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Overview of the Updated Fresh-market Pear Enterprise Budgets: Anjou and Bartlett

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Washington Tree Fruit Association Annual Meetings

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Photo credit: Good Fruit Grower

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What is a crop enterprise budget?

- A physical and financial plan for producing a particular crop.
  - Physical plan - indicates the type and quantity of production inputs and the output or yield per unit.
  - Financial plan - assigns costs to all the inputs used in production
- Represents <u>one of the ways</u> to produce a crop.
- Represents expected costs and returns associated with a particular farm situation.
- Presents *economic* costs and returns.
  - Includes opportunity costs - returns that could be realized if funds for these expenses were invested in an alternative.

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Development of a crop enterprise budget

1a. Set up assumptions (input from growers and consultants)

- Characteristics of a hypothetical farm – e.g., location, production area, irrigation system, plant density, etc.
- Why hypothetical? Budgets are meant to be representative of a typical situation, not particular operation.

1b. Identify cultural practices and operations for prod. cycle, including resources (application rates, costs)

2. Organize data on prod. costs and returns in spreadsheet

3. Review and revise draft budget

4. Finalize and publish budget (tables and narrative)

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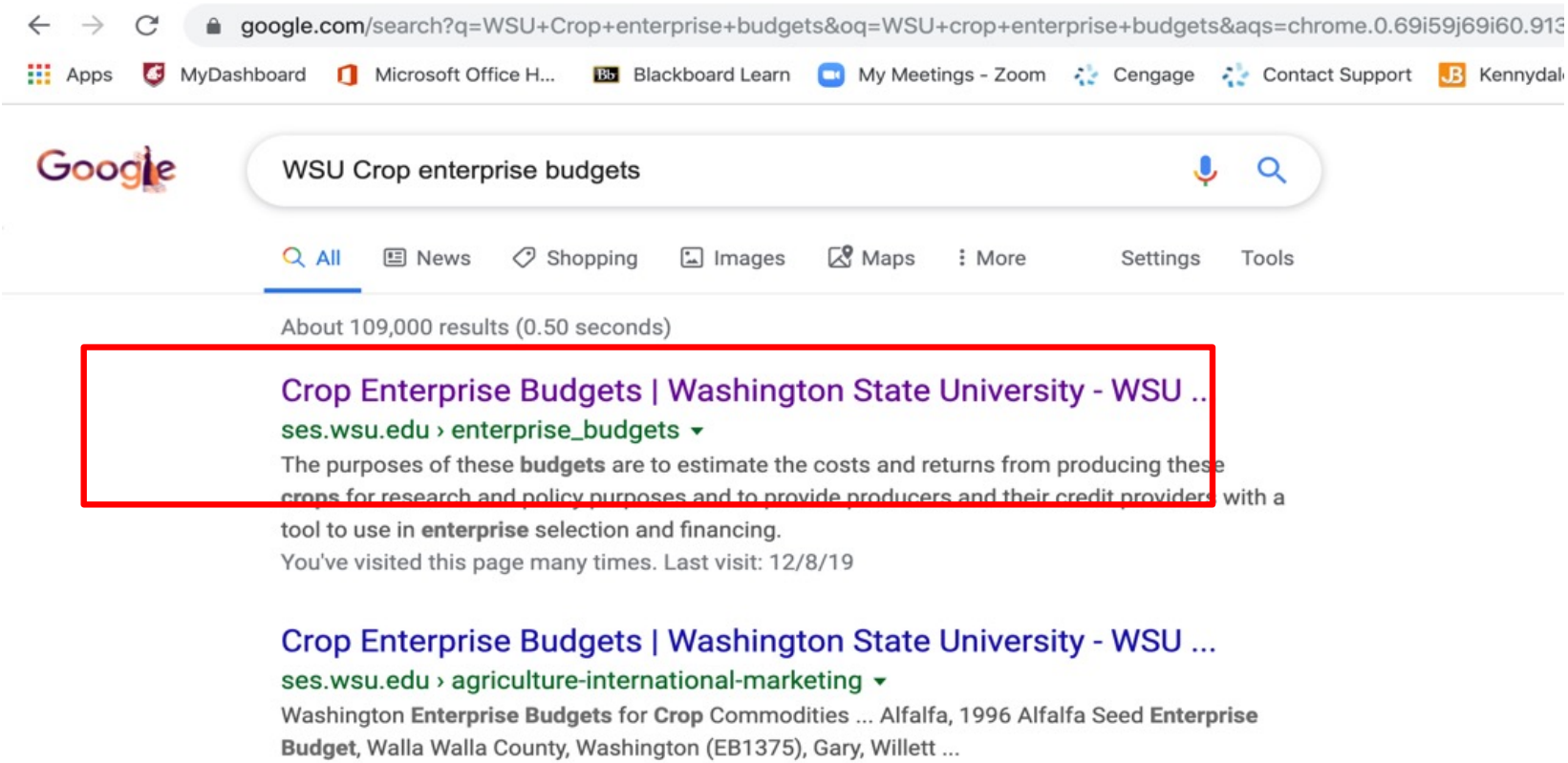
How to find WSU Crop Enterprise Budgets



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Crop Enterprise Budgets | Schoo

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  - Livestock Economics
  - Tree Fruit Economics
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- IMPACT Center

School of Economic Sciences / **Crop Enterprise Budgets**

Crop Enterprise Budgets

Financial Analysis & Record Keeping

Careful record keeping and some basic financial analysis can take some of the guesswork and stress out of being a business manager:

- Motivation – Why get excited about financial analysis?
- Analyzing your farm's financial performance – Cash flow statements
- Investment analysis – Different evaluation methods
- Amortization of loans – Making them cash flow

Washington State University has a history of developing and publishing enterprise budgets for many of the major crops grown throughout Washington State. The purposes of these budgets are to estimate the costs and returns from producing these crops for research and policy purposes and to provide producers and their credit providers with a tool to use in enterprise selection and financing.

