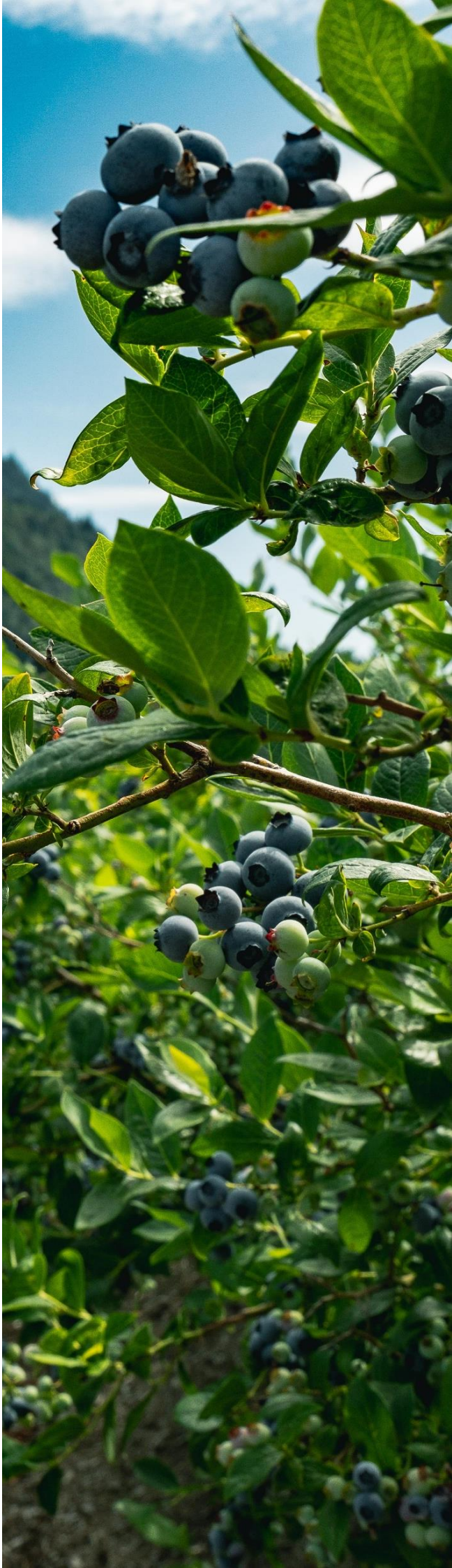
Shire Capital Management

Blueberry Industry Overview



Executive Summary

- North America is the largest blueberry consumer, and third largest producer globally
- Peruvian exports have expanded rapidly, growing from a handful of commercial farms ten years ago to being the second largest producer today
- China is the largest global producer, but largely produces for the domestic market with few exports
- North American consumer demand for blueberries has increased 8x over the past two decades
- North American demand projected to increase as household penetration rises from 50% to 70%
- Harvest timing and fresh quality are the two main determinants of price
- High quality fruit is sold fresh, commanding over 2x the price of processed berries (e.g. dried or frozen)
- North American production has consolidated in the PNW, now accounting for over 60% of the total
- Washington is the largest organic blueberry producer in the PNW, with over 2,000 planted organic blueberry acres, representing 20% of total state production

