Fresh Apple Economic Demand History

(Washington Apples)

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USApple Outlook Conference

Per-Capita Consumption vs. Economic Demand

Per-Capita Consumption as a Metric:

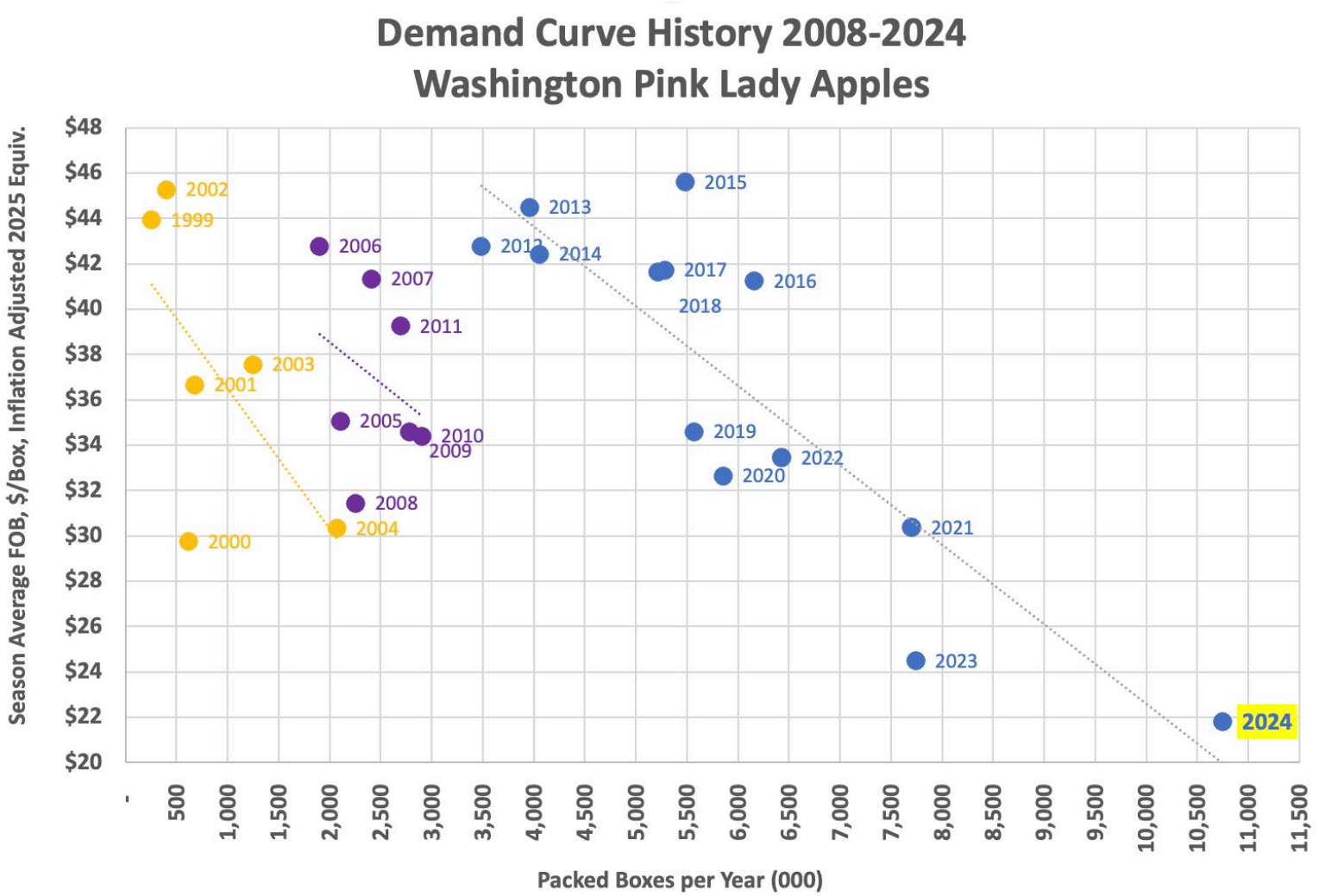
- ***Annual production drives per-capita consumption trends.***
- ***Per-capita consumption = (Domestic production + Imports – Exports) / Domestic population***
- ***Does not consider market-clearing price***

Per-Capita Consumption vs. Economic Demand

Per-Capita Consumption as a Metric:

