Central Otago District Council
VALUE PLUS PROJECT

Validating demand for Central Otago fruit value streams

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ABBREVIATIONS / TERMINOLOGY:

ABV	Alcohol by Volume
B2B	Business to Business (wholesale / ingredients)
B2C	Business to Consumer (retail)
BOM	Bill of Materials (all items going into a food product in a factory)
BQF	Block Quick Frozen
Brix	Measure of dissolved sugar in a liquid (degrees brix is the UoM)
CoA	Certificate of Analysis
COGS	Cost of Goods Sold
COO	Country of Origin (where the product comes from)
CPG	Consumer Packaged Good
FMCG	Fast Moving Consumer Goods
IQF	Individually Quick Frozen
MOQ's	Minimum Order Quantities
MSDS	Material Safety Data Sheet
MT's	Metric tonnes
Nootropic	A substance that enhances cognition and memory and facilitates learning. *Source: Merriam-Webster dictionary*
TCM	Traditional Chinese Medicine
UoM	Unit of Measure
WORRIED WELL	The worried well is a term that describes persons who are in relatively good health but believe themselves to be ill or likely to get an illness based on a current circumstance. *Source:* *Wikipedia*
3PL	Third party logistics

ACKNOWLEDGEMENTS

This report has been created through the generosity and support of the Ministry of Primary Industries, The Central Otago District Council, SummerFruit New Zealand, Lilo Desserts and a wide range of industry persons supporting a drive to reduce food waste.

We acknowledge the time and wisdom shared by experienced industry practitioners who generously imparted valuable insights and knowledge in support of this project.

This report contributes to the wider project being managed by the Central Otago District Council (CODC) "Understanding fruit loss in Central Otago".

More details on that project can be found here:
https://www.codc.govt.nz/services/economic-development/fruit-loss.

CODC Value Plus Project - Validating demand for Central Otago fruit value streams Report
Prepared by Appetite for Change Ltd - December 2022

EXECUTIVE SUMMARY

No one wants food to go to waste.

This paper seeks to understand if there are commercial opportunities for further processing 'process grade' fruit grown in the Central Otago region.

The key questions to be answered are:

1. **Would a Central Otago fruit product, leveraging regional provenance command a premium price?**

   Feedback from international markets and subsequent discussion with New Zealand food producers in New Zealand indicates this to be very unlikely.

   New Zealand cherries are popular as a Lunar New Year gift in Asian markets, however there is not a close association between New Zealand and stone fruit that would differentiate it from any other supplying country when it comes to processed fruit.

2. **Would a product with proven health benefits command a premium price in the market?**

   Depending on the claim and format being offered there is opportunity for functional foods. Whether a premium could be charged would be dependent on the health benefit being delivered.

   This is a broad statement and further analysis would need to be undertaken if a specific food product was being considered. There are inferred and explicit health claims being made by different fruit brands.

- The global HS trade codes do not classify specific forms of processed fruit, or fruit types so detailed analysis could not be quantified to the level requested. Market analysis was carried out from retail sites and other in market sources including NZTE team members

LOCAL MARKET INSIGHTS:

BUSINESS FROM THE REGION

- Fruit is currently being sourced from Central Otago by a number of food processors inside and outside the region.
- Prices of $NZD 1-5/kg were suggested from NZ fruit processors, depending on the processor's requirements and aesthetics of the available fruit. This differs from the 50c/kg that has been paid to growers in the region in the past.
- Noting the $1-5/kg figures were guides and not definitive.
- Further discussions would be required with interested fruit processors to clarify what is encompassed in those payment terms. Freight and delivery terms would need to be understood to do a fair comparison.
- The end use and value of the final product impacted the price being paid - better understanding of end use options might result in better value capture through the supply chain. For example grading for new or different attributes for further processing.

PROCESSING CONSIDERATIONS

- MOQ's (minimum order quantities) are a critical consideration when considering supply. This applies to both the buyer and seller. How much can you produce / supply and how much do they want and when?
    a. What are the minimum and maximum batch sizes or volumes that the producer is able to make economically?
    b. Large scale food manufacturers and distributors want assurance that a grower or pack house is able to meet their volume requirements. This has been a discussion point with large manufacturers, that small / new suppliers (growers or traders) are optimistic about their ability to supply.

c. Quality, compliance and capital required to scale stock holdings can be challenging and need to be considered as part of business planning

d. The seasonality of fruit creates the need for exemplary planning. Watties have had large teams and sophisticated software coordinating incoming fruit and vegetables, optimising the efficiency of their manufacturing sites. Basically everything becomes ripe on the same day or it rains and throws everything up in the air and models need to accommodate this. Freezers and cool stores can be a buffer, but come at a cost.

e. Establish what format the markets or key customers want the product in and the related costs with this format. Supply chain efficiencies can be a good negotiating tool when establishing new business. Supplying in returnable bins instead of lined cardboard boxes or vice versa.

- IQF fruit suppliers would be seeking less damaged and more aesthetically appealing fruit, as this will be visible to consumers. This impacts the per kilo price able to be achieved. (Fruits going into jams or juices will be worth less - IQF worth more.) Ultimately finding homes for all fruit is the goal.

