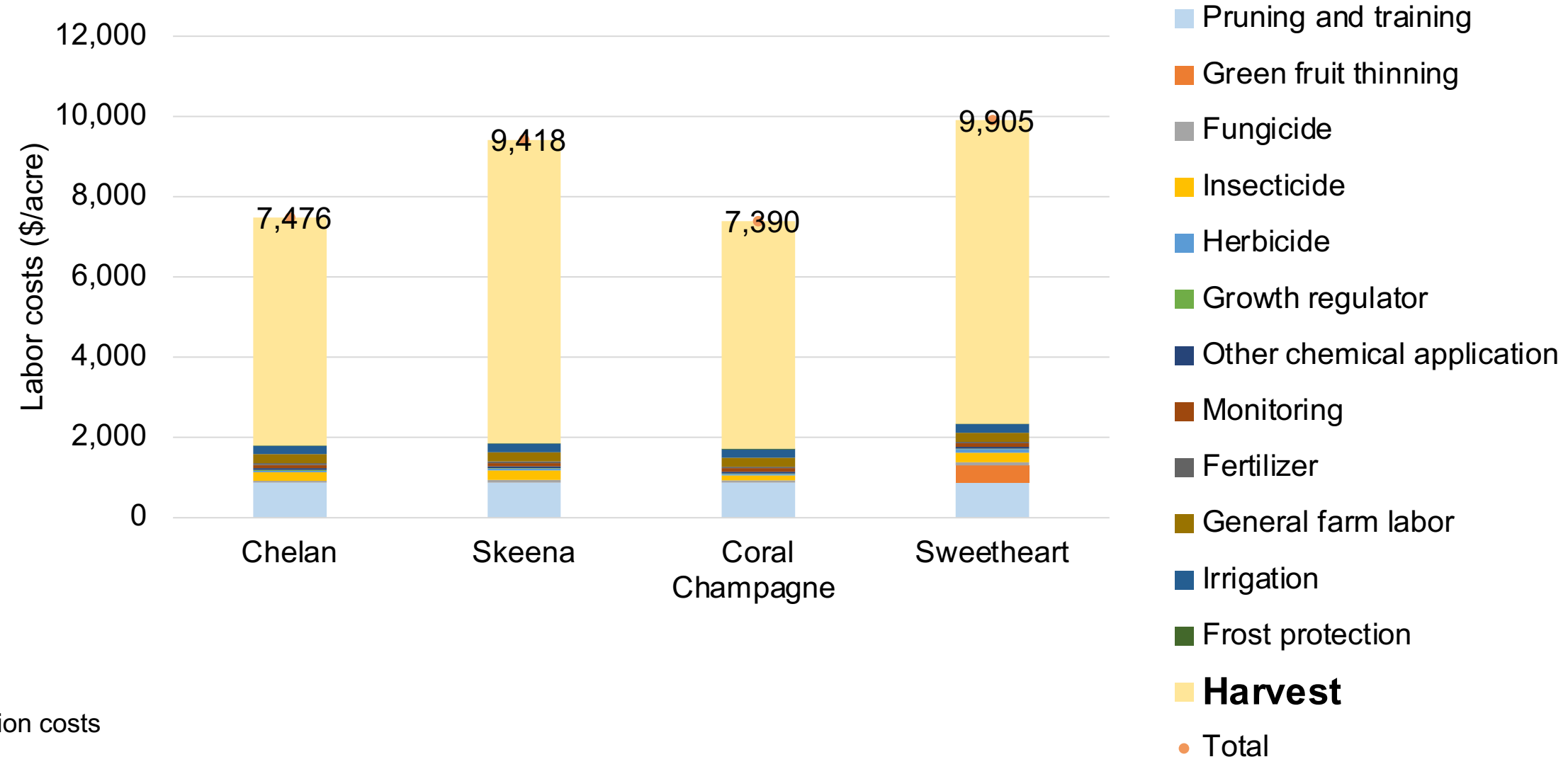

Production costs on a full production year

# Variable costs: How do labor costs compare to all variable costs-NOT packinghouse included.



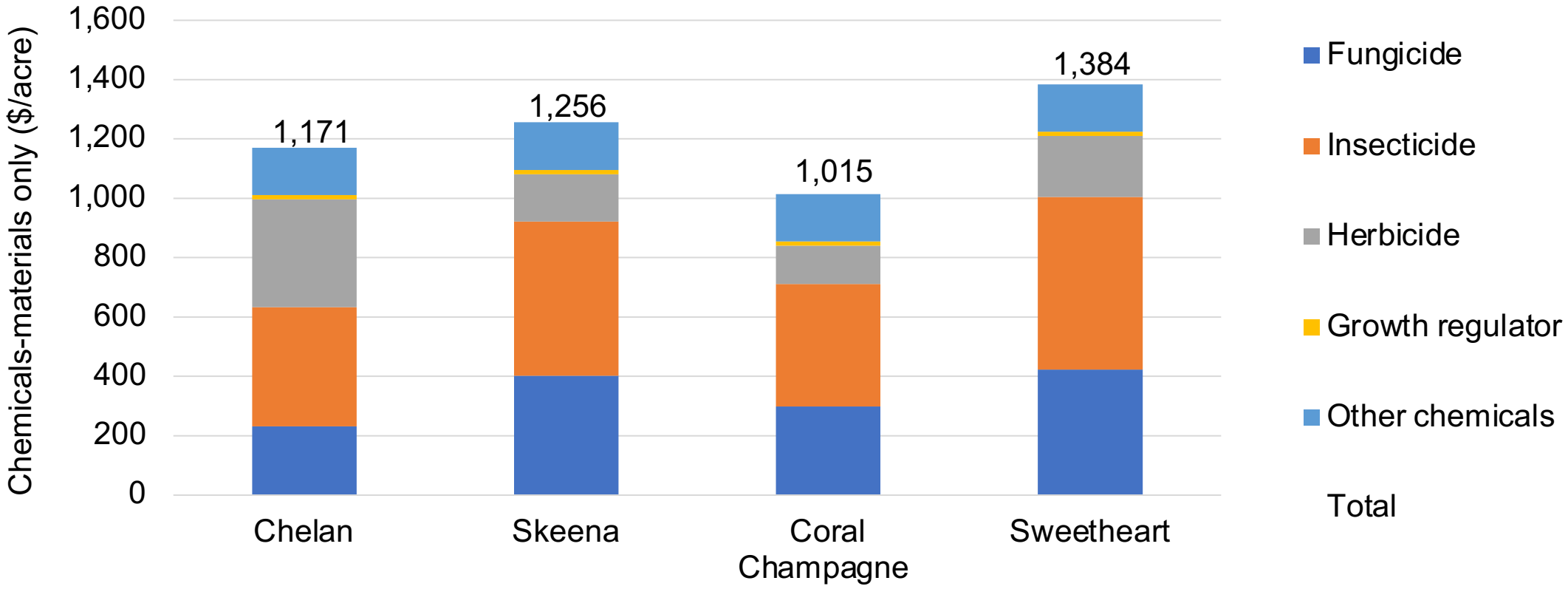

Production costs on a full production year