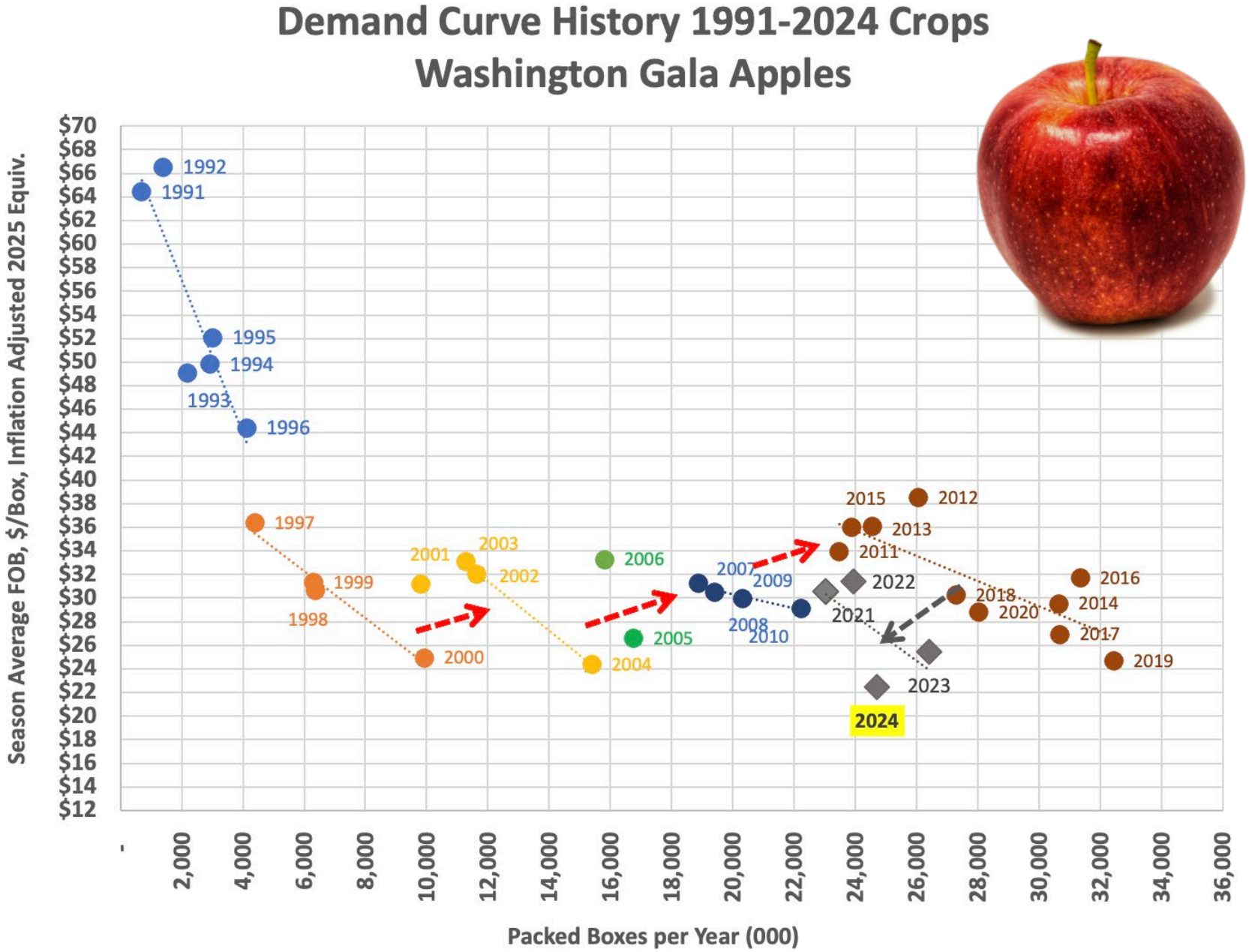
- ***Annual production drives per-capita consumption trends.***
- ***Economic demand is associated with varietal trends.***

Per-Capita vs. Economic Demand



Economic Demand Curves as a Metric:

- ***Annual harvest volume determines supply***
- ***One data point per season***
- ***Market-clearing price history reveals shape of economic demand curves***
- ***Demand curves shift right (+) and left (-) according to stage of product life cycle***
- ***Annual supply fluctuations move pricing up and down established demand curves***



Product life cycle economics are illustrated:

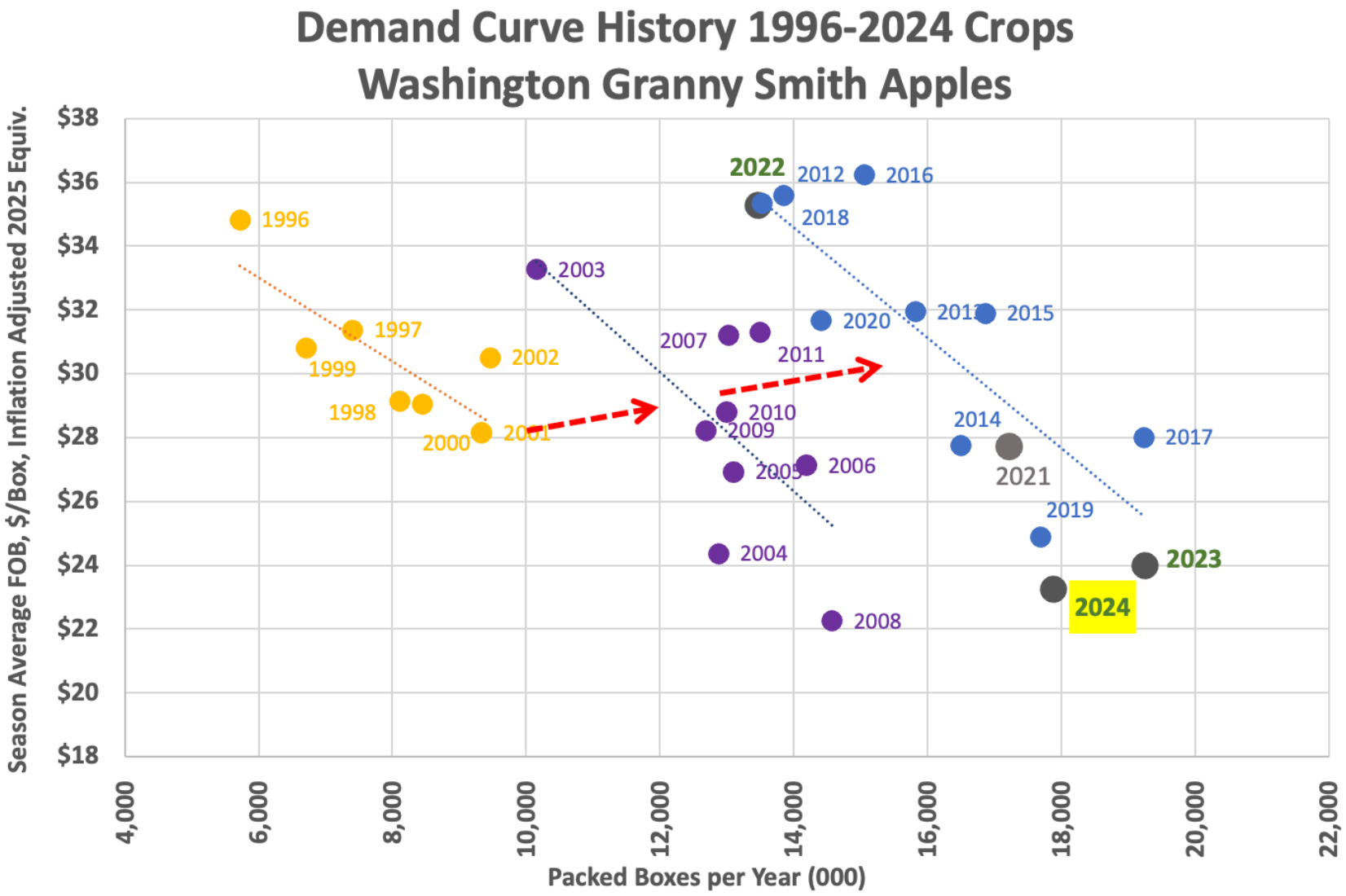
High demand for hot new variety in early years

Demand curve established

Rightward shifting demand curve supports both favorable pricing and higher volumes as new export markets established, quality improvements led to year-round availability

Mature demand

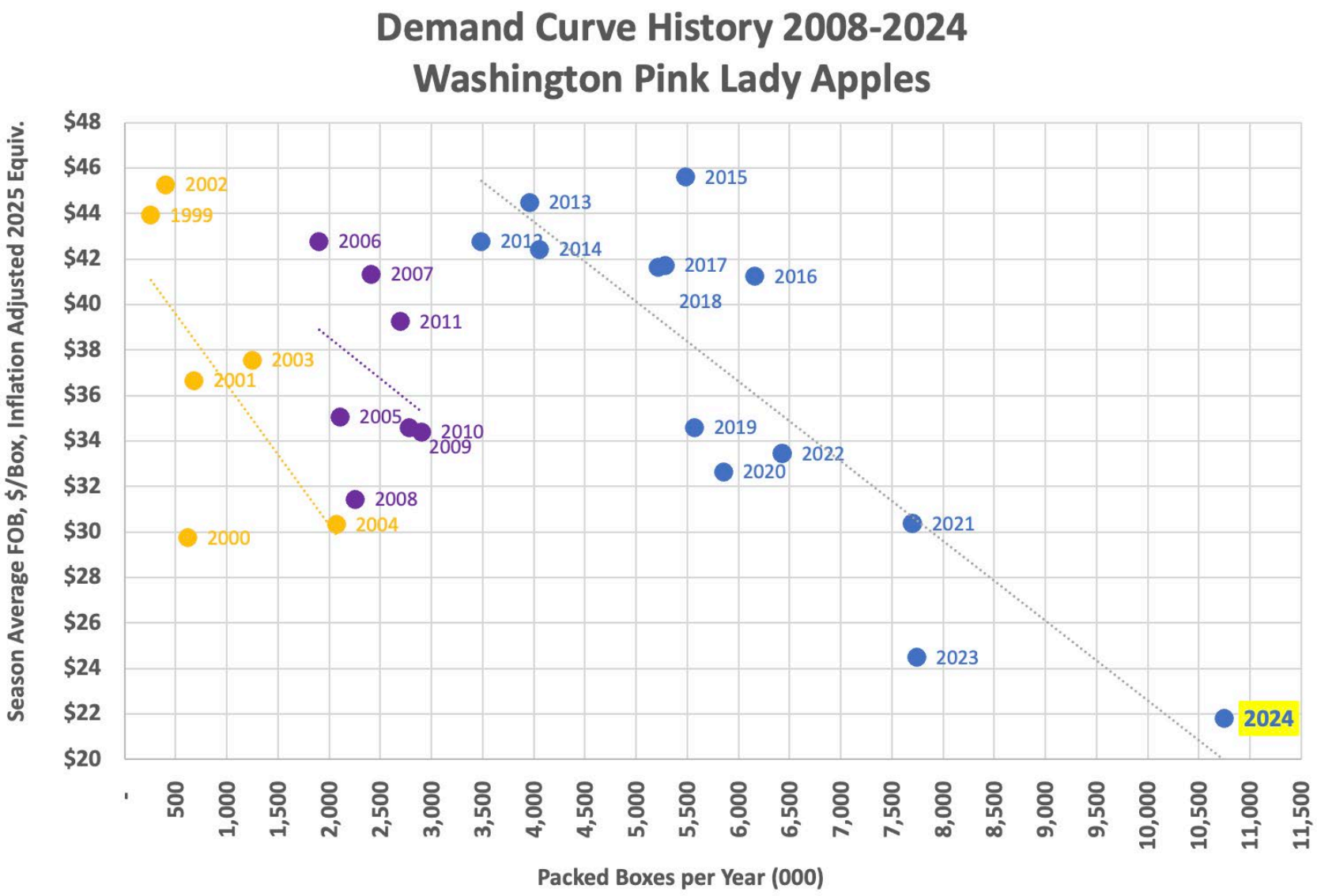
Declining demand, likely due to substitution effect from other new varieties



