2024 Production Costs and Returns of WA Grown Apples

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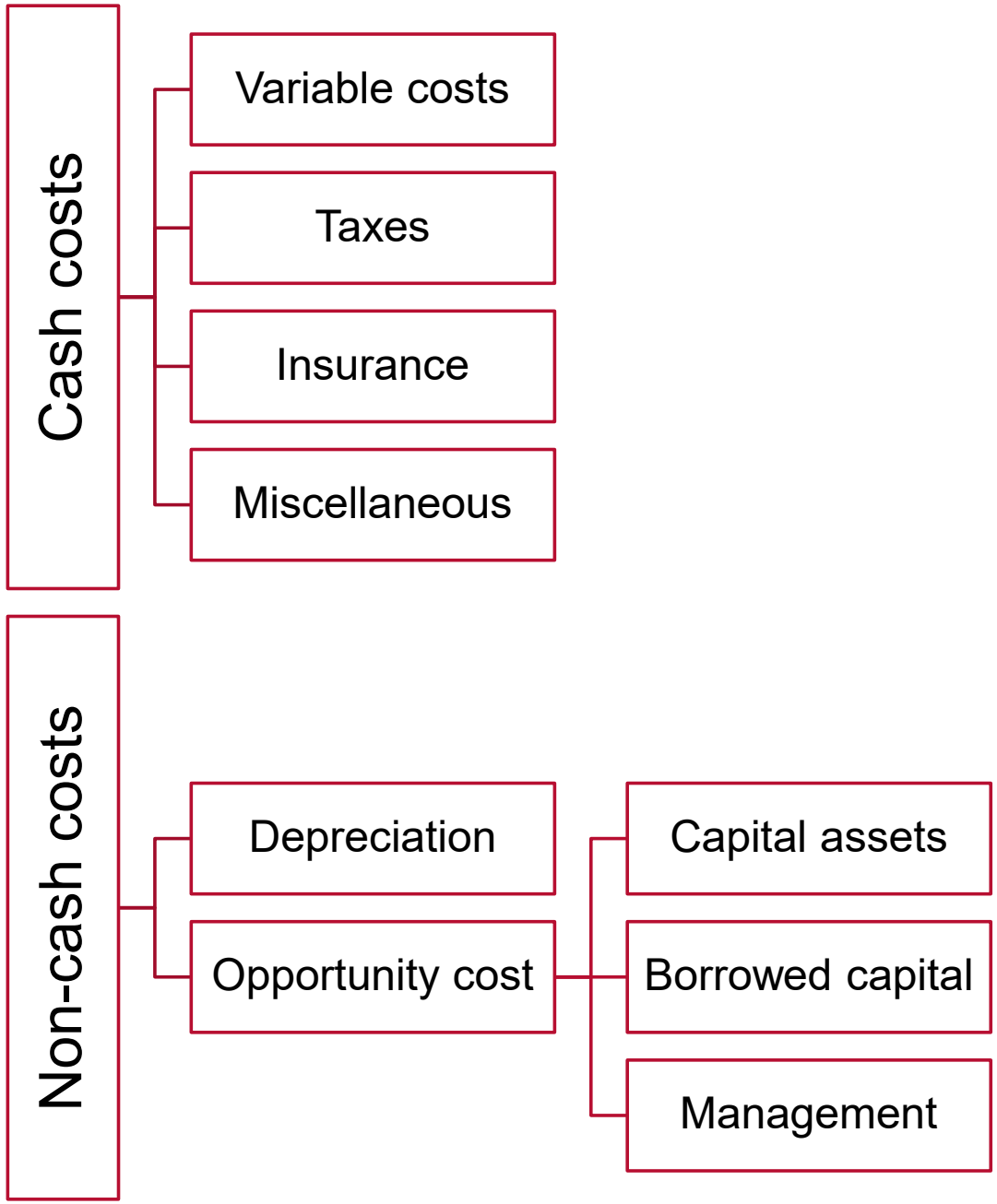
Production costs



Production costs

- **Profits are not always > 0**
  Variability in yields, input and market prices

- **Short-term economic analyses**
  Cash costs

- **Long-term economic analyses**
  Cash and non-cash costs

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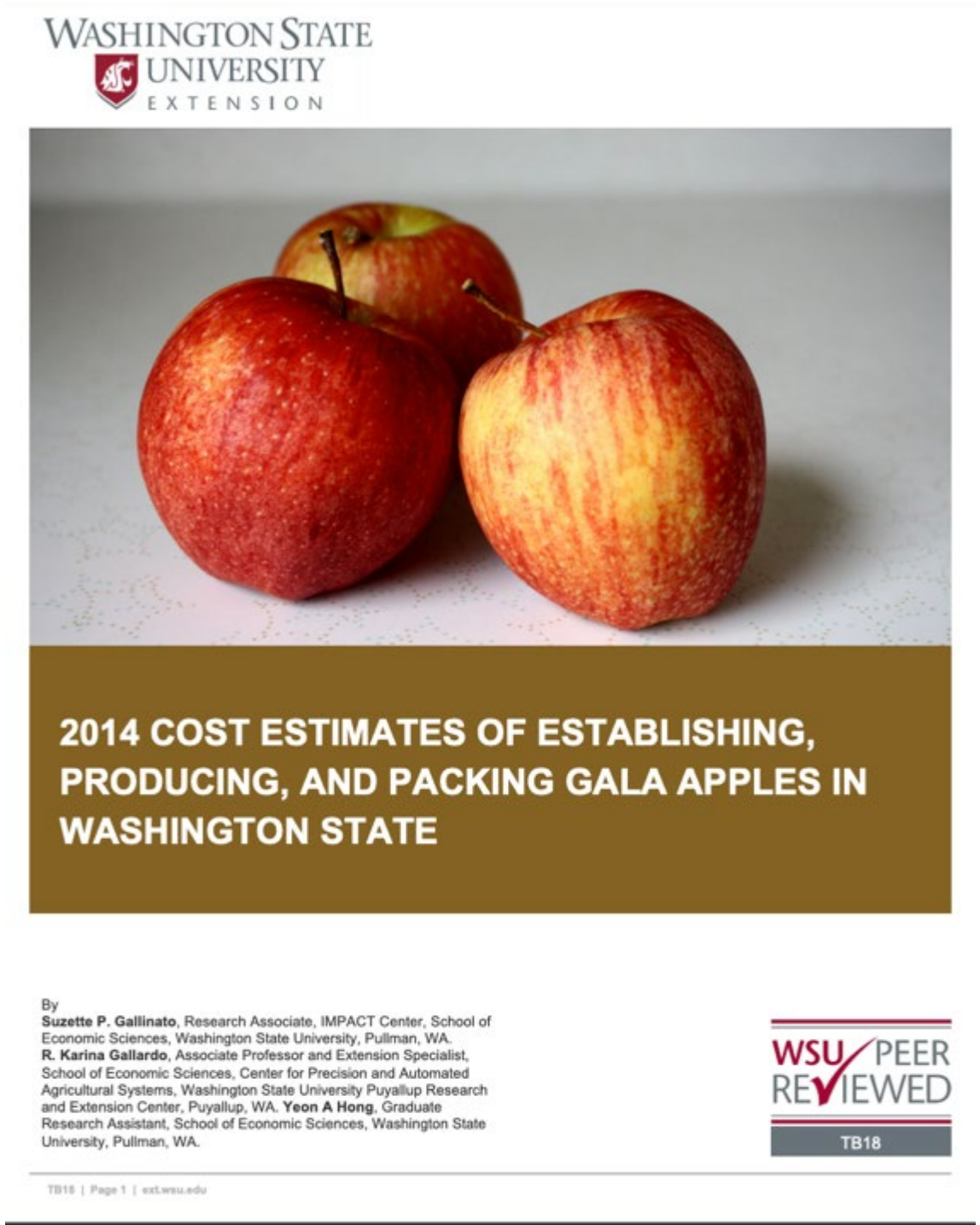
WSU Apple enterprise budget