LOGISTICS CONSIDERATIONS:

- Frozen warehousing and third party logistics are another important consideration in supply models. Potential customers spoke of just in time deliveries, meaning holding of frozen fruit and associated costs would need to be understood and accounted for.

- Exchange rate volatility and global supply chain challenges may be a catalyst for the NZ industry sourcing more locally processed fruit

- New digital platforms such as CiRCLR are emerging, aimed at reducing food waste and looking to enable the trade of surplus fruit and vegetables. Real time visibility of supply and demand may create new options for farmers and growers in the region. Noting these technology platforms are still in development.

POTENTIAL SCENARIO:

1. Identify long term vision

- Gather the level of interest from the grower community in working together to maximize regional opportunities in fruit
- Evaluate potential Business Models - a collective approach would allow for a long term regional growth model, and with critical mass start to grow a regional story and enable diversification into more technology/process intensive products.
- Individual farmers are unlikely to achieve critical mass in terms of establishing processing bases and additionally contribute significant investment into science and market research to grow additional value. Zespri being the most notable New Zealand example of achieving more through combining resources with their marketing model.
- Decide timeframes and expectations for actioning next steps

2. Identify Immediate Opportunities

- Domestic industry discussions have indicated a latent demand from NZ food processors for Central Otago fruit Frozen was the most common method requested, allowing year round supply of fruit to processors including the likes of but not be limited to
    - FSL Foods in Nelson
    - Barkers of Geraldine
- A collective of growers was appealing and a grower contract was likely to be up to three years, giving certainty to all parties.
- Establishing a strong domestic base could go a long way towards covering overhead recovery in terms of capital processing costs, and de-risk more ambitious future overseas undertakings.

3. Prioritize in terms of attractiveness

- The international markets that were surveyed did not anticipate a premium to be achieved for fruit from the Central Otago region, over and above other countries.

New Zealand doesn't have a differentiating factor in terms of fruit quality from other processed fruit supplying markets. Countries such as Chile are very strong in terms of price and supply when it comes to processed fruit.

- That is not saying there isn't a market, however fruit pricing and quality must be globally competitive. Noting established NZ companies are supplying foreign sourced fruit into offshore markets, indicating the cost to serve is highly competitive.
- Functional fruit claims are being made on New Zealand berries and kiwifruit and interest has been expressed from a UK company in sourcing samples of Otago cherry extracts. Investment in or access to research may enable a functional ingredient to be developed to support the growing health and wellness market, particularly focused on cherries, or the prebiotic / fibre derived from apples.

FUTURE STATE:

HEALTH & WELLNESS CLAIMS

- 'Health and wellness' is a mega trend globally, and **positioning innovation to address identified consumer needs** could enable greater value from Central Otago fruits.

- Scientifically proven health benefits are desirable and interest was expressed in cherry extracts due to their potential bioactive /anthocyanin content which is associated with dark skinned fruits (albeit with supporting research proving health efficacy).

- Professor Indrawati Oey, Internationally renowned Head of Food Science at Otago University has carried out research on fruits in the region and is happy to discuss with interested parties.

- Superior flavour could also be another determining factor, if there was a specific difference such as intensity in flavour from Central Otago fruit due to growing conditions or processing techniques.

BACKGROUND

Central Otago is renowned as a high performing horticultural region, growing a range of quality fresh fruit destined for premium export markets. The region is producing over 85% of the country's cherry production.

The unintended consequence of this production growth is a corresponding increase in fruit loss at the orchard and packhouse.

In the recently produced '[Understanding fruit loss in Central Otago](#)' it was found that fruit that was sold amounted to 95% of the harvested crop passing through the packing process and included export, local and process grades. Overall, a high percentage of harvested fruit is sold, and that is to be celebrated.

The report also recognized that export grade fresh fruit achieve the best margins for the grower and the emphasis will continue to be on optimising orchard management and maintaining high standards in order to maximize grower returns on fresh fruit.

At present 'process grade' makes up 11% of the harvested fruit. Process fruit was of low value to growers and was used for juicing, concentrates, drying and pulp. Three factors are likely to contribute to an increase in the volume of process grade fruit in the future

1. Large increase in new plantings that are not yet producing export grade fruit
2. Move to strip picking resulting in more process grade fruit being presented to the packhouses
3. Increased weather volatility - leading to increased fruit damage or loss

THE GRAND CHALLENGE

Can a viable business model be created for processing ‘process grade’ fruit in the Central Otago region, delivering more value to growers and creating new jobs in the region?

SITUATION

A current snapshot suggests fruit not harvested (non-harvested fruit loss) was estimated at **8.6% (4151 tonnes) of the total crop** and fruit harvested that was not sold amounted to **4.2% (2014 tonnes) of the total harvested fruit crop**. This fruit was mostly recycled back to the orchard.

These numbers will increase as the region's new plantings come on and are being referenced solely for context in relation to other markets referenced through the document.

MARKET ANALYSIS