USDA Economic Research Service
WSU County Extension Offices
Weather and Agriculture

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  - Tree Fruit Economics
  - Environmental & Natural

Washington Enterprise Budgets for Crop Commodities

Search: pear

Commodity	Title	Author	Date	Link
Pears	2022 Cost Estimates of Producing and Packing Fresh-Market Bartlett Pears in South Washington	Gallardo, Galinato, Nottingham	2022	pdf excel
Pears	2022 Cost Estamates of Producing and Packing Fresh-Market Anjou Pears in the Wenatchee River Valley, Washington State	Gallardo, Galinato, Nottingham	2022	pdf excel
Pears	2020 Cost Estimates of Producing Bartlett Pears for Canning in Washington State TB80E	Gallardo, Galinato	2021	pdf excel
Pears	2010 Cost Estimates of Producing Bartlett Pears in the Yakima Valley, Washington (FS034E)	Galinato, Gallardo	2011	pdf excel
Pears	Cost of Producing Pears in the Wenatchee District of Central Washington, 1998 (EB1374)	Hinman, Smith, Witney	1998	pdf
Pears	1989 Estimated Costs of Producing Pears in the Yakima Valley, Washington (EB1549)	Hinman, Peterson, Williams	1989	unavailable
Pears	1989 Estimated Costs of Reestablishing a Pear Orchard in the Yakima Valley, Washington (EB1535)		1989	pdf
Pears	2010 Estimated Cost of Producing Pears in North Central Washington (FS031E)	Galinato, Gallardo	2011	pdf excel

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2022 WSU Crop Enterprise Budgets – Fresh Market Anjou and Bartlett Pears

2022 COST ESTIMATES OF PRODUCING AND PACKING FRESH-MARKET ANJOU PEARS IN THE WENATCHEE RIVER VALLEY, WASHINGTON STATE

Preface

The results presented in this WSU publication serve as a general guide for evaluating the feasibility of producing fresh-market Anjou pears in the Wenatchee River Valley, Washington State, in 2022. The primary use of this report is in identifying inputs, costs, and yields considered typical of well-managed Anjou pear orchards. 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

Fresh-Market Anjou Pear Production in Washington State

Washington State is the number one producer of fresh-market pears in the United States. In 2020, the value of production is $136 million, comprising about 42% of the U.S. total value of production for this crop destined for the fresh market (USDA NASS 2022).

Anjou is the major pear variety produced in Washington State. In terms of bearing acreage, Anjou and Bartlett account for 40% and 37%, respectively, of the state's total in 2017. The bearing acres of Anjou pears were 8,436 acres in 2017, distributed between two major production regions—90% in Wenatchee and 8% in the Yakima Valley (USDA NASS 2017). The free on board (FOB) price of fresh-market Anjou in 2021 was $30.03/box. Between 2017 and 2021, the minimum and maximum prices of Anjou were $23.96/box and $30.03/box, respectively. The five-year average FOB price was $26.45/box,

2022 COST ESTIMATES OF PRODUCING AND PACKING FRESH-MARKET BARTLETT PEARS IN SOUTH WASHINGTON

Preface

The results presented in this WSU publication serve as a general guide for evaluating the feasibility of producing fresh-market Bartlett pears in South Washington in 2022. The primary use of this publication is in identifying inputs, costs, and yields considered typical of well-managed Bartlett pear orchards. 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

Fresh-Market Bartlett Pear Production in Washington State

Washington State is the number one producer of fresh-market pears in the United States. In 2020, the value of production was $136 million, comprising about 42% of the U.S. total value of production for this crop destined for the fresh market (USDA NASS 2022).

Bartlett pears are second to Anjou pears in terms of its share of bearing acreage, which are 37% and 40% of the state total, respectively, in 2017. There were 7,663 bearing acres of Bartlett pears in 2017, distributed in the following production regions: 53% in Wenatchee, 42% in the Yakima Valley, and 5% in the Columbia Basin and other areas (USDA NASS 2017). The free on board (FOB) price of fresh-market Bartlett in 2021 was $32.65/box. Between 2017 and 2021, the minimum and maximum prices of Bartlett were $26.74/box and $32.65/box,

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Production costs

- Cash costs
  - Direct or variable costs
  - Taxes
  - Insurance
  - Miscellaneous
- Non-cash costs
  - Depreciation
  - Opportunity cost
    - Opportunity cost of capital
    - Management
    - Amortization on loaned capital