- 2009
- 2012
- 2014
- 2019
- 2022
- 2024: Gala, Granny Smith, Honeycrisp, Cosmic Crisp®



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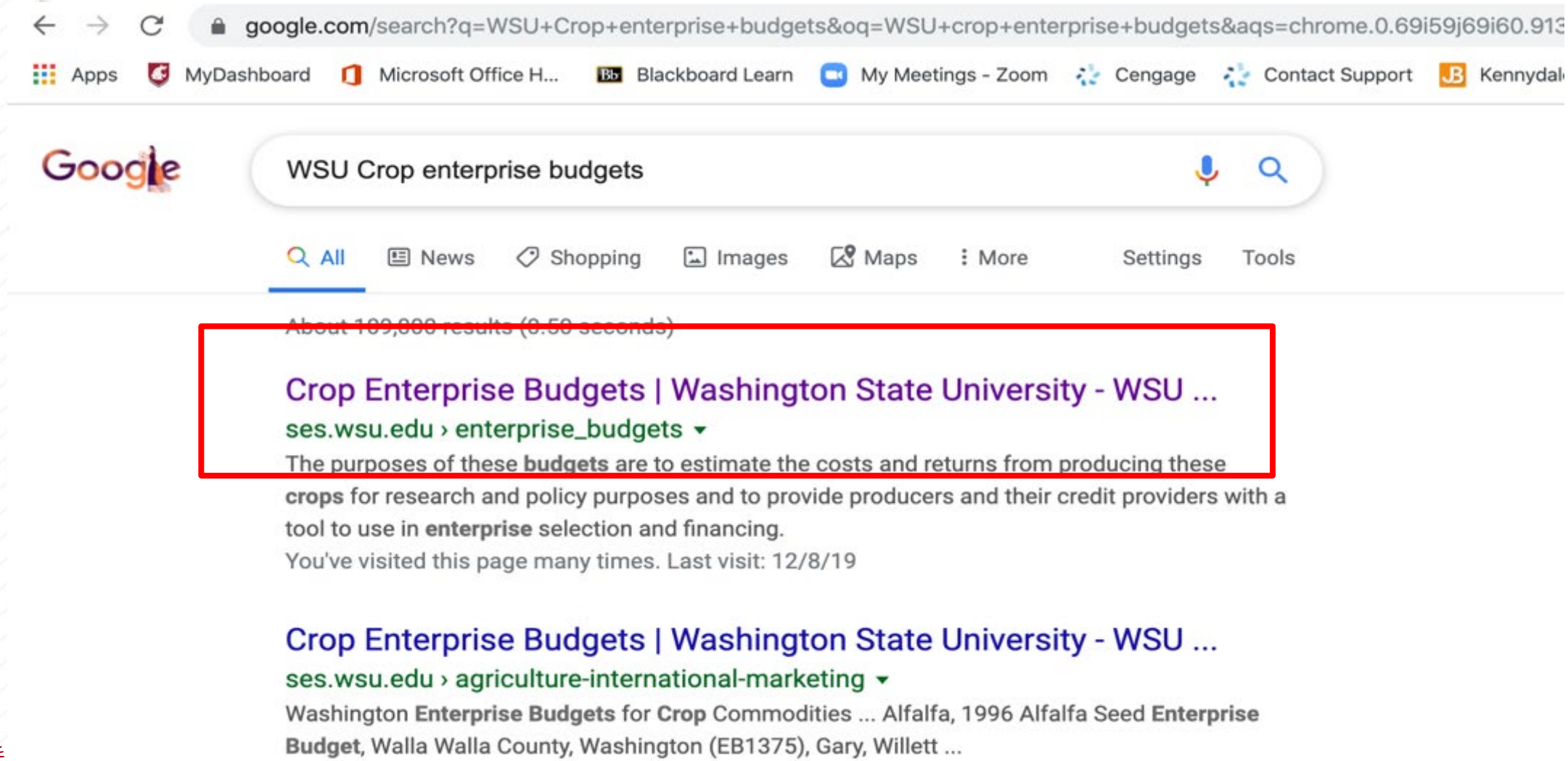
Where to find these studies?



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www.ses.wsu.edu/enterprise_budgets

Crop Enterprise Budgets

Agricultural operations are currently facing challenges due to the rising costs of inputs and stagnant output prices. To secure farm profitability, it is crucial to carefully assess expenses and revenues. Washington State University offers resources, such as tailored enterprise budgets, to guide producers in making informed decisions.

How to use enterprise budgets?

Enterprise budgets help farm management decisions. For example, projecting higher chemical costs prompts cost reduction exploration. Similarly, identifying high equipment depreciation may lead to selling underutilized machinery. Enterprise budgets can help you determine if the prices offered for your product will return a profit or a loss.

Structure of enterprise budgets

Enterprise budgets present returns and costs. Total or gross returns, which are price times yield, are usually presented first. In WSU **tree fruit crop budgets**, we include the prices negotiated by the packinghouse on behalf of the grower. In other words, these are not the prices received by the growers, it is the price received by the packinghouse. We include the packinghouse charges as a variable cost. In other WSU specialty crop budgets, farm-gate prices are used, which are prices received by farmers for their crops.

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WSU Crop Enterprise Budgets Instructional Video

Feedback

If you found any of the WSU crop

Interpreting profits

Profits are the difference between total returns and total costs. There are different ways to look at profits. Accounting profit is the difference between total returns and cash costs, often calculated with the guidance of your accountant. Economic profit is the difference between total returns and total production costs, which include the accounting costs, depreciation of fixed capital (except land) and opportunity costs. Opportunity costs denote the potential revenue foregone when opting to invest in your business line (in WSU budgets, it is a block within your whole agricultural operation). If your economic profits are greater than zero, it means that you are maximizing your profits by allocating your money in that business line. In the WSU enterprise budgets, opportunity costs include management labor, interest costs on land, machinery, equipment, irrigation and trellis systems, and capital amortization.

Sensitivity analyses

Enterprise budgets can be used for planning of future plantings and as such depend on assumptions. Therefore, it is essential to evaluate the impact of varying assumptions on your projected profitability. WSU enterprise budgets include different profitability forecasts to different output prices and yields. WSU enterprise budgets also include break-even analyses to understand the minimum price required to cover different types of costs: variable costs, cash costs, and cash costs plus opportunity costs.