Global Production

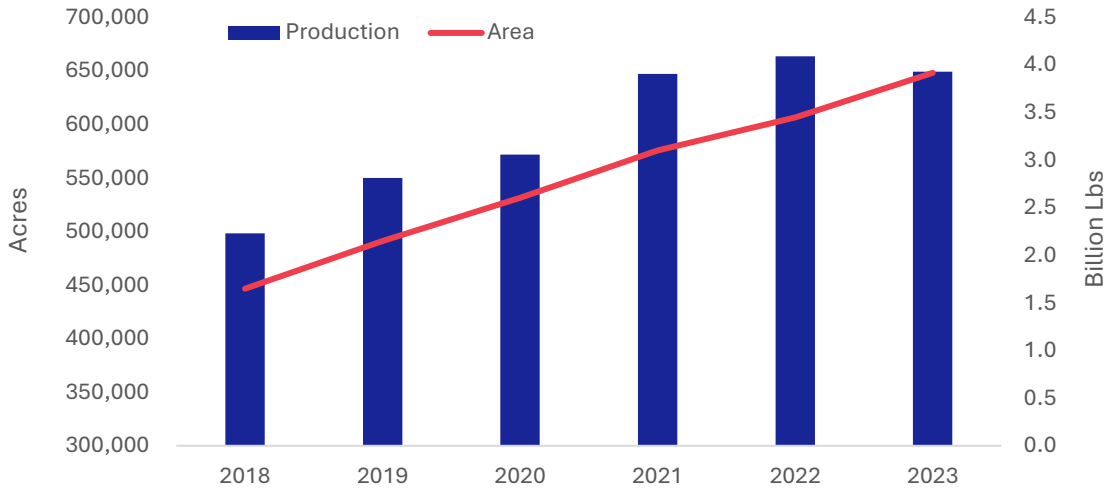
Global highbush blueberry production reached 4 billion pounds in 2022 and is expected to exceed 5 billion pounds by 2026. New production regions are emerging to complement annual supply gaps from traditional markets. The Peruvian industry in particular has undergone rapid expansion, starting with close to zero commercial acres in 2012 to being the second largest global producer within 10 years.

FIGURE 1. FOUR BILLION POUNDS PRODUCED GLOBALLY
2023 (Highbush Blueberries)

International Blueberry Organisation – Global State of the Industry Report 2024 ("IBO 2024")

Global planted acreage has increased steadily since 2018 at a rate of ~8% a year. This has largely been driven by China, Peru and Mexico (+20% in 2021) and eastern European countries including Poland, Serbia, Romania and Ukraine.

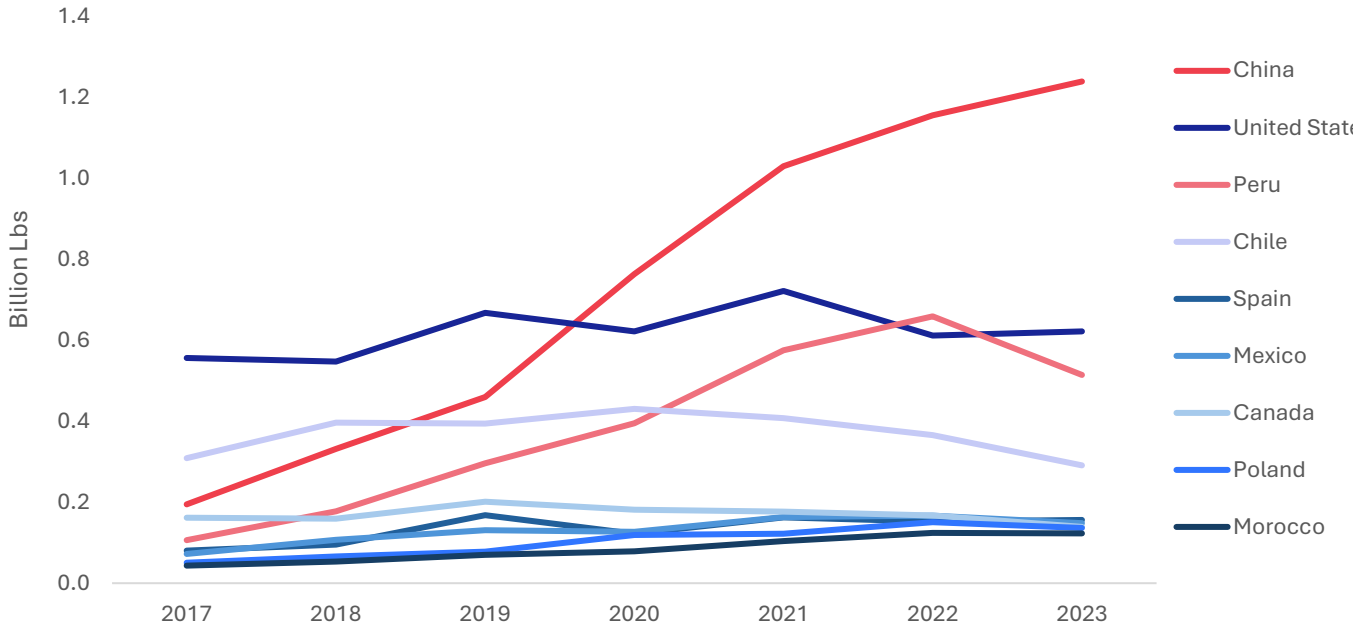
FIGURE 2. GLOBAL PRODUCTION AND PLANTED ACREAGE
2018-2023



IBO 2024

El Nino affected yields throughout the Americas in 2023. Peak Peruvian and Chilean production was delayed by up to 2 weeks, and volumes were down over 15%. The Pacific Northwest saw improved yields.