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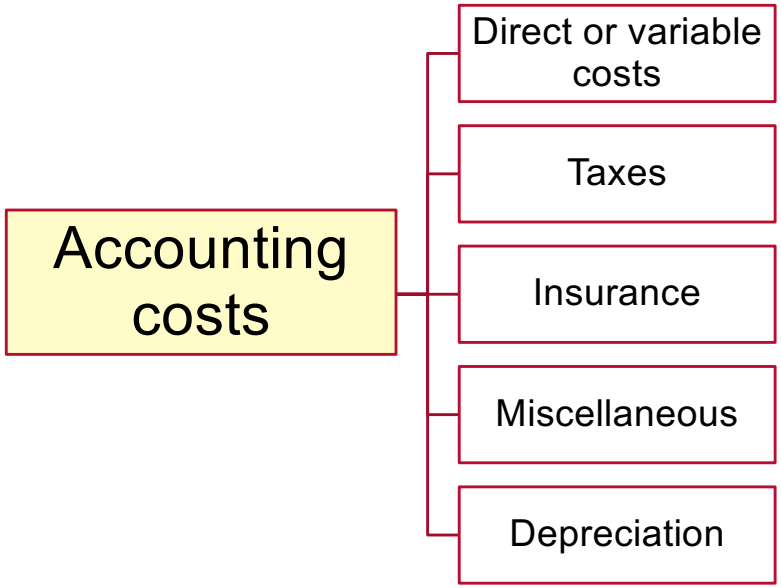
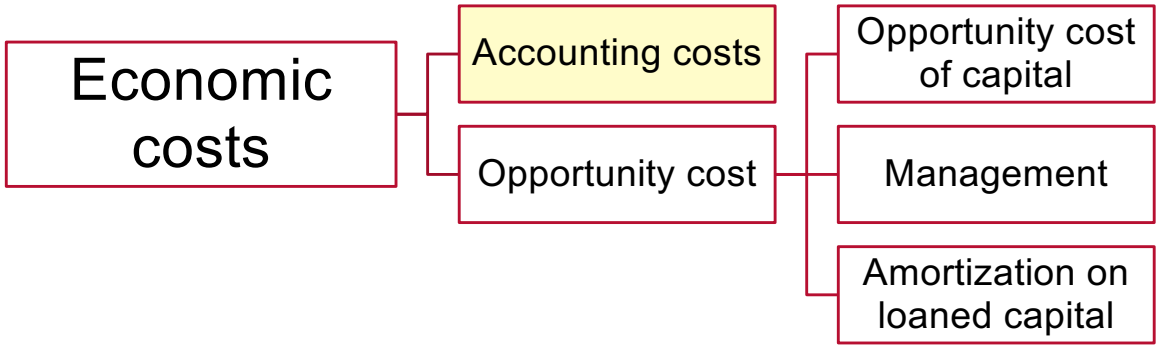
Net returns = Total returns - Total costs





Profit and 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

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WSU Crop Budgets – Assumptions

	Anjou	Bartlett
State of orchard in analysis	Fully established	Establishment to Full Production
Location	Wenatchee River Valley	South WA
Total production area (acre)	100	10
Productive area (acre)	99	9
- *Main crop (acre)*	*66*	*6*
- *Pollenizer (acre)*	*33*	*3*
Non-fruit production area	1	1
Gross yield full production (1100-lb bin/acre)	21	38
Packout (%)	87.5%	87.5%
FOB price ($/44-lb box)	$31	$34
In-row spacing (feet)	10	6
Bet. row spacing (feet)	18	13
Tree density (trees/acre)	242	558
Planting architecture	No trellis, free standing	V trellis

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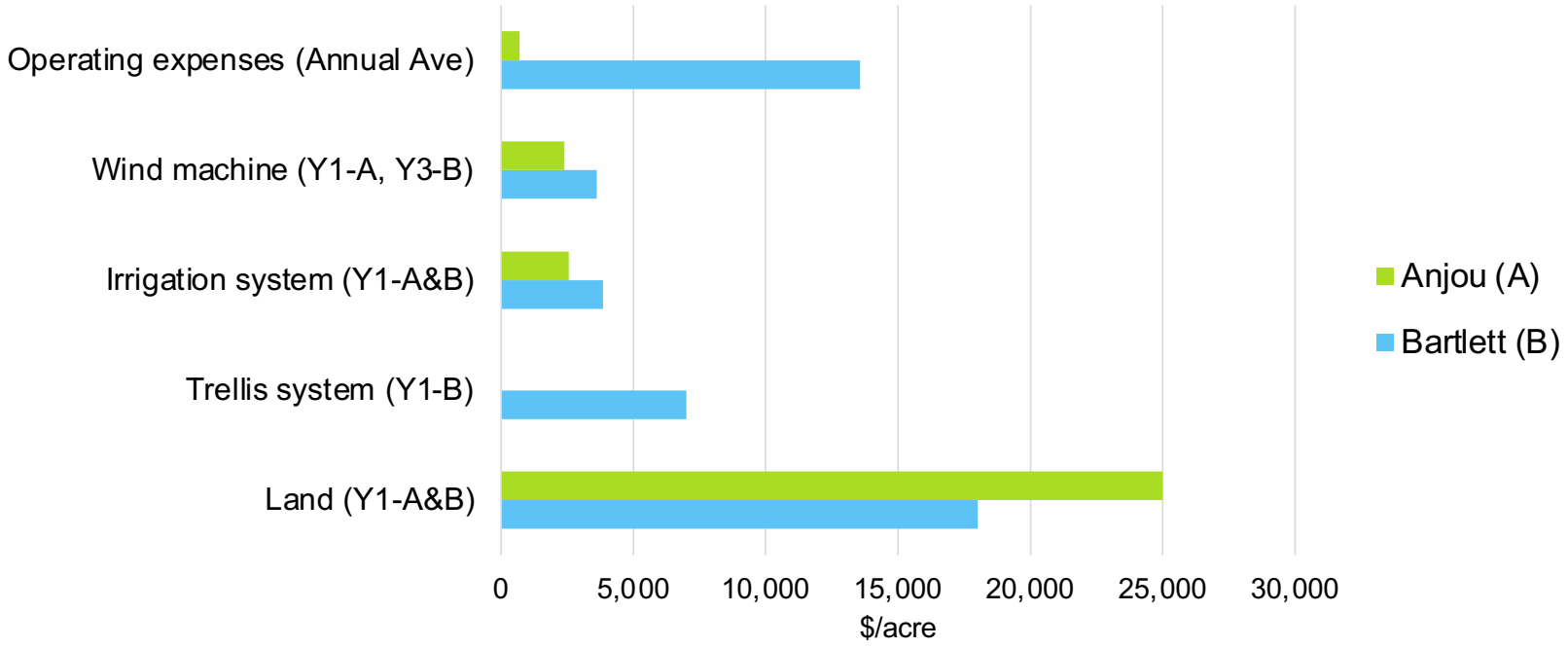
Annual Capital Requirements