# Labor costs in the field only: how do labor costs distribute across different field activities?



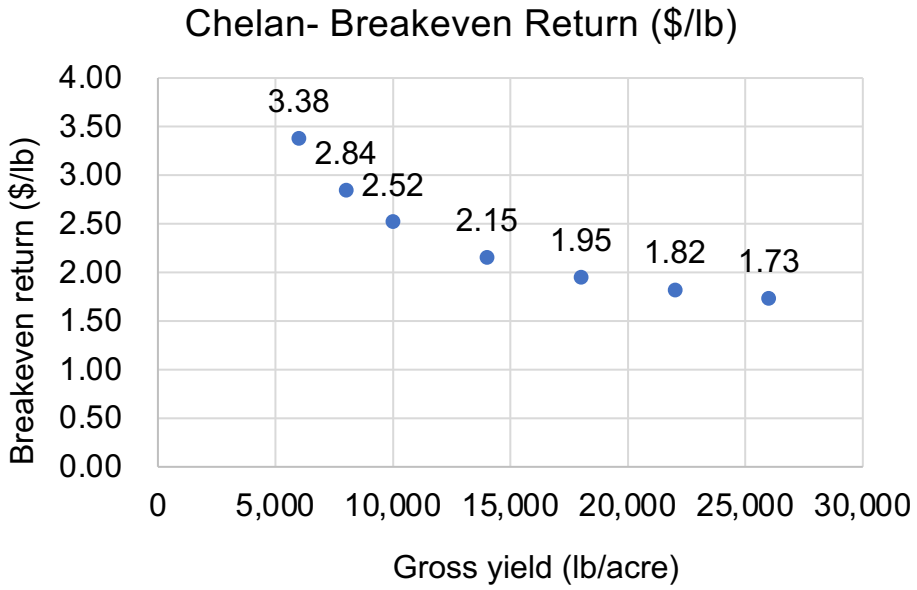

Production costs on a full production year

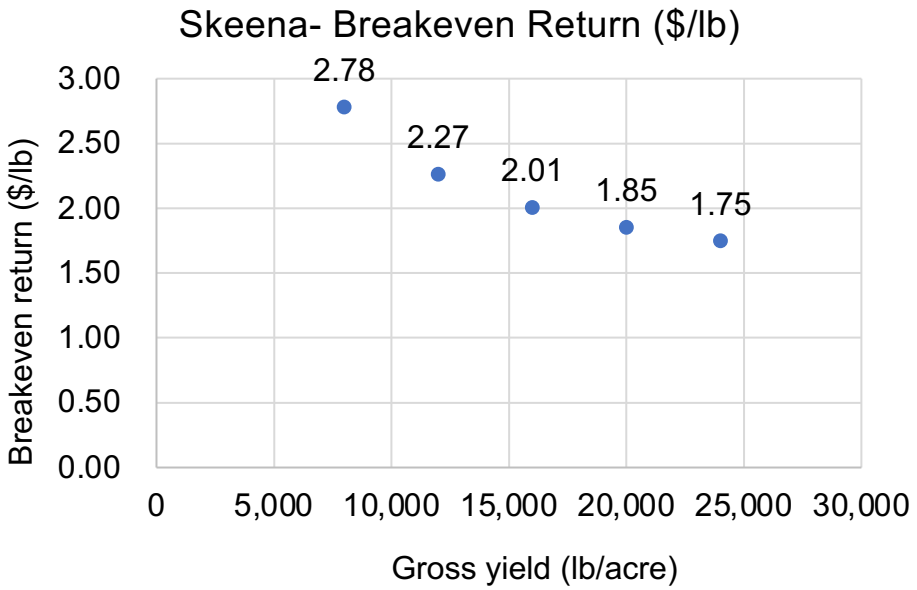
# Chemicals: How do the chemical costs distribute across different categories?