FIGURE 3. LARGEST PRODUCERS
2017-2023

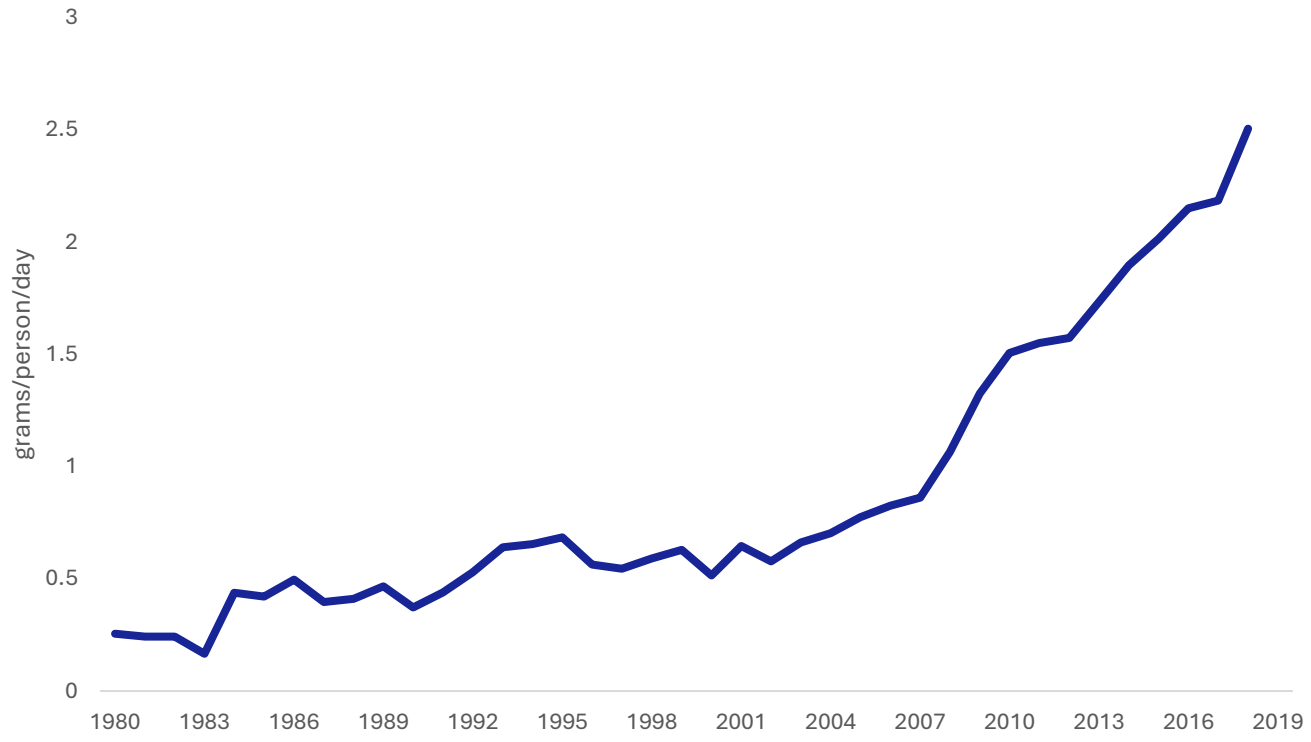


IBO 2024

Demand

Blueberry demand is expected to sustain its growth trajectory as domestic household penetration increases and export markets grow. Demand growth is driven by demographic (a growing, more prosperous population) and cultural (increasing nutritional and environmental concern) trends. Total consumption in North America reached approximately 1.4 billion lbs in 2023, or approximately 3.5 lbs per person per year.

FIGURE 4. US LOSS-ADJUSTED BLUEBERRY AVAILABILITY
1980-2019



USDA

North American blueberry household penetration is forecast to increase as demand grows for nutritious, fresh, sustainable, and locally sourced products. Household penetration increased from 25% in 2013 to 50% today, and could reach that of strawberries (70%+) by 2030.