	Anjou	Bartlett
Annual capital requirements, total ($/acre)	30,673	46,042

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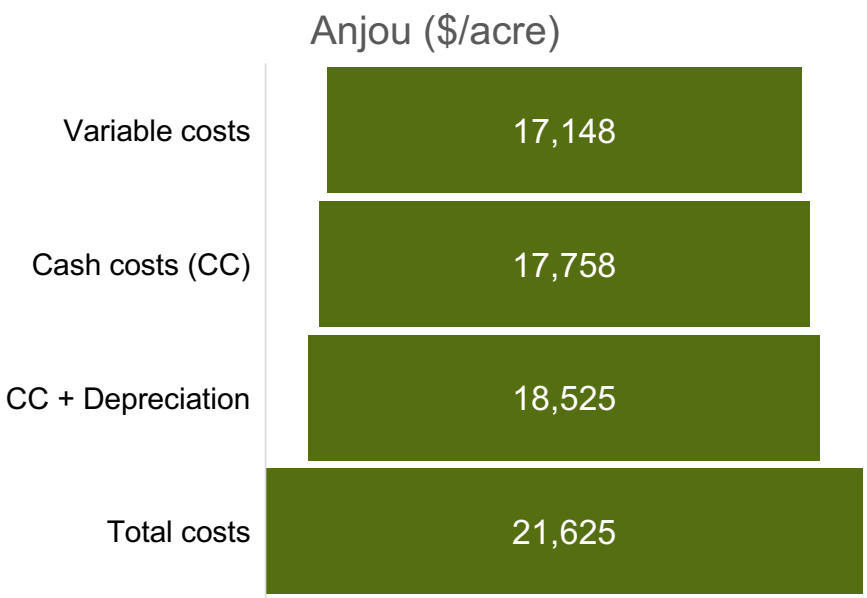
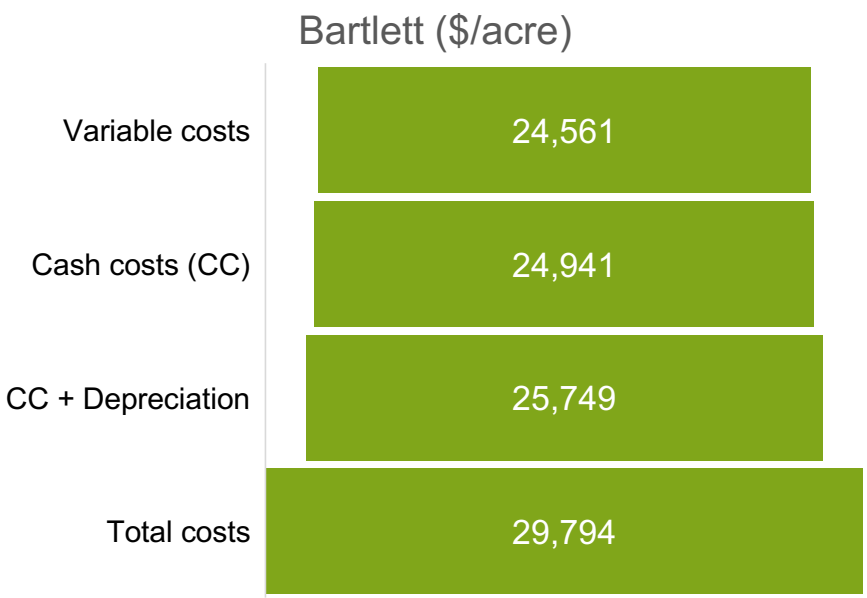
Cost Categories

1. Variable Costs
2. Cash Costs
3. Cash Costs + Depreciation (Accounting cost)
4. Total Cost (Economic cost)





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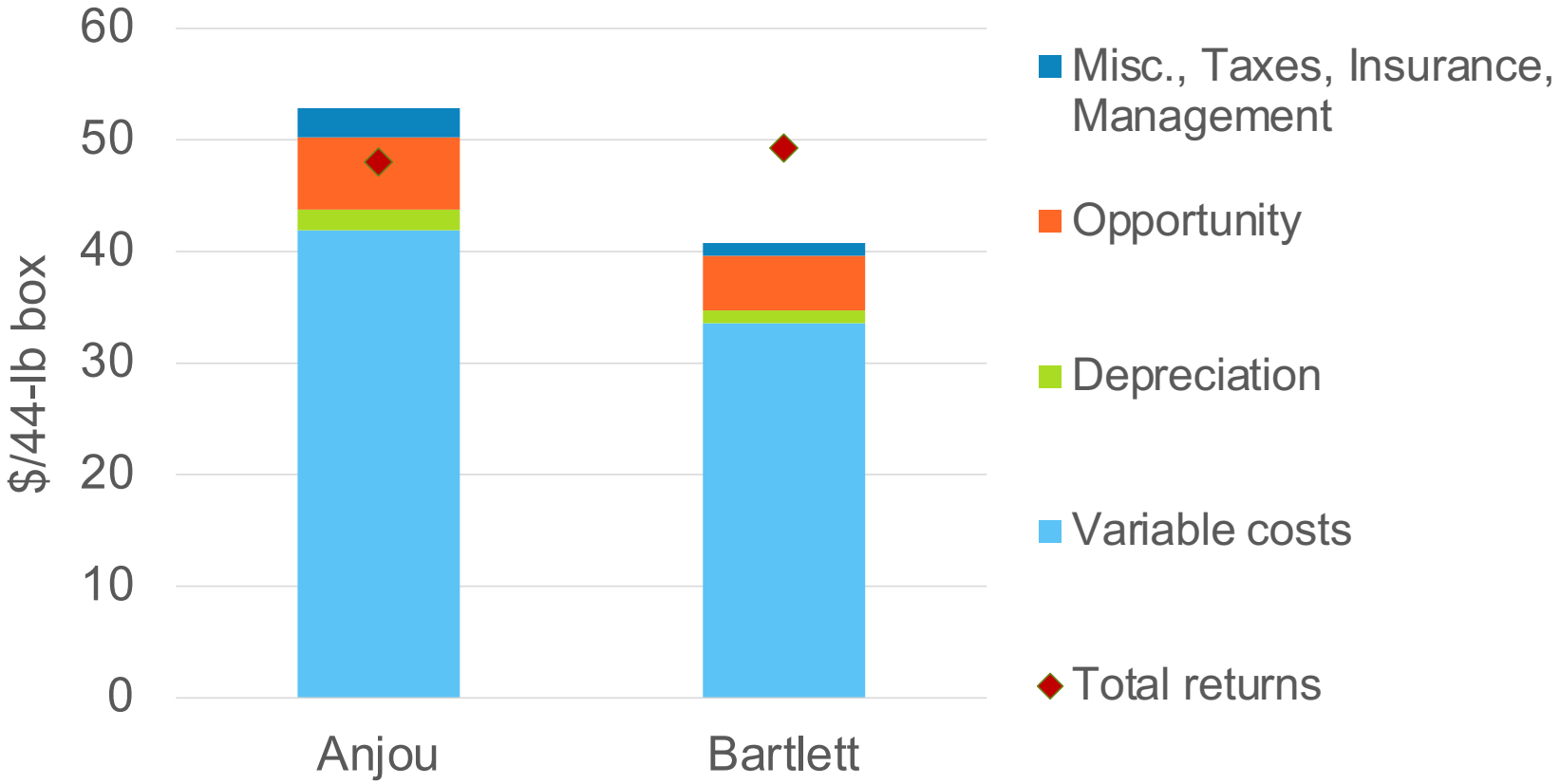
Total Costs and Returns – Summary
(Full production year) - Units ($/44-lb box)