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Washington Enterprise Budgets for Crop Commodities

Search: apples

Commodity	Title	Author	Date	Link
Apples	2022 Cost Estimates of Producing and Packing Organic Gala Apples in Washington State (TB19E)	Gallardo, Galinato	2022	PDF Excel
Apples	2022 Cost Estimates of Producing and Packing Organic Honeycrisp Apples in Washington State (TB91E)	Gallardo, Galinato	2022	PDF Excel
Apples	2019 Cost Estimates of Establishing, Producing and Packing Fuji Apples in Washington State (TB73E)	Gallardo, Galinato	2020	pdf excel
Apples	2019 Cost Estimates of Establishing, Producing, and Packing Granny Smith Apples in Washington State (TB74E)	Gallardo, Galinato	2020	pdf excel
Apples	2019 Cost Estimates of Establishing, Producing, and Packing Cripps Pink Apples in Washington State (TB75E)	Gallardo, Galinato	2020	pdf excel
Apples	2019 Cost Estimates of Establishing, Producing, and Packing Honeycrisp Apples in Washington State (TB070E)	Gallardo, Galinato	2020	pdf excel
Apples	2019 Cost Estimates of Establishing, Producing, and Packing Gala Apples in Washington State	Galinato, Gallardo	2020	pdf excel
Apples	2015 Cost Estimates of Establishing and Producing Specialty Cider Apples in Central Washington	Galinato, Miles	2017	pdf excel
Apples	Feasibility of Different Harvest Methods for Cider Apples: Case Study for Western Washington (TB32)	Galinato, Miles, Alexander	2016	pdf
Apples	TB32 Appendix A. Hand Harvested Cider Apples (spreadsheet)	Galinato, Miles, Alexander	2016	excel
Apples	TB32 Appendix B. Mechanically Harvested Cider Apples (spreadsheet)	Galinato, Miles, Alexander	2016	excel

Excel tool

Appendix Table 9. Assumptions for establishing, producing, and packing Gala apples on vertical spindle trellis system (per acre basis).

Activity	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 to 20 (Full Production)
FOB price	FOB packinghouse door price ($/40-lb box)	$24.00	$24.00	$24.00	$24.00	$24.00	$24.00
FOB price	FOB packinghouse door price ($/bin)	$444.00	$444.00	$444.00	$444.00	$444.00	$444.00
Crop yield	Gross Production per acre (lbs)	-	-	31,850	45,500	59,150	72,800
Crop yield	Gross Production per acre (tons)	-	-	16	23	30	36
Crop yield	Gross Production per acre (bins)	-	-	34	49	64	79
Land	Land cost (value of land with water rights)	$20,000.00	-	-	-	-	-
Soil prep	Soil sample (custom)	$12.00	-	-	-	-	-
Soil prep	Fumigation (custom)	$1,000.00	-	-	-	-	-
Soil prep	Rip and disk ground (custom)	$180.00	-	-	-	-	-
Soil prep	Fertilizer - material cost	$300.00	-	-	-	-	-
Soil prep	Fertilizer - labor hour	1.00	-	-	-	-	-
Soil prep	Fertilizer - labor cost	$27.79	-	-	-	-	-
Soil prep	Tree removal (custom)	$1,750.00	-	-	-	-	-
Trees	Planted trees per acre	1,452	-	-	-	-	-
Trees	Tree cost per unit	$10.51	-	-	-	-	-
Trees	Hours to plant a tree	0.02	-	-	-	-	-
Trees	Cost of labor per hour	$23.75	-	-	-	-	-
Trellis	Trellis (total cost)	$8,330.00	-	-	-	-	-
Sunburn protection	Netting	-	-	-			
Sunburn protection	Deployment and roll back	-	-	-	-	-	-
Irrigation installation	Laterals, sprinklers, sub-lines	$3,800.00	-	-	-	-	-
Irrigation installation	Installation labor	$1,000.00	-	-	-	-	-
Mainline & Pump	Mainline	$600.00	-	-	-	-	-
Mainline & Pump	Pumps (irrigation and frost), centrifugal	$300.00	-	-	-	-	-
Pond	Pond and filters with liners (purchase and installation)	$3,000.00	-	-	-	-	-

App7. Salv Value & Dep Calc | App8. Amort Calc | App9. Data for tables | +

Assumptions-Vertical

	Gala	Granny Smith	Honeycrisp	Cosmic Crisp®
Farm size (acre)	300	300	300	300
Productive area (acre)	52	28	26	10
Yield (bu/acre)	1,827	1,728	1,341	1,804
Packout (%)	80	80	72	80
FOB price ($/40-lb box)	24	26	44	35
In-row spacing	3	3	3	3
Between-row spacing	10	10	10	10
Rootstock	G41	G41	G41	G41
Life of planting	20	20	20	20
Tree density	1,452	1,452	1,452	1,452
Trellis system	Vertical spindle			