Historically well-established demand curve

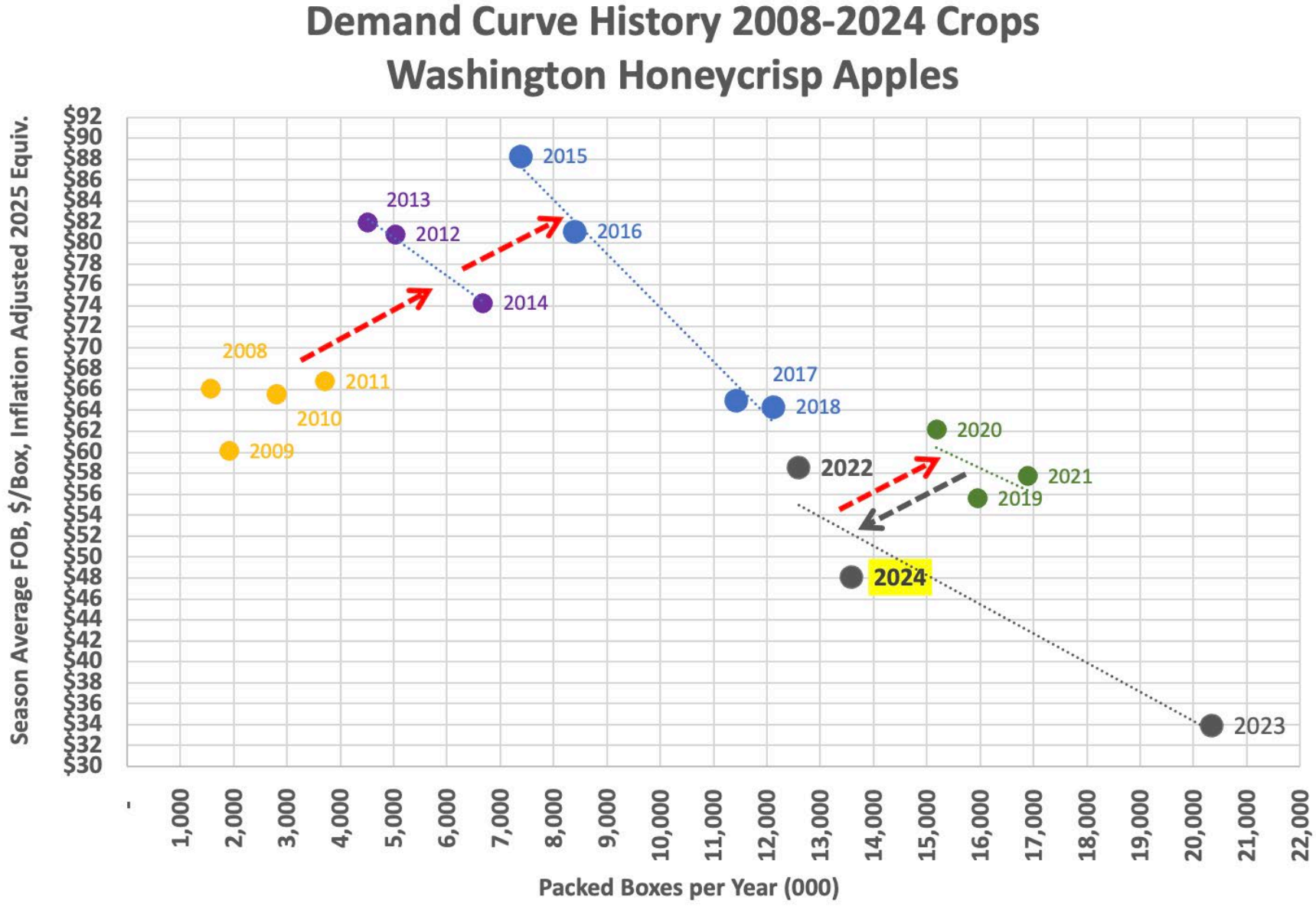
More inelastic than other apple varieties – changes in volume more-dramatically impact pricing