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Total Costs and Returns
(Full production year)

	Total production (bins/acre)	Packout (%)	Packout (box/bin)	FOB Price ($/box)	Total returns ($/acre)*	Costs (Accounting costs)** ($/acre)	**ACCOUNTING PROFITS ($/acre)**
Anjou	21	87.5	22	31	19,650	18,525	**1,125**
Bartlett	38	87.5	22	34	35,426	25,749	**10,352**

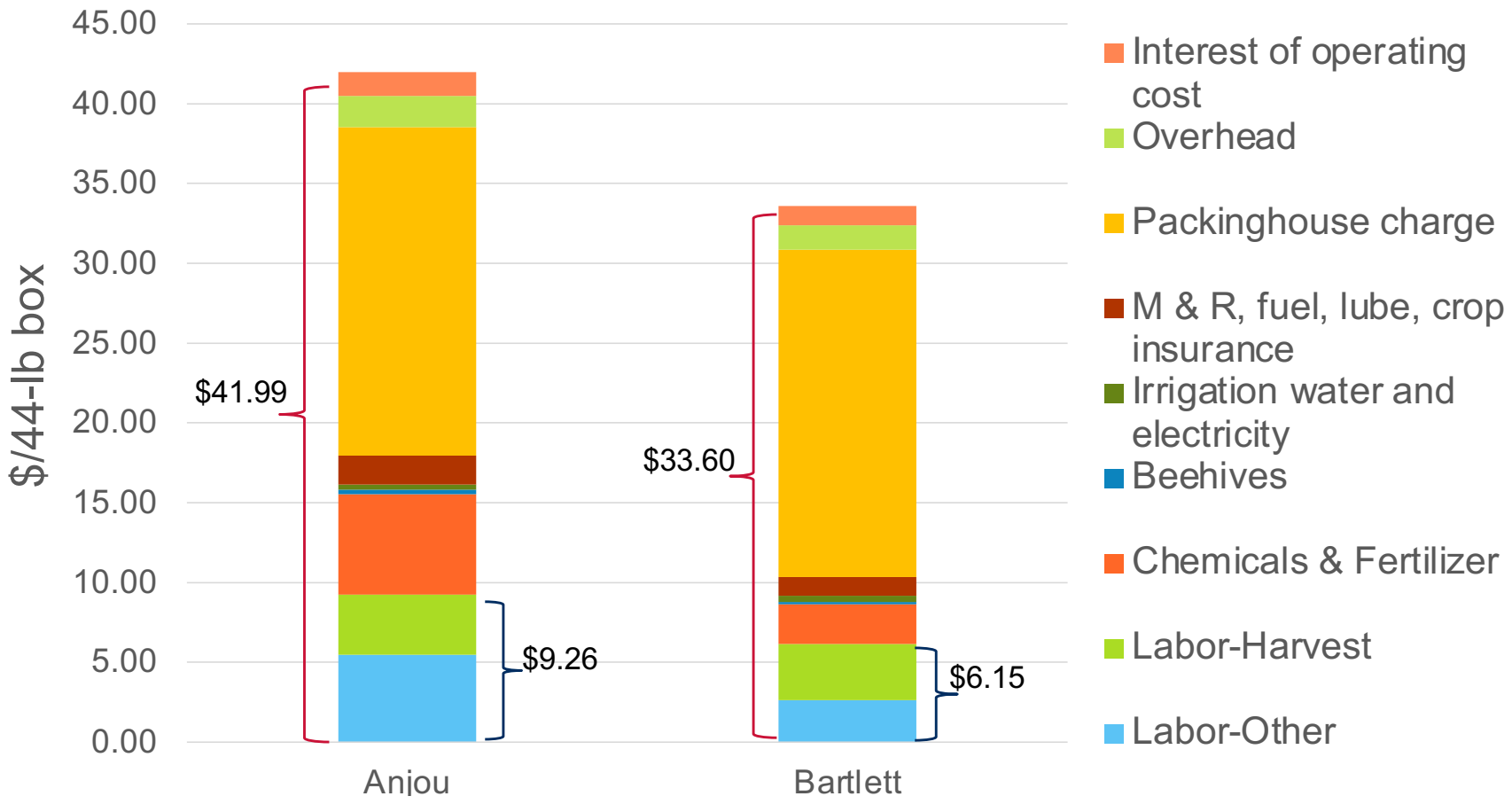
*Total returns includes the returns from the yield of pollenizer trees and from culls.
**Accounting costs = cash costs + depreciation