Assumptions-Angled

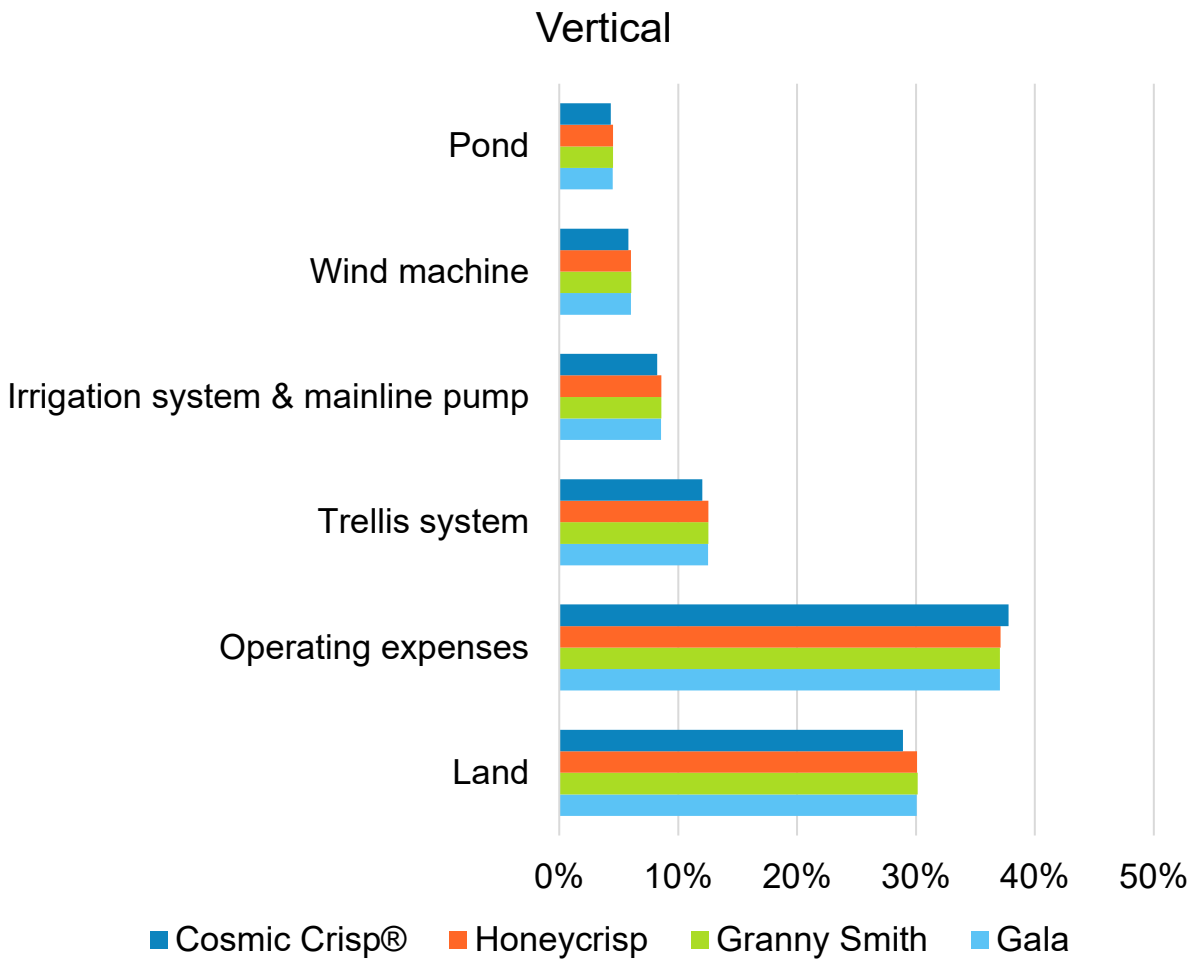
	Gala	Granny Smith	Honeycrisp	Cosmic Crisp®
Farm size (acre)	300	300	300	300
Productive area (acre)	52	28	26	10
Yield (bu/acre)	2,266	2,166	1,671	2,243
Packout (%)	80	80	72	80
FOB price ($/40-lb box)	24	26	44	35
In-row spacing	2	2	2	2
Between-row spacing	10	12	10	10
Rootstock	G41	G41	G41	G41
Life of planting	20	20	20	20
Tree density	1,815	1,185	1,815	1,815
Trellis system	Angled system			

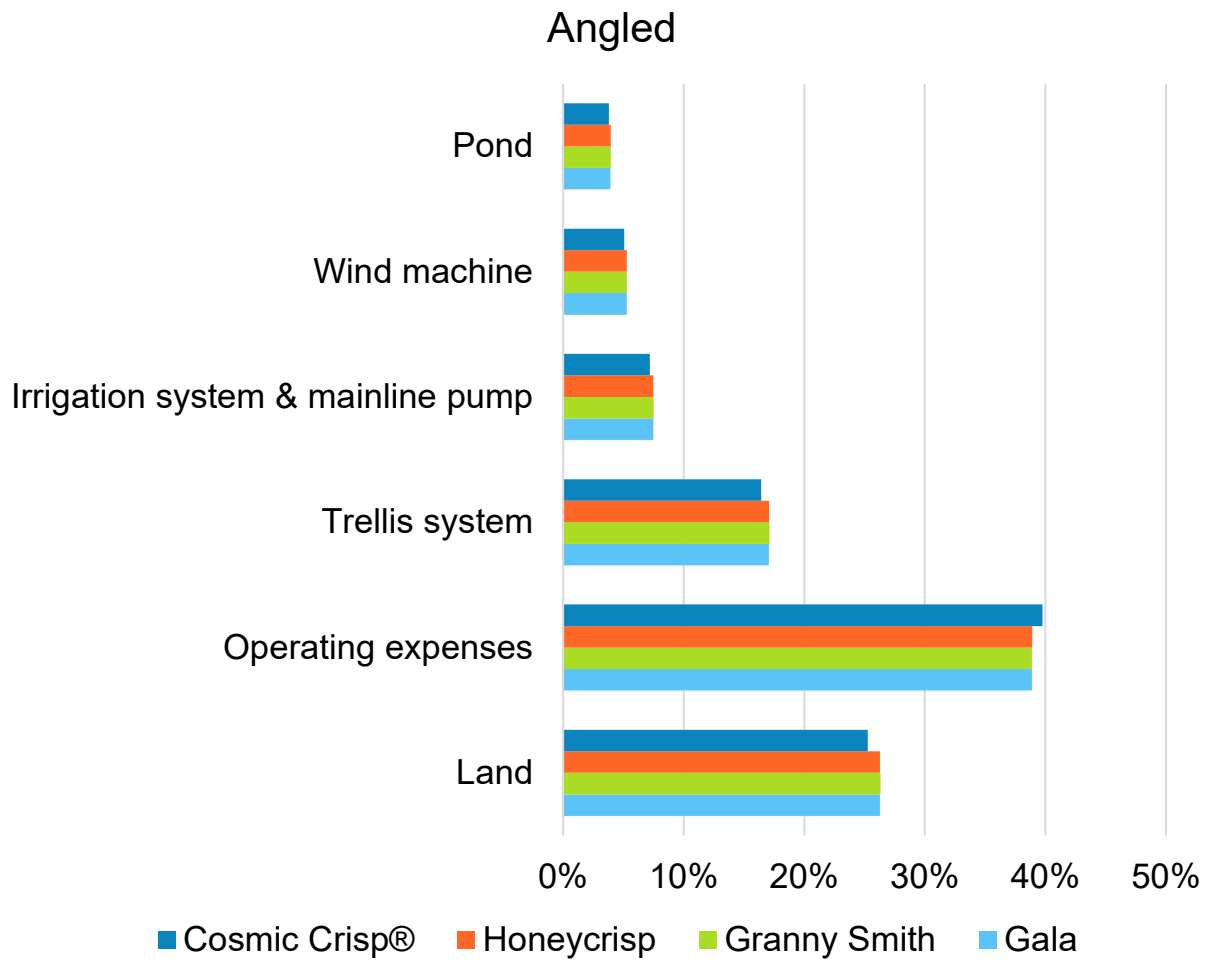
Referential Comparison WA - NY

	WA-Gala	NY Lake Ontario-Total Farm
Farm size (acre)	300	88
Net Yield (bu/acre)	1,827	942
In-row spacing	3	3
Between-row spacing	10	11 or 12
Rootstock	G41	M9 or G11
Life of planting	20	20
Tree density	1,452	1,265

Source: Bonalyn Nelsen, Lake Ontario Fruit Team Business Management Specialist, Cornell /cooperative Extension

Capital Requirement-Apple 2024





Total requirement-vertical ($/acre)				Total requirement-angled($/acre)			
Gala	Granny Smith	Honeycrisp	Cosmic Crisp®	Gala	Granny Smith	Honeycrisp	Cosmic Crisp®
66,546	66,349	66,482	69,177	76,162	75,965	76,098	79,194