Less substitution effect due to unique color



Well established demand curve

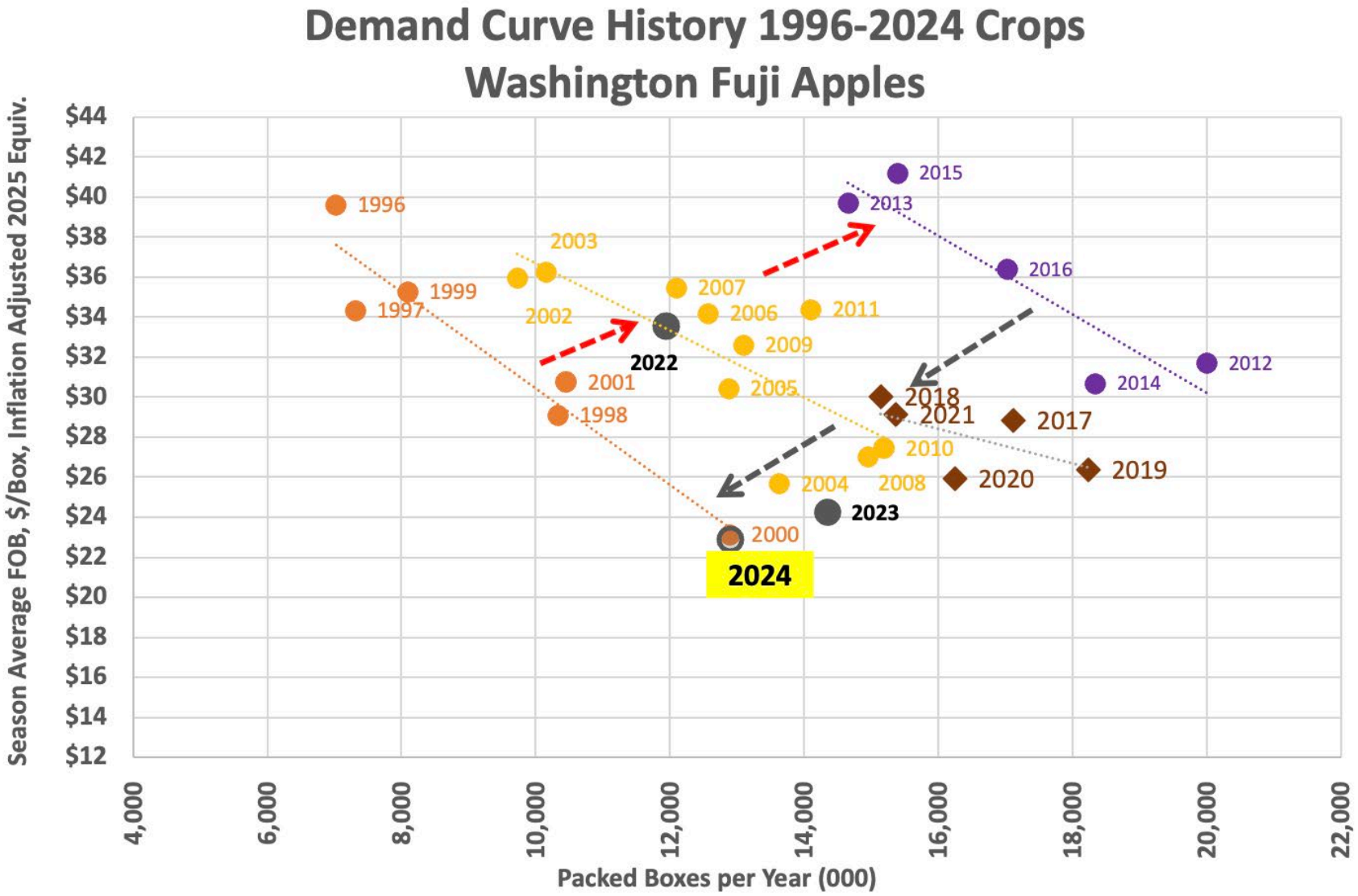
Large crop in 2024 caused prices to move down the demand curve to a lower market clearing price



Rapid rightward shifts in demand as market bid pricing upward for this hot variety