"There is a collective sense that blueberry household (HH) penetration will equal or exceed that of strawberries by the end of the decade and that fresh blueberry volume sold at retail [in the US] can exceed 1 billion pounds within this same time frame."

– International Blueberry Council, NielsenIQ

Pricing

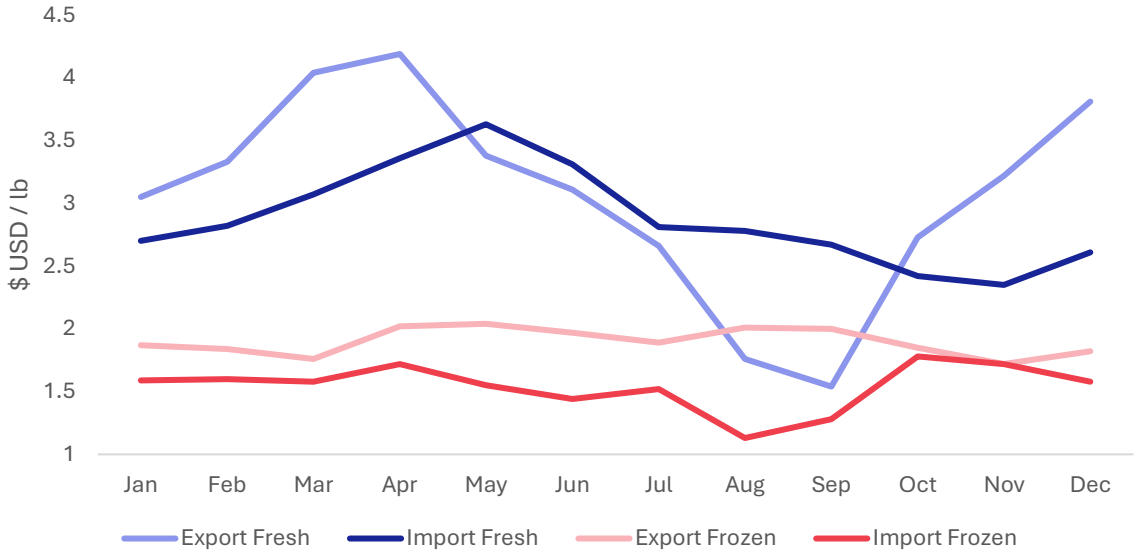
Unlike commodity crops, blueberry pricing is highly differentiated. The market is segmented by timing, use (fresh vs processed) and quality (organic, jumbo). Fresh produce, which has a shelf life of ~4 weeks, has generally seen strong pricing over the past few years, while pricing for processed or frozen berries has been relatively flat to down.

Blueberry farmgate pricing factors include:

1. Timing - whether the product goes to market during a period of high or low supply
2. Quality - variety dependent, determines whether the product can be sold fresh or must be processed
3. Quantity - the pricing power in relation to the distributor/retailer
4. Demand - consumer demand driven by economic, demographic and lifestyle factors

FIGURE 5. US BLUEBERRY PRICES

2022



Fresh production commands a seasonally-dependent price premium (USDA, 2022)