	Total production (bins/acre)	Packout (%)	Packout (box/bin)	FOB Price ($/box)	Total returns ($/acre)*	Total costs (Economic costs)*** ($/acre)	**ECONOMIC PROFITS ($/acre)**
Anjou	21	87.5	22	31	19,650	21,625	**-1,975**
Bartlett	38	87.5	22	34	35,426	29,794	**6,307**

*Total returns includes the returns from the yield of pollenizer trees and from culls.
***Economic costs = accounting costs + opportunity costs

Variable Costs

How do labor costs compare to total variable costs (packing costs included)?



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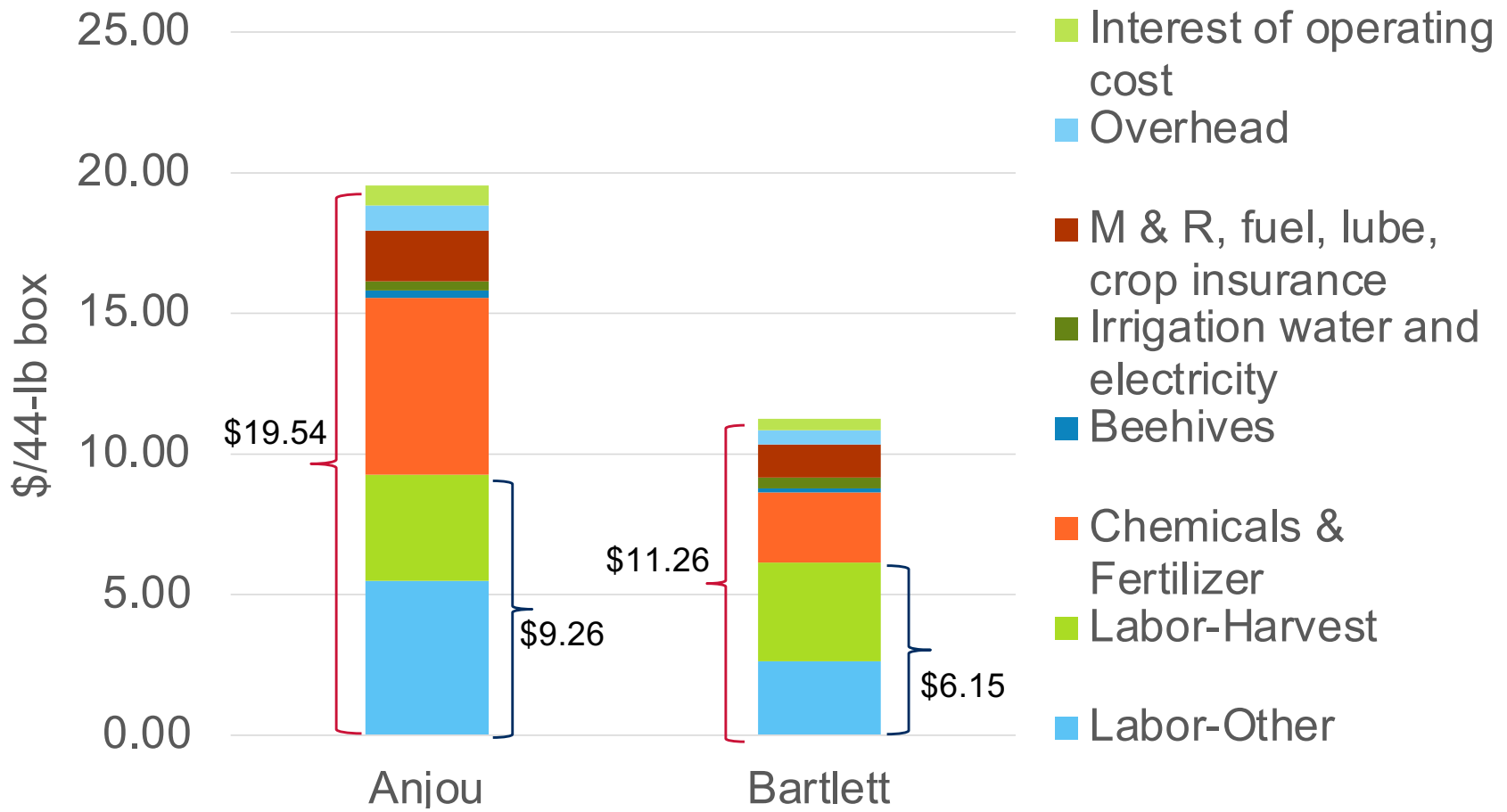
Variable Costs

How do labor costs compare to total variable costs (packing costs excluded)?