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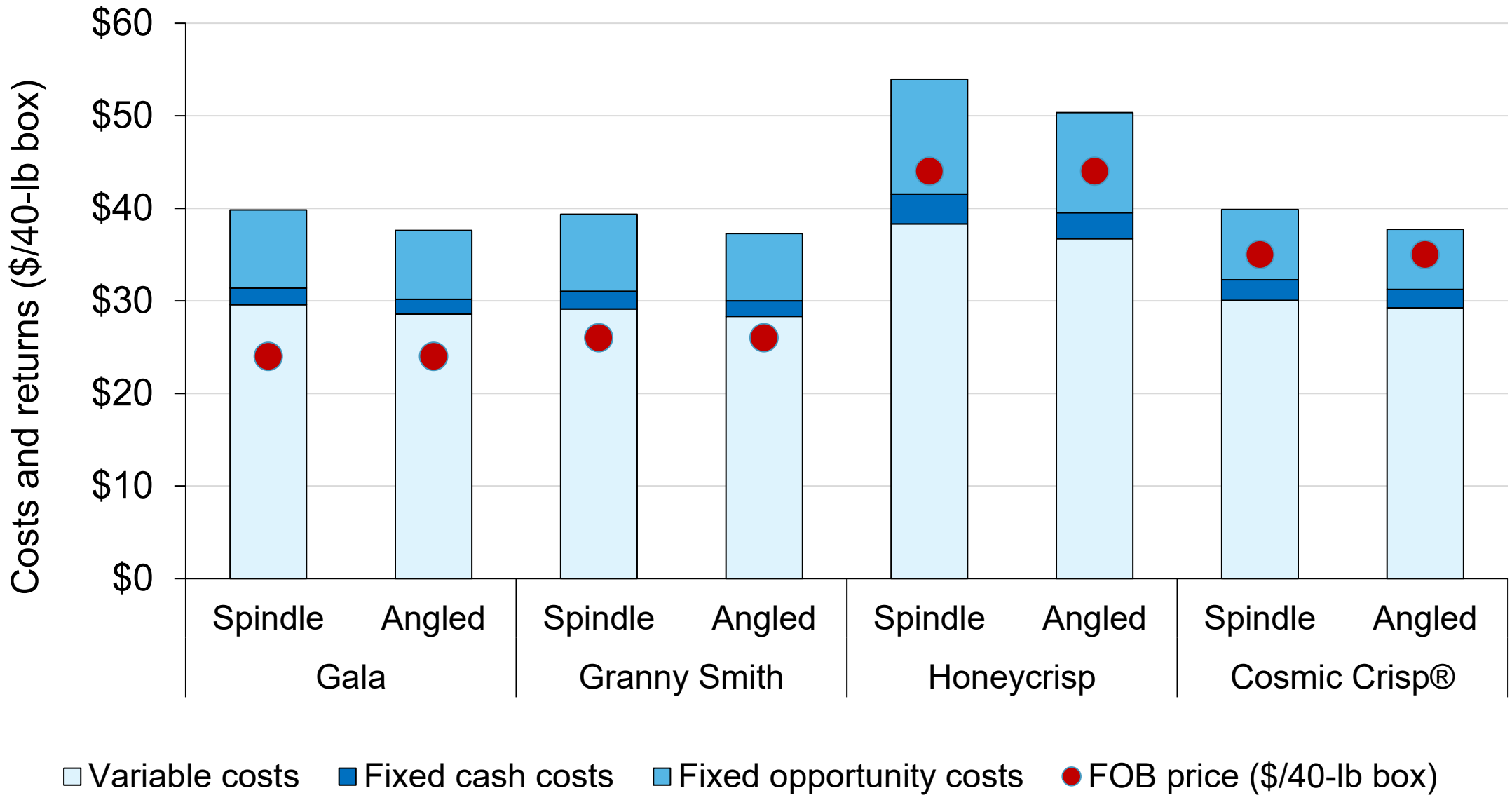
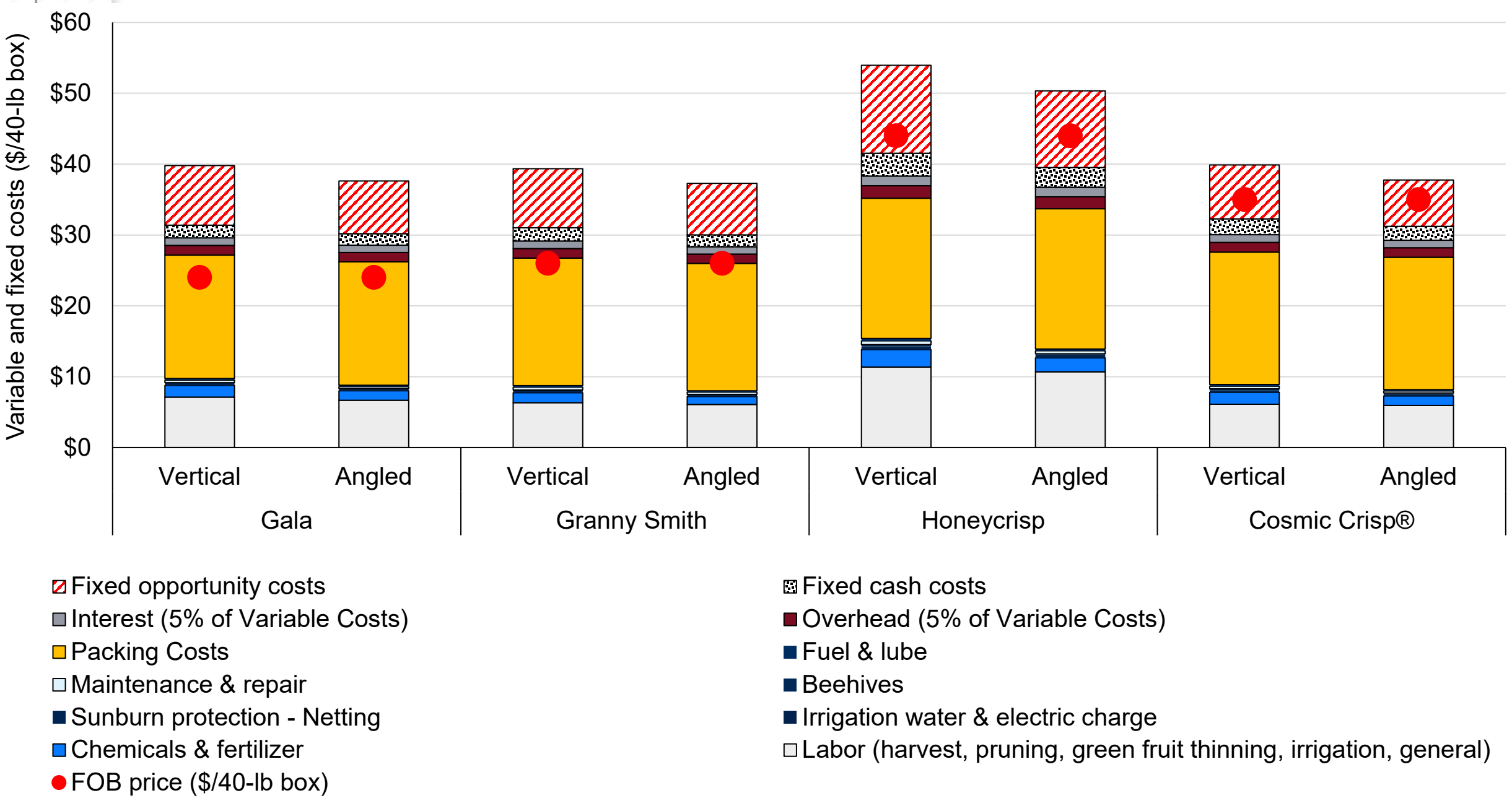
Returns vs. Costs-Apple 2024