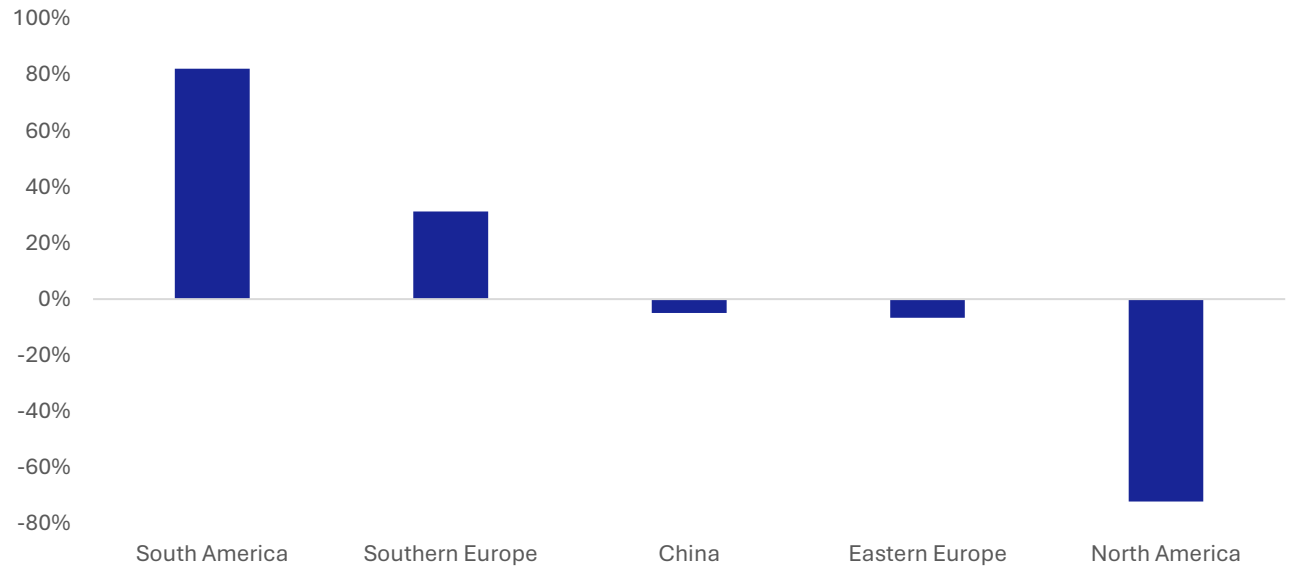
The blueberry market offers several niches for growers and packers to exploit. Micro-climates can accelerate or delay the harvest window, providing growers with superior pricing opportunities. Certain varieties provide attributes and flavour profiles that are particularly suited to some markets, or allow for harvest timing that is earlier or later than the bulk of production.

Variety	Harvest Timing	Characteristic
Duke	Early	Mechanical Harvest
Draper	Early-Mid	Long Shelf Life
Bluecrop	Mid	Consistent Yield
Legacy	Mid-Late	High Yield
Calypso	Mid-Late	High Chill Tolerance
Elliot	Late	Late Season Fresh Market

North America

While responsible for only a quarter of global production, North America is the largest blueberry consumer, with net imports of over 500 million pounds in 2023.

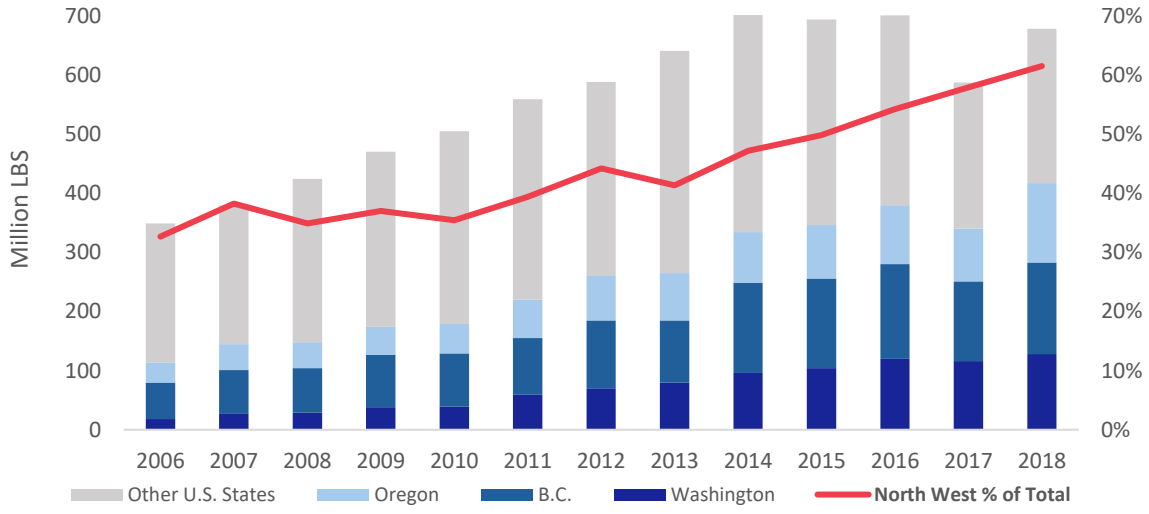
FIGURE 6. TRADE BALANCE
2023 (% domestic production exported)



IBO 2024

The PNW accounts for more than 60% of total North American production. Consistent rainfall and a moderate climate make the PNW region highly favourable for blueberry growers, with production steadily moving away from the original home of highbush production in Michigan and New Jersey.