Current demand curve at 2015 to 2018 slope

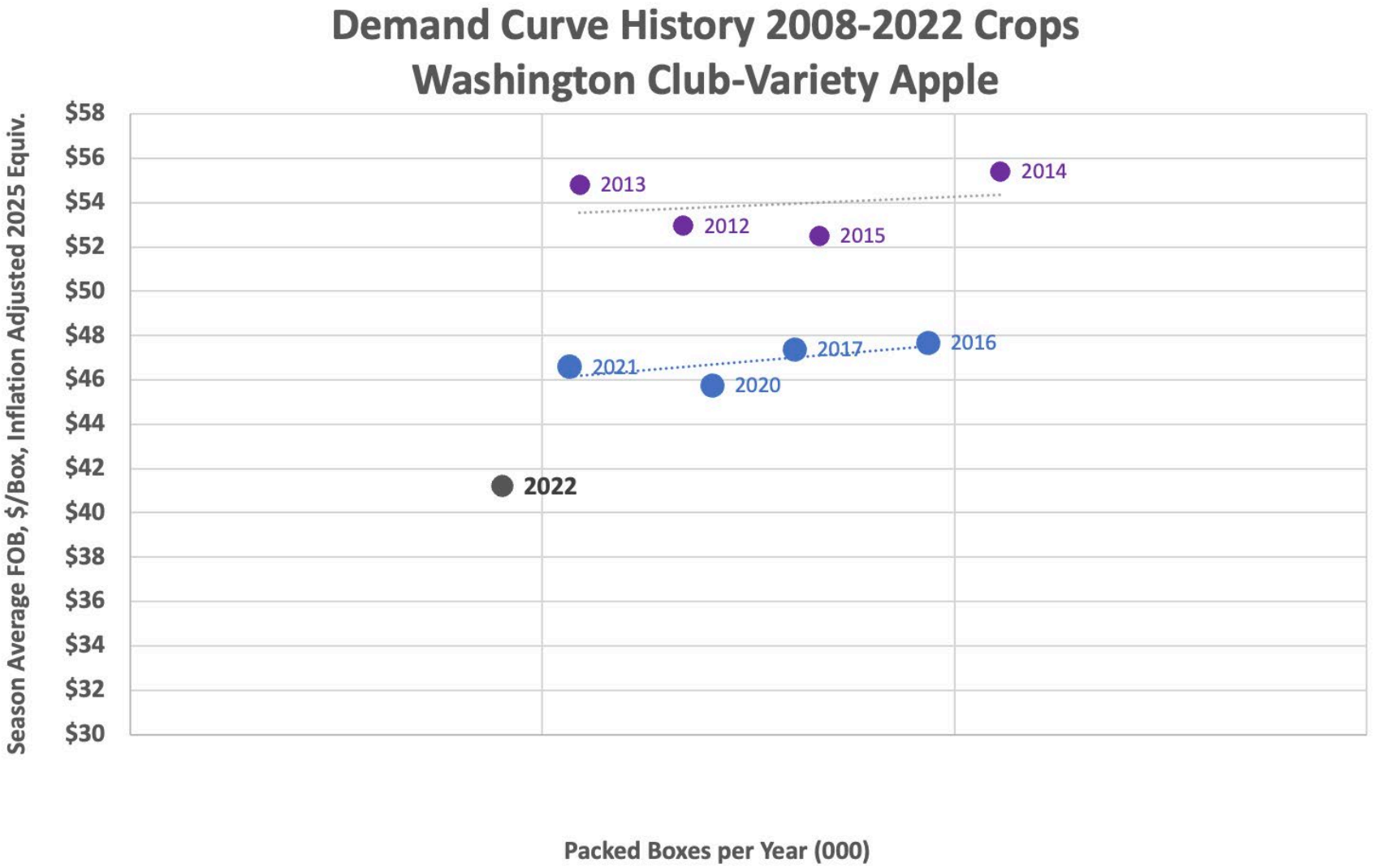
High volume with quality challenges in 2023 dropped the price level