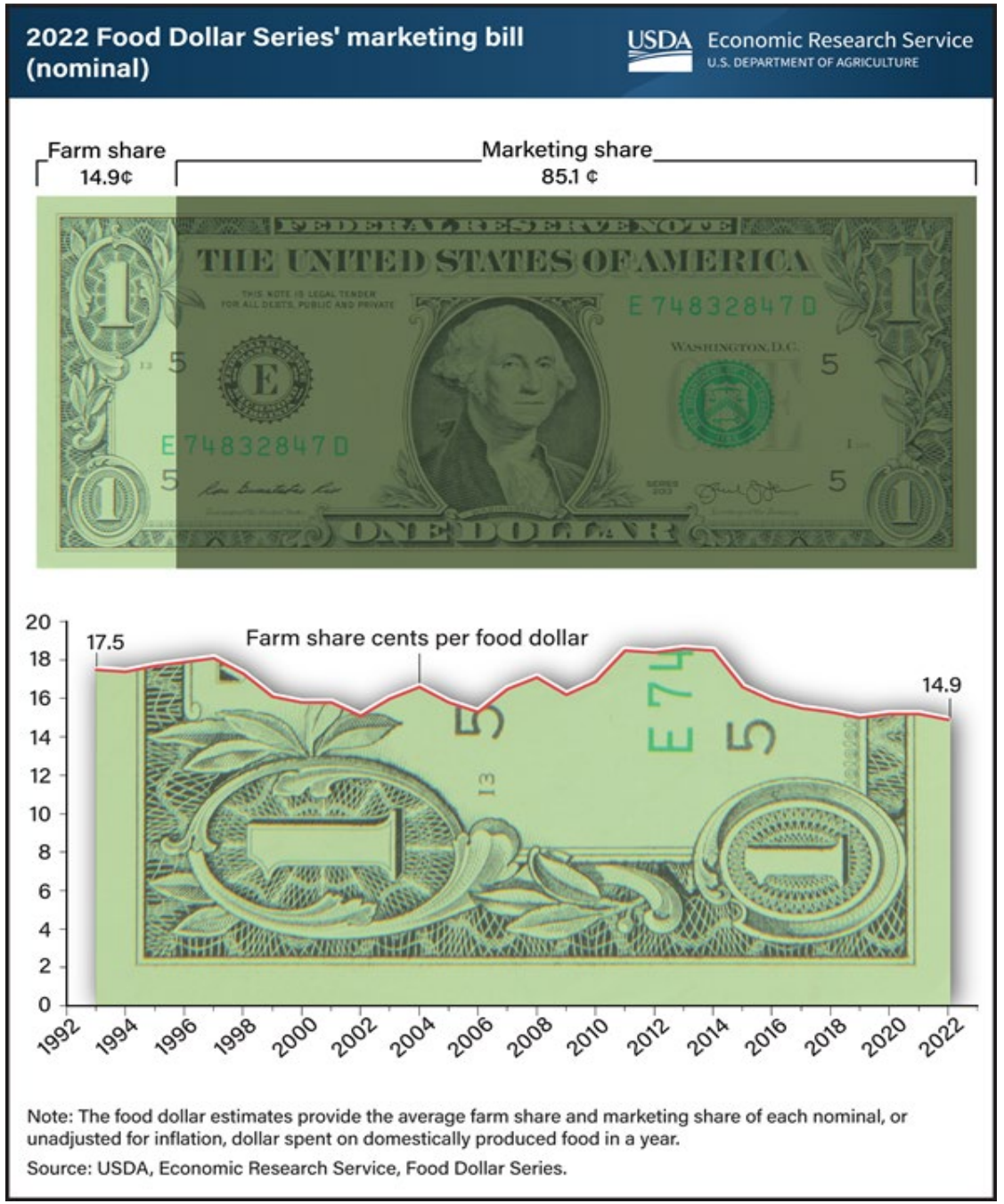
Variable Costs including packing-Apple 2024