FIGURE 7. NORTH AMERICAN HIGHBUSH BLUEBERRY PRODUCTION
2006-2018



United States Highbush Blueberry Council, 2022 ("USHBC '22")

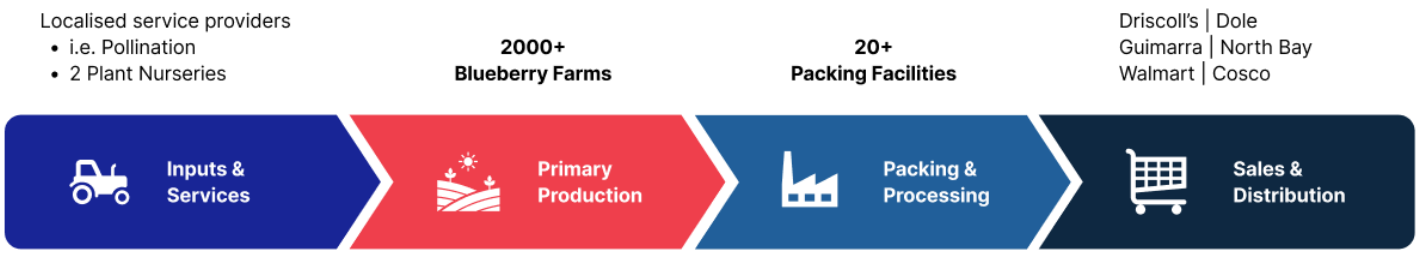
Region	British Columbia	Washington	Oregon
Operations	600+ Farms	800+ Farms	350+ Farms
Blueberry Area	27,000+ Acres	20,000 Acres	13,500 Acres
Average Farm Size	45	25	39
Annual Production	~165M lbs / year	~200M lbs / year	~155M lbs / year

Industry Consolidation

The Pacific Northwest blueberry industry is currently undergoing significant consolidation. Blueberry production is now becoming ever more concentrated among large growers and packers, many of whom have become vertically integrated – and more recently – multi-national. The incentives for large growers and packers to consolidate are powerful, with consumers and retailers becoming ever more focused on consistency and product quality. The blueberry industry has evolved from what was a cottage industry 30 years ago, into a highly commercial one today.

- The USDA reports average national blueberry yields to be ~7,000 lbs / acre
- Yields are higher in the more productive PNW regions: ~12,000 lbs / acre
- Commercial operations achieve production of 20,000-25,000 lbs / acre
- The average blueberry farmer operates < 25 acres, often as part of a larger diversified farm. At this scale, and without specialization, yields can be 60% lower than potential

Some links in the PNW blueberry supply chain are more consolidated than others. Farm input companies include chemical and fertilizer manufacturers, machinery suppliers, plant nurseries and service providers such as apiary rental. The location-dependent, and specialized nature of these inputs can result in a market with a few suppliers for each product. Blueberry production, despite recent consolidation, is still highly fragmented, with the average farm size in the PNW being ~25 acres. The location-dependent nature of fruit processing has ensured the survival of many smaller regional packers. The downstream supply chain is the most concentrated, with a handful of large distributors who have direct relationships with the largest retailers. Today, commercial producers recognize the potential to consolidate blueberry production and leverage large production volumes through vertical integration along the supply chain.

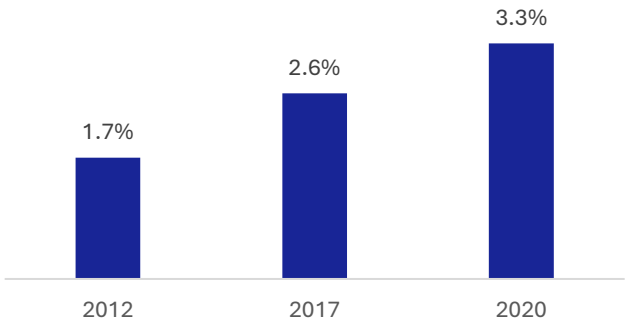


Organic

North America accounts for a third of the global organic food market worth ~$200 Billion. The North American organic market has grown at a 10% CAGR over the past 15 years, with similar growth rates projected for the coming decade. The Canadian market has seen similar growth rates, driven by increasing consumer demand. Two thirds of Canadians are buying organic on a weekly basis, spending an average of $184 on organic groceries, up 23% from a year ago.