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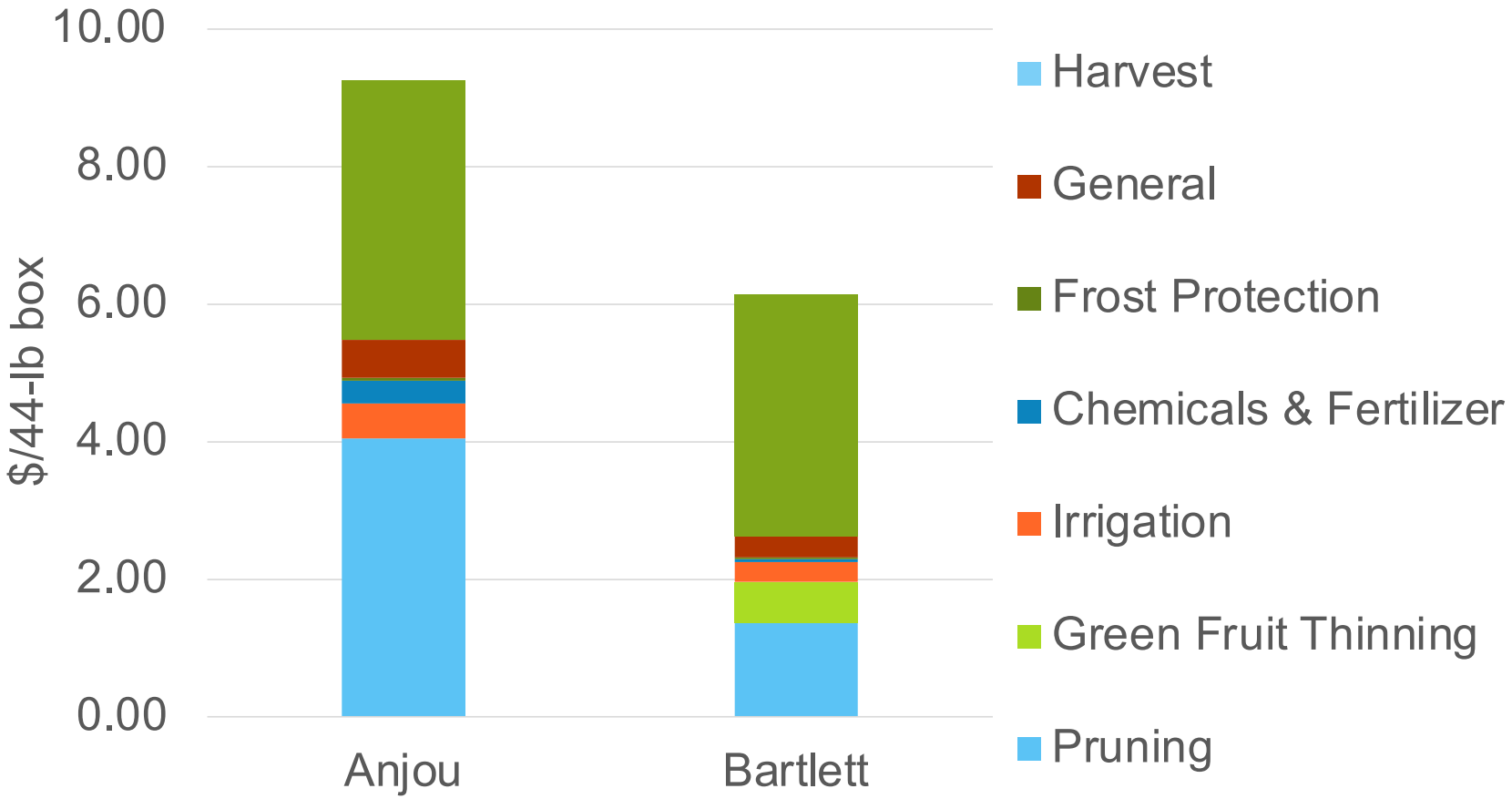
Labor Costs (in the field only)

How are labor costs distributed across various field activities?



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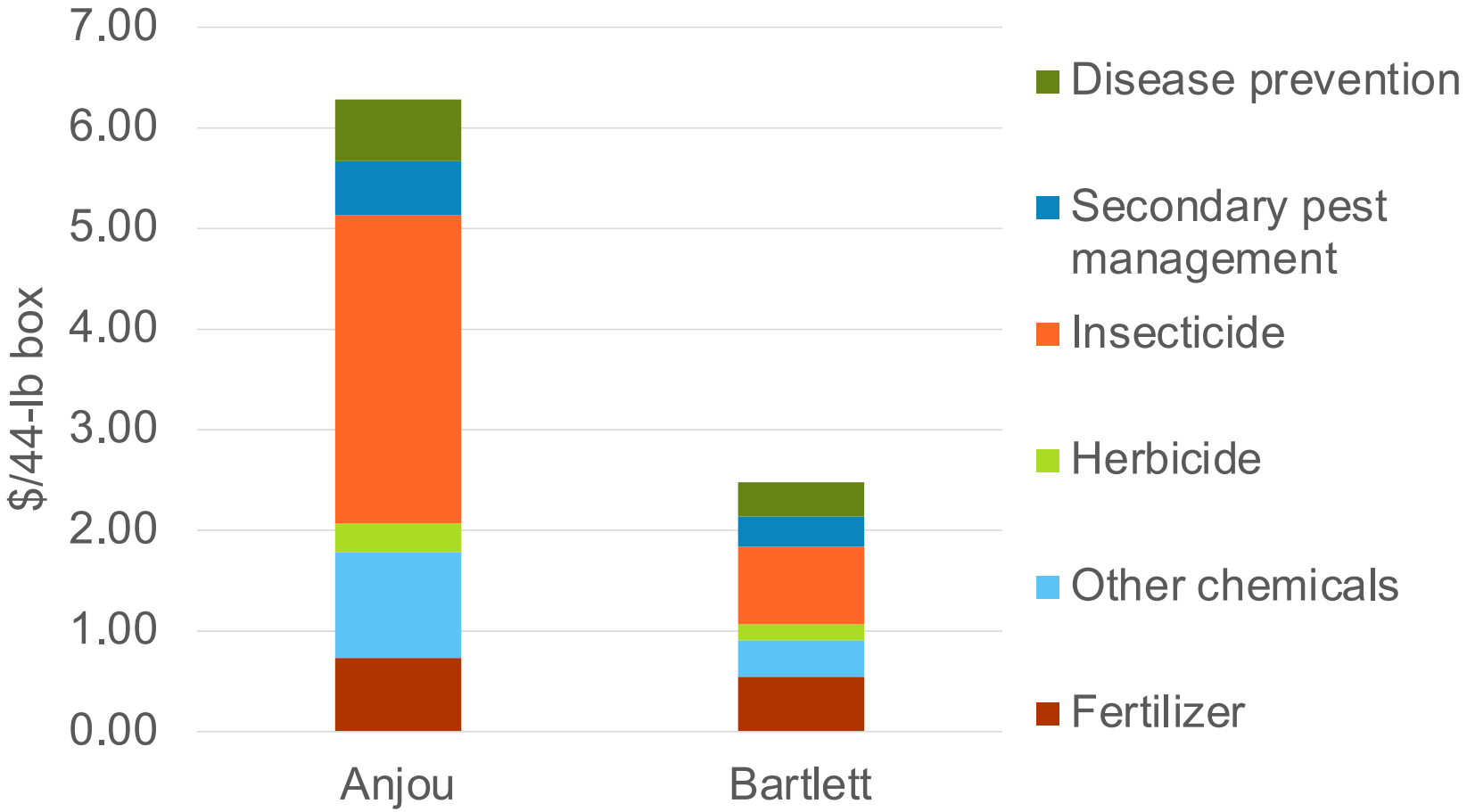
Chemicals and Fertilizer