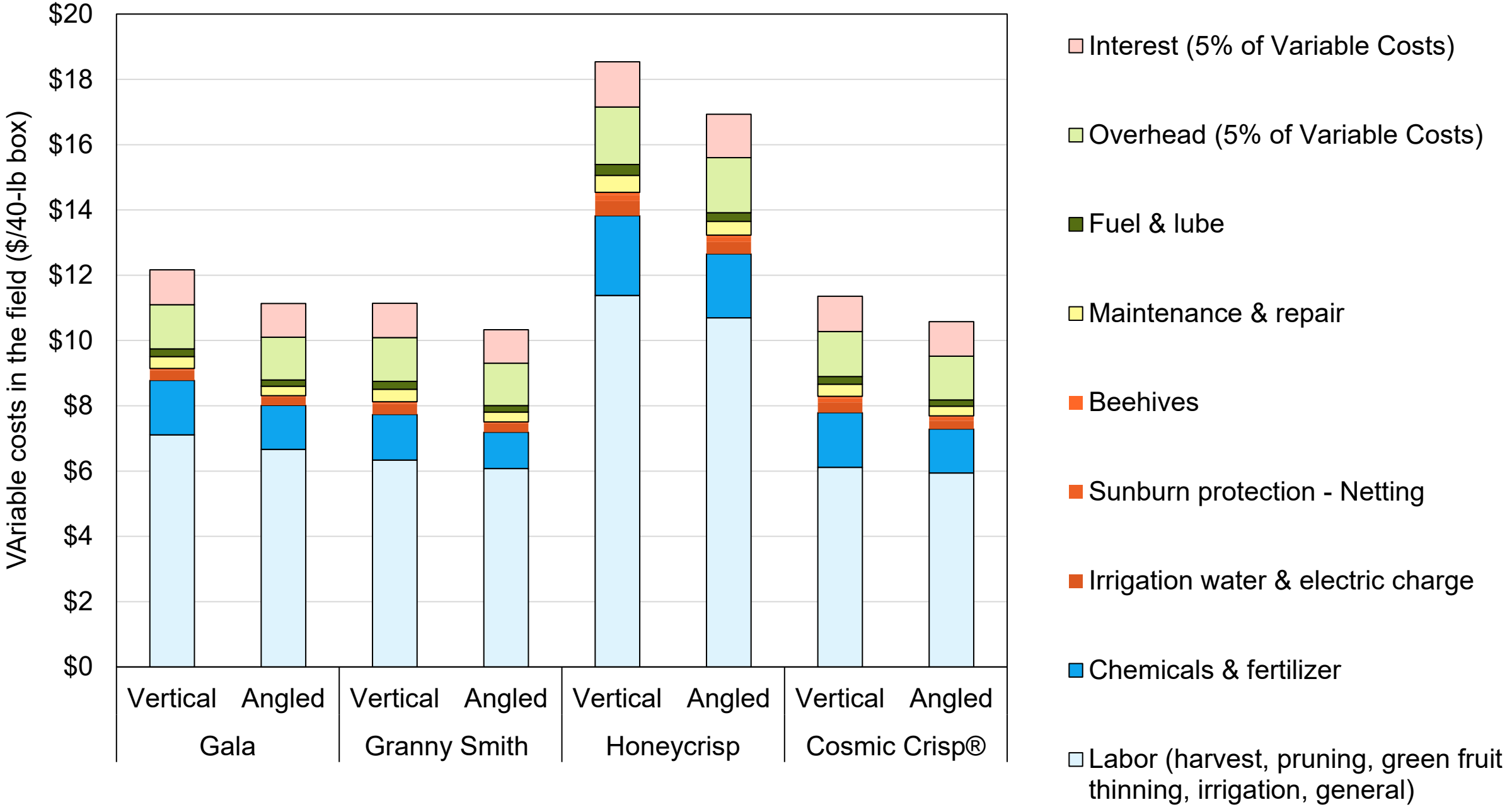
Residual price

- The farmer receives the residual price of the entire supply chain.
- For every dollar consumers pay for food:
- 15 cents go to the farmer
- 85 cents stay in the supply chain.

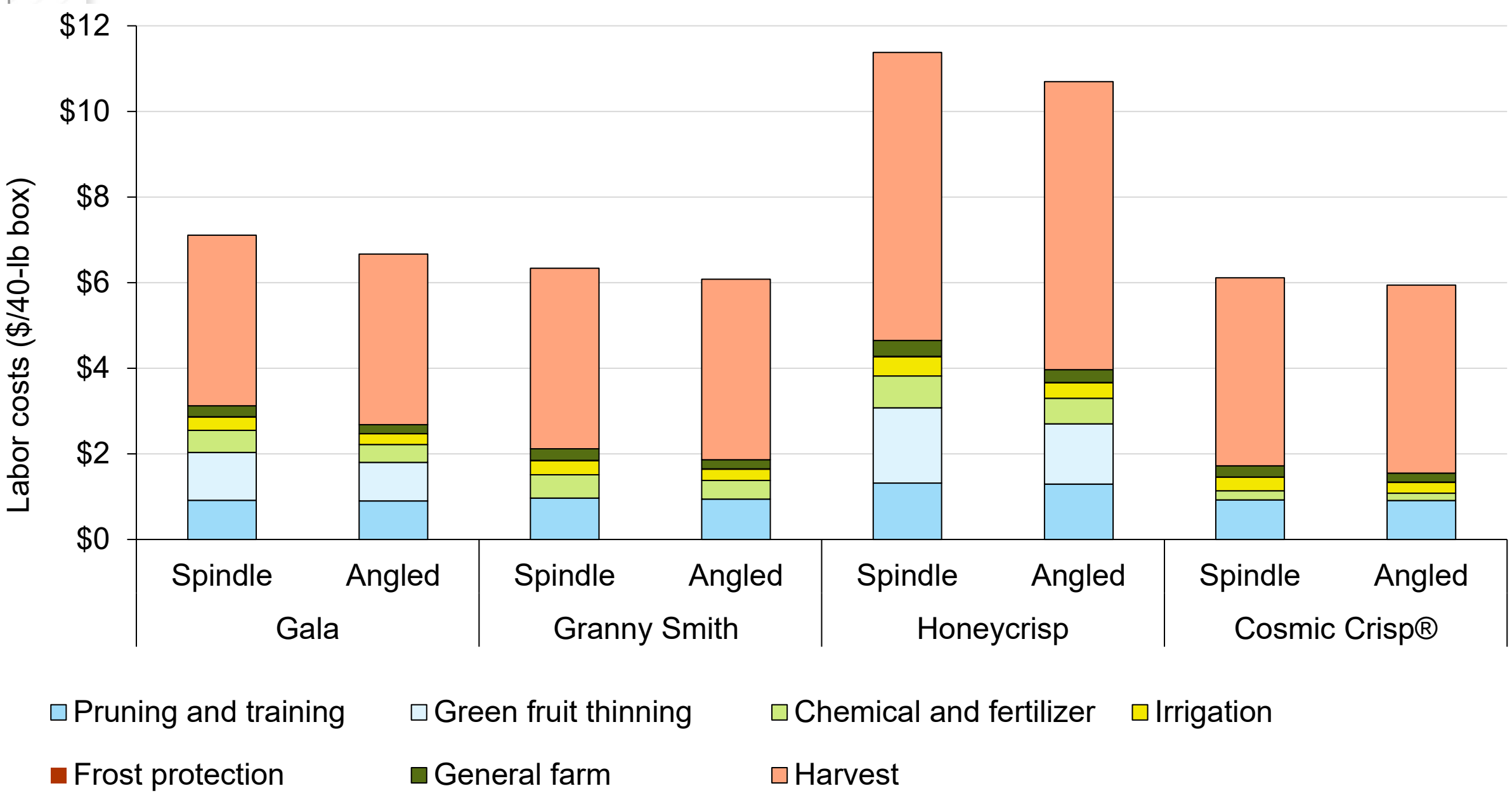
Source: USDA-ERS. 2022.