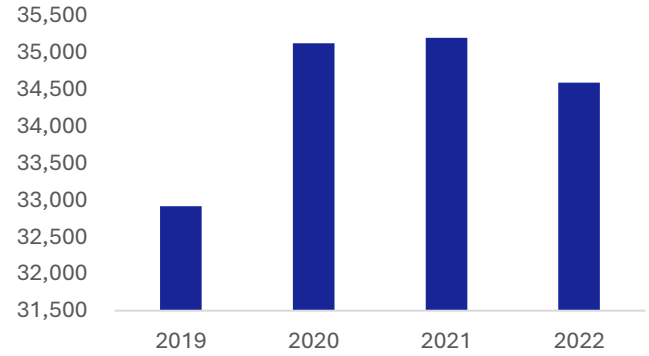
Washington is the largest organic blueberry producer in the PNW, with over 2,000 planted organic blueberry acres, representing 20% of total state production. Most organic production is located in arid regions east of the Cascade mountains, where summer heat limits consistent organic fresh production. Marketing to the Vancouver and Seattle organic produce markets, worth over $800 million and growing at 15% annually, presents a significant opportunity to increase pricing around a fresh, organic sales and marketing strategy.

FIGURE 8. ORGANIC SHARE FOOD MARKET
2012-2020 (Canada)



Statistics Canada

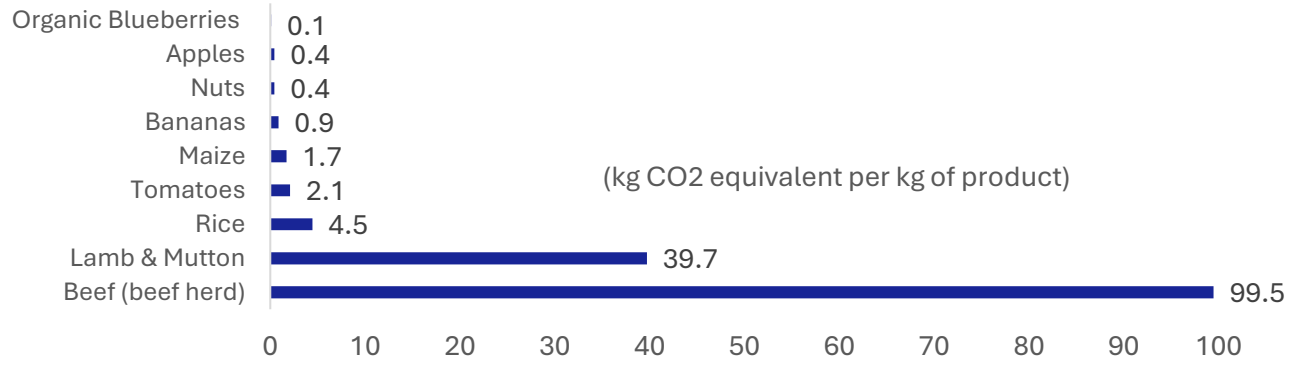
FIGURE 9. ORGANIC CERTIFIED FRUIT ACREAGE
2019-2022 (Canada)



Statistics Canada

While conventionally grown blueberries are considered safe and healthy, organic production aims to produce blueberries using more sustainable and less potentially harmful substances, aiming to reduce risks of pesticide residues, improve the fruit's micronutrient profile, and reduce negative environmental externalities. Blueberries appear on the Environmental Working Group's Dirty Dozen, which ranks produce categories by relative levels of potentially harmful pesticide residues. The summary of the findings related to the increase in pesticide residues on blueberries in the United States, as per the data from the Environmental Working Group (EWG) and the Department of Agriculture, highlights several compounds of particular concern.

FIGURE 10. GHG EMISSIONS ACROSS THE SUPPLY CHAIN
2018



(Tozzini et al, 2010), (Poore and Nemeck, 2018)

IBO State of the Industry Report
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PNW Industry Report (Washington Blueberry Council, 2019)
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