How are chemical costs distributed across different types?



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Break-even Prices ($/44-lb box)

Cost category	Anjou	Bartlett
Variable	$24.36	$17.83
Cash	$25.90	$18.36
Cash + depreciation (Accounting costs)	$27.84	$19.47
Total (Economic costs)	$35.67	$25.04

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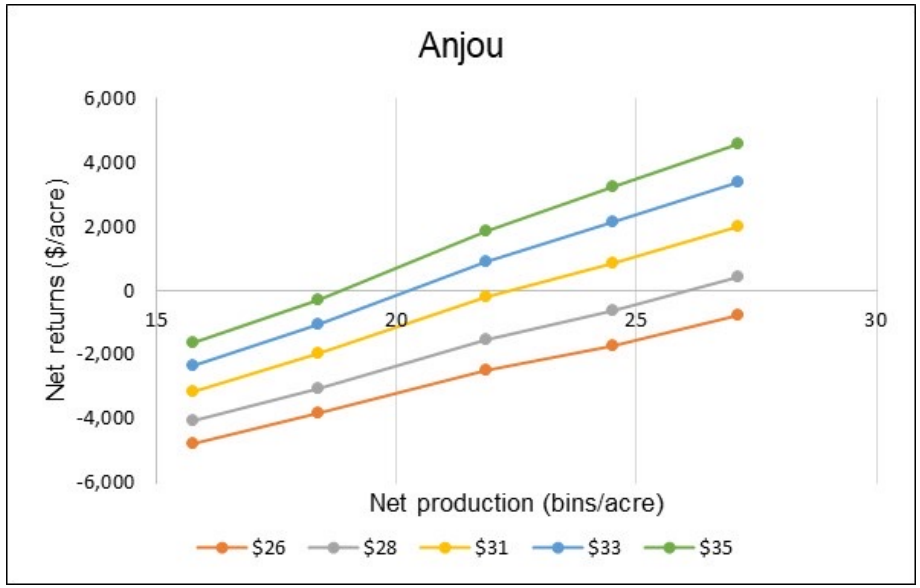
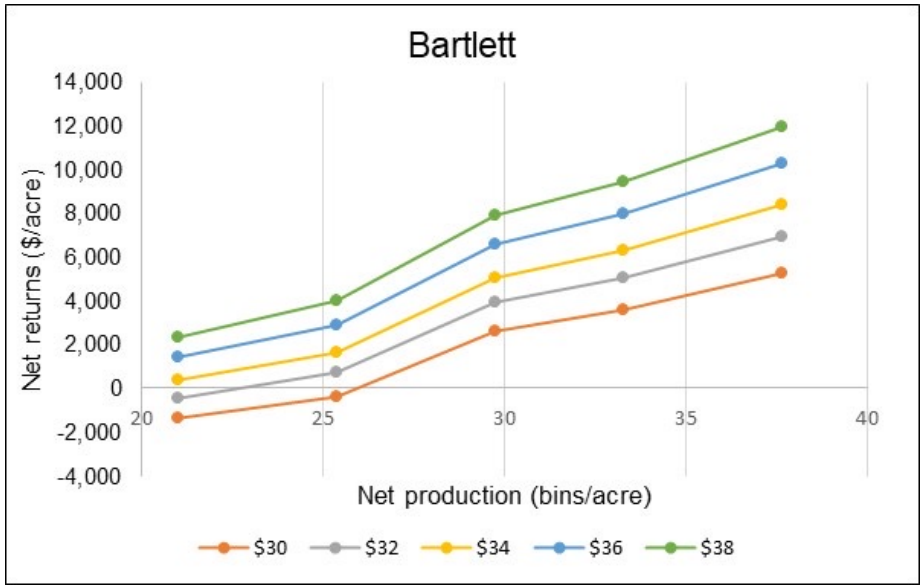
Sensitivity Analyses

Net returns at different FOB price ($/44-lb box) and production volume





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Grower receives the residual price of the supply chain.

	Price ($/lb)	% of the price
Consumer price per pound at the retail market (Example: Bartlett pear)	1.02	100
Retailer	0.77	75
Packinghouse + Marketer	0.16	15
Grower	0.10	10

2022 Food dollar: Marketing bill (nominal)

Source: https://www.ers.usda.gov/data-products/food-dollar-series/documentation

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Concluding Remarks

- Profits will not be > 0 every year
  - Price fluctuation
  - Yield fluctuation
- Labor is the largest cost in the field.
- Break-even prices ($/box):

Cost category	Anjou	Bartlett
Variable – Shutdown price	$24.36	$17.83
Cash + depreciation (Accounting costs)	$27.84	$19.47
Total (Economic costs)	$35.67	$25.04

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Thank you!