Rightward increasing demand peaked by 2016

Declining demand (leftward shifts) thereafter

Fuji seems affected by the substitution effect from other new varieties

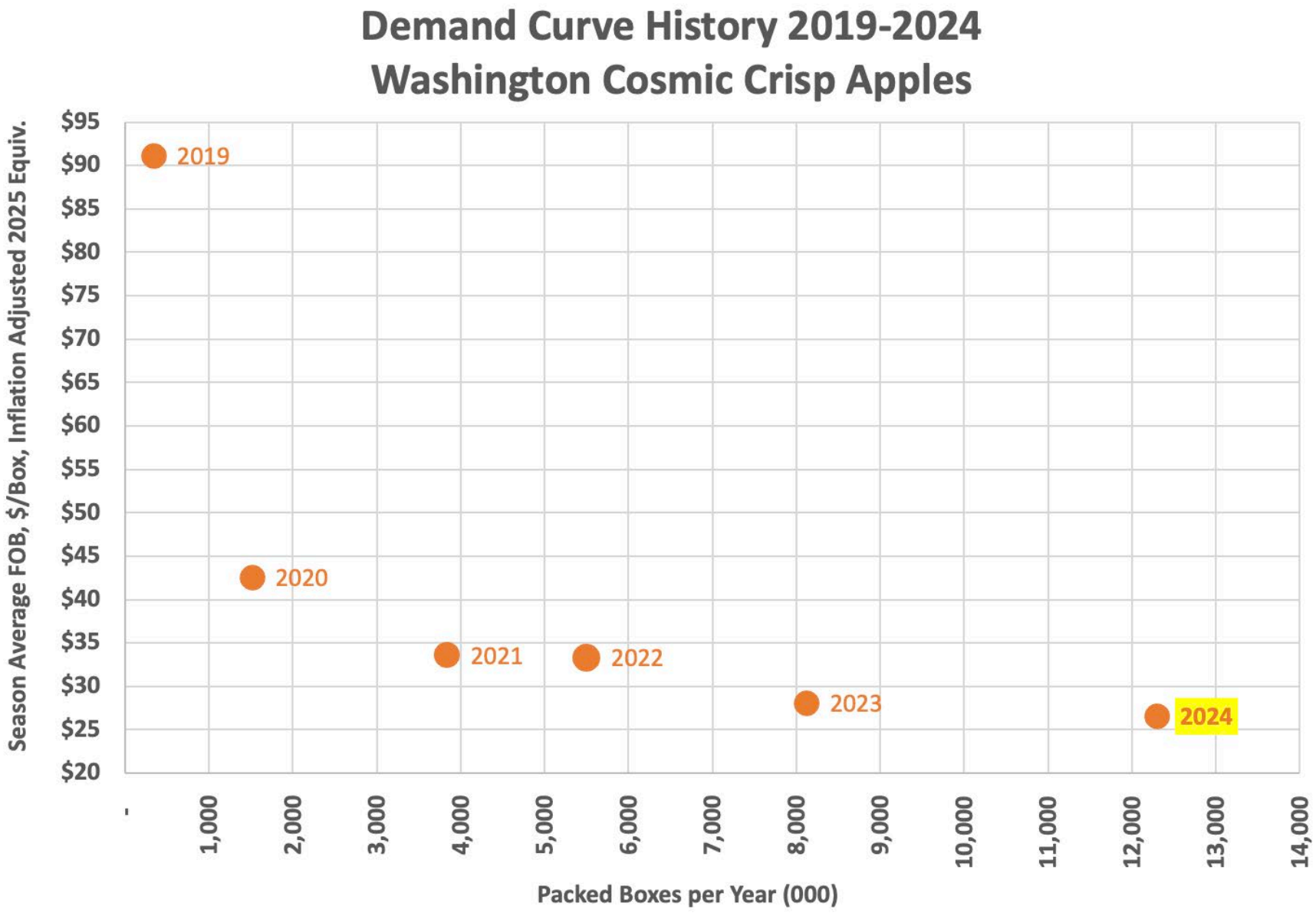


Data not available for all years

Example of club variety controlled by one sales desk.

Controlled supply and quality standards

Supplier decisions drive pricing more than supply / demand relationship

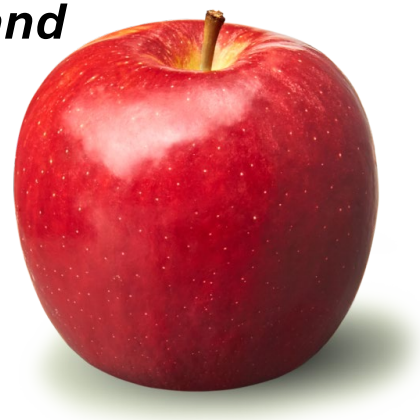


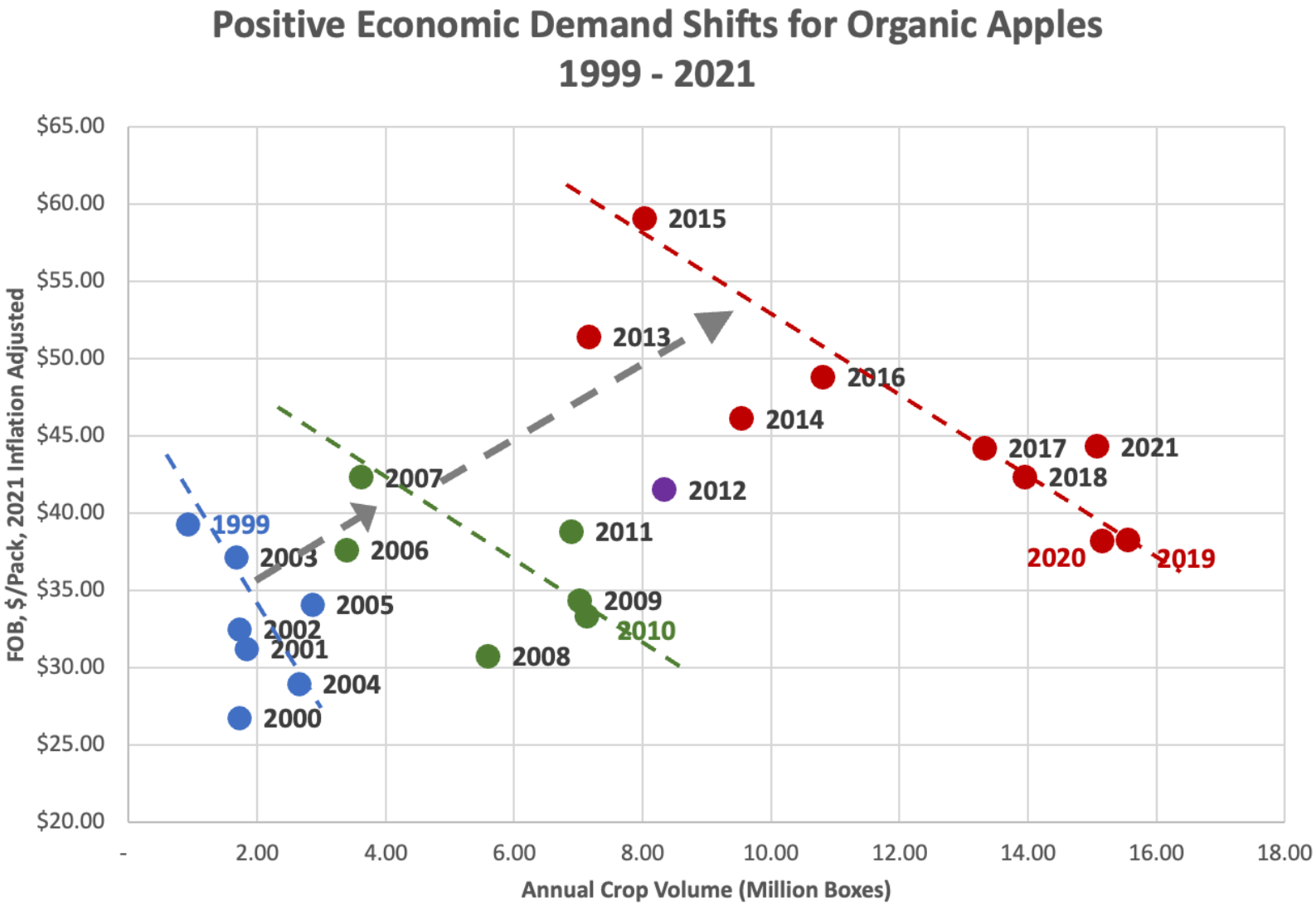
Open access variety available to all Washington growers