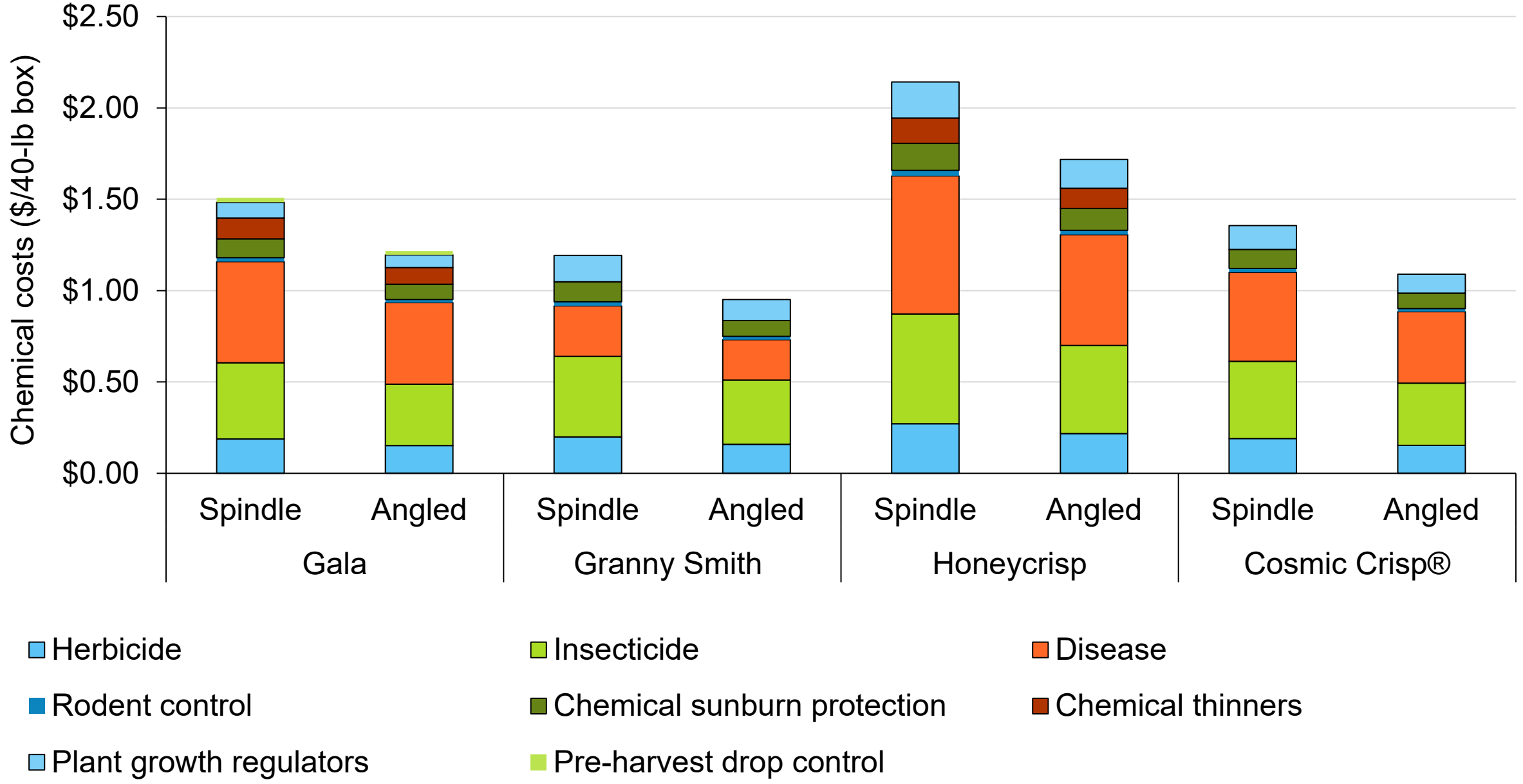
Variable Costs in the Field 2024



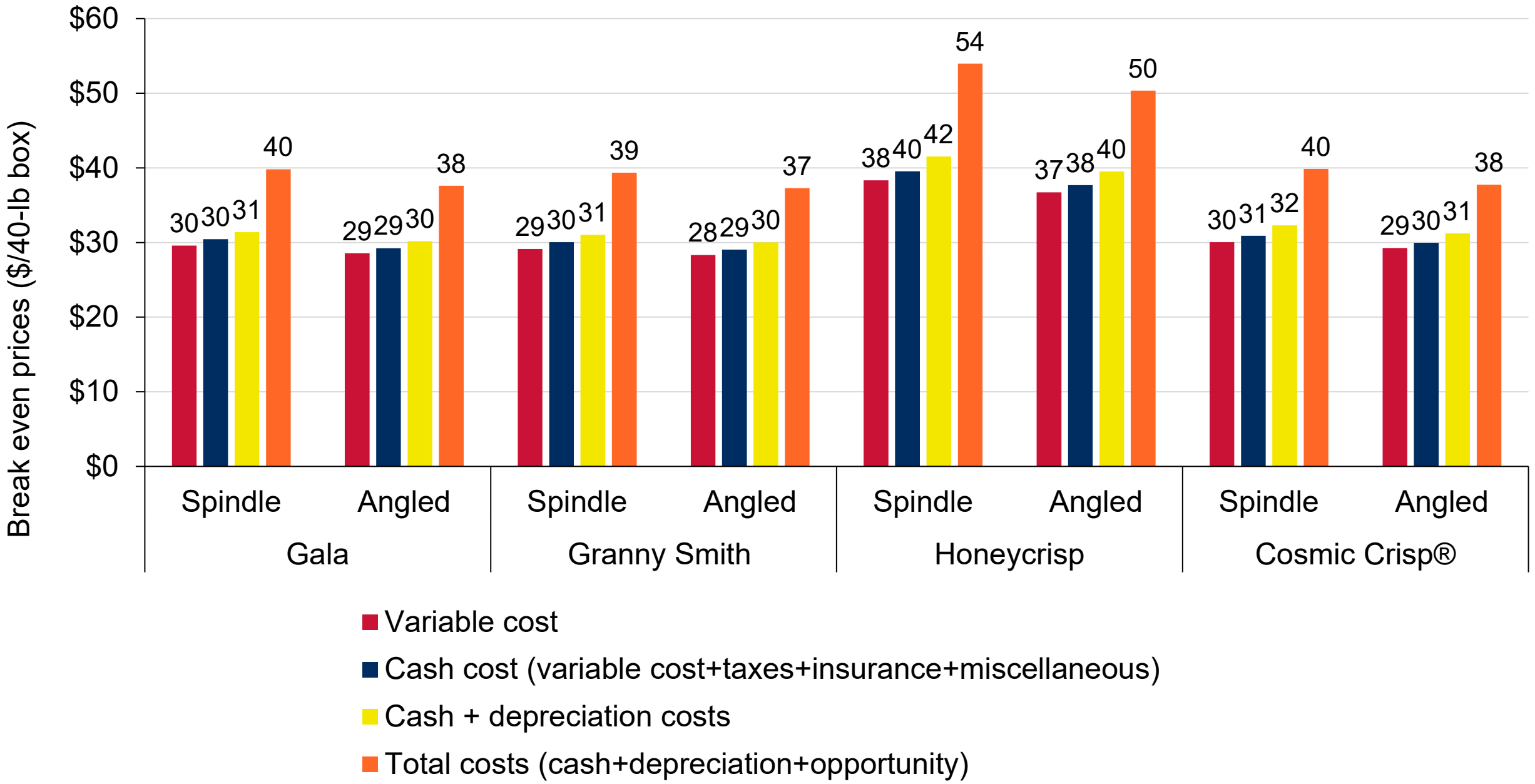
Labor Costs in the Field-Apple 2024



Costs of Chemicals in the Field-Apple 2024



Break even-Apple Prices 2024



Points to remember

- **Enterprise budgets:**
  - **F**lexible tools for both short- and long-term decision-making.
- **Costs and returns:**
  - Angled: 14–20% more capital & yield 24–25% higher returns.
  - Honeycrisp: 35–40% higher operating costs & 25–83% higher market prices.
- **In-field operational expenses**:
  - 60–65% from labor.
    - Harvest is the largest labor cost center, followed by pruning and training.
  - 25–35% from chemical costs
    - Disease is the largest cost center, followed by insecticide, plant growth regulator.
- **Profitability:** Depends on market conditions and cost structure decisions.

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Thank you

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More on tree fruit economics

https://ses.wsu.edu/extension/tree_fruit_economics/
https://ses.wsu.edu/enterprise_budgets/