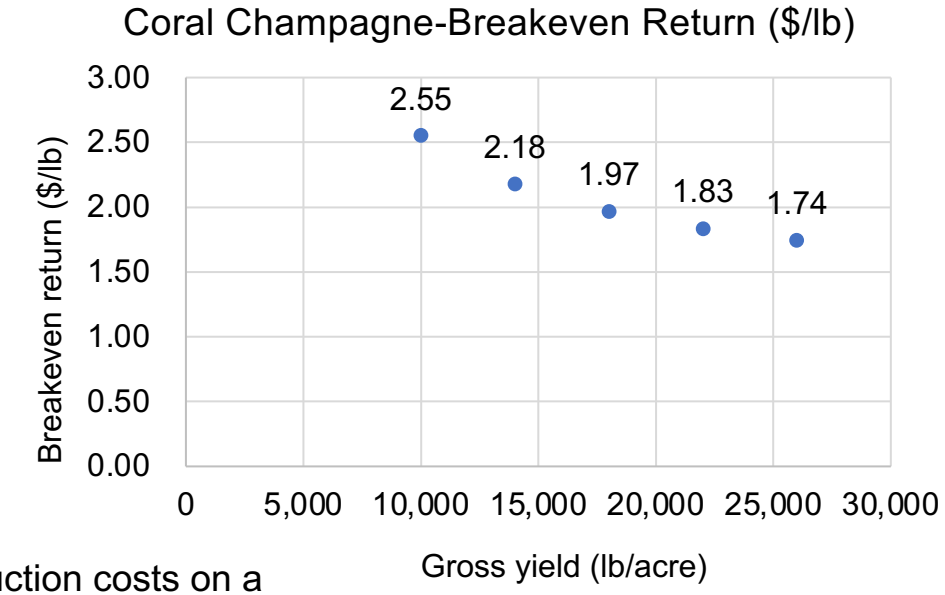


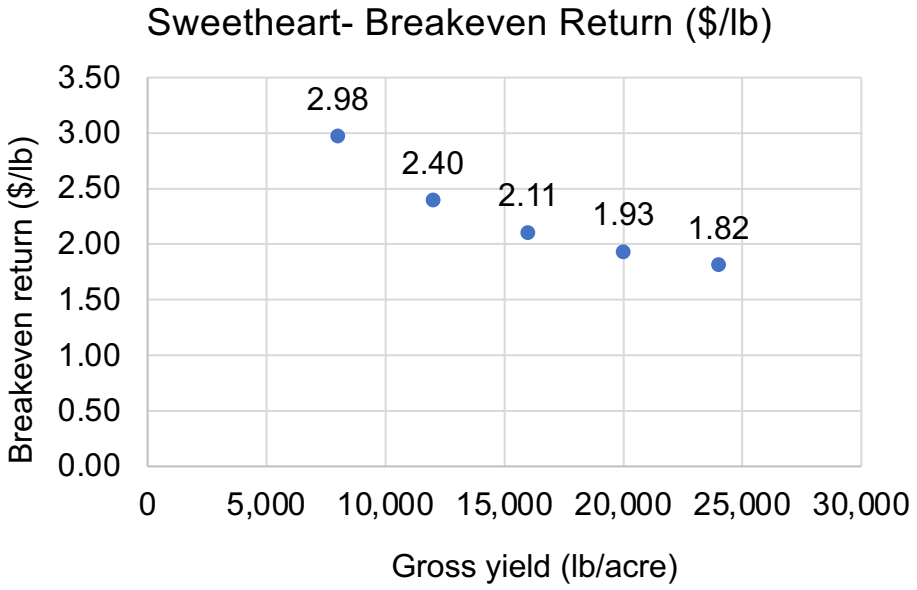

Production costs on a full production year

# Breakeven prices at different yields



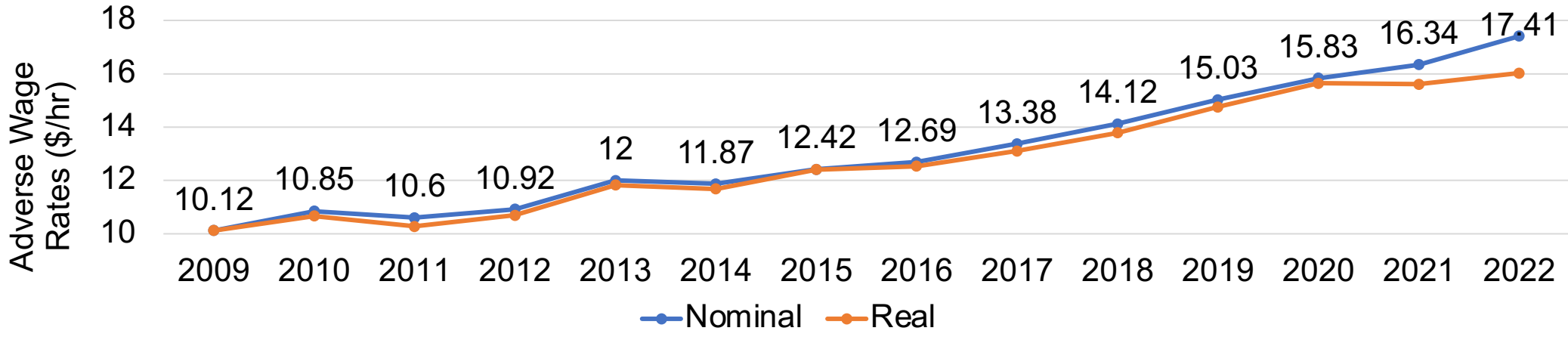



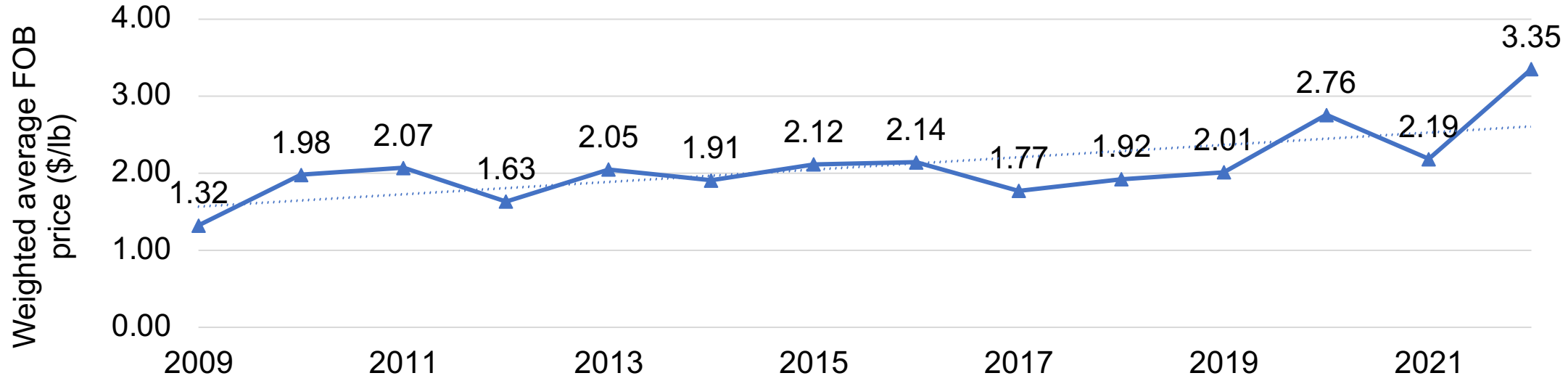




Production costs on a full production year

# WA H2A adverse wage rate




# Weighted average FOB price



# Concluding thoughts

- Based on study assumptions, production costs, returns, and breakeven prices and yields show that the four sweet cherry varieties are economically profitable.
  - Labor represents 61% of the variable costs in the field.

- Historical data show FOB price variability compared to the steady increase in production costs, especially labor.

R. Karina Gallardo

Professor-Extension specialist

Karina_Gallardo@wsu.edu

(253) 445-4584