High coloring, high yield, good flavor acceptance, good storage

Heavily marketed through licensing market fees

Market clearing price for volume produced dropped rapidly – perhaps due to rapid initial production surge ahead of demand





Strong positive demand for organics

Well-defined economic trend

Data not available for all years

Key to Increasing Consumption

The key to increasing consumption of apples is to supply products consumers want to buy, that light up the consumers' faces with excellent eating experiences.

Evidence:

- *New variety apples 2001 to 2016*
- *New technology solved crunchy apple problem*
- *Club variety pricing*
- *Historical demand curve shifts*

Elasticity of Marketing Activities to Increase Demand

WAC research re: The cost-benefits of marketing activities for apples

#1 most efficient use of resources: ***Open new export markets via trade barrier reduction***

#2: ***Increase domestic retail merchandising***

- *75% of consumer produce purchase decision made in-store*
- *Quality variance induces consumer reliance on inspection over brand reputation*

#3: Inexpensive public relations activities (eg: influencers, health messages, etc.)

#4: Retailer-associated consumer-targeted advertising that supports store merchandising (eg: billboard near store)

#5: Consumer-targeted out-of-store advertising

- *Expensive, low-ROI*

Washington's Money Zone

- **Money Zone: Top 2 Grades, Size 100 and Larger**
  = 52% of Packs, 42% of Total Orchard Production

- **Other Packed Grades and Sizes:**
  = 48% of Packs, 38% of Orchard Production

- **Culls**
  = 20% of Orchard Production

- ***Nearly 60% of total orchard production are by-products***
  - *Plus, varieties that are declining in demand*

Shifting production into the money zone can be expensive and may requires heavy capital investment (replanting, genetics, intensive practices, coverings and floors, etc.). This can be difficult when facing cash flow stress.

Forward Contribution Margin

Incentivizes short-term and long-term decisions

- **Forward Contribution Margin:**
  = Future cash inflow – Future cash costs for a given future period of time
  Prior spendings are "sunk" costs and do not affect future decisions

  At time of packing: = FOB price * Qty – packing, shipping, sales costs *(Maximum state)*

  At time of harvest = FOB price * Qty – harvest, storage, packing, shipping, sales costs

  At time of beginning annual production cycle: =
  FOB price * Qty – All growing, harvest, packing, storage, sales, shipping costs for the coming growing season

  At time of planting =
  Sum (FOB price * Qty – All costs) - Capex for all future years

The shorter the period between the point of a production decision and its revenue collection, the lower are the remaining future variable cash costs, and the greater the potential available forward contribution margin. This can provide an incentive to continue marketing low-grade, low-price items in order to maximize positive short-term cash. This facilitates accepting lower prices for those items, down to the point when price equals future variable cash costs.

Strategic Positioning

Keys for staying ahead of economic cycles:

- Hot new proprietary varieties – intense flavors, unique characteristics
  - Prices that buffer cost challenges and price-lowering effects from over-indexed commodity varieties
  - High contribution margins
- Money zone production and packouts
- Resources to wait out the sweeping out of lower-efficiency players and cycles of industry over-supply
- Strong sales desks and customer relationships
- Export market expansion
- High production yield per acre
- Efficient operations
- Strong labor supply
- Long-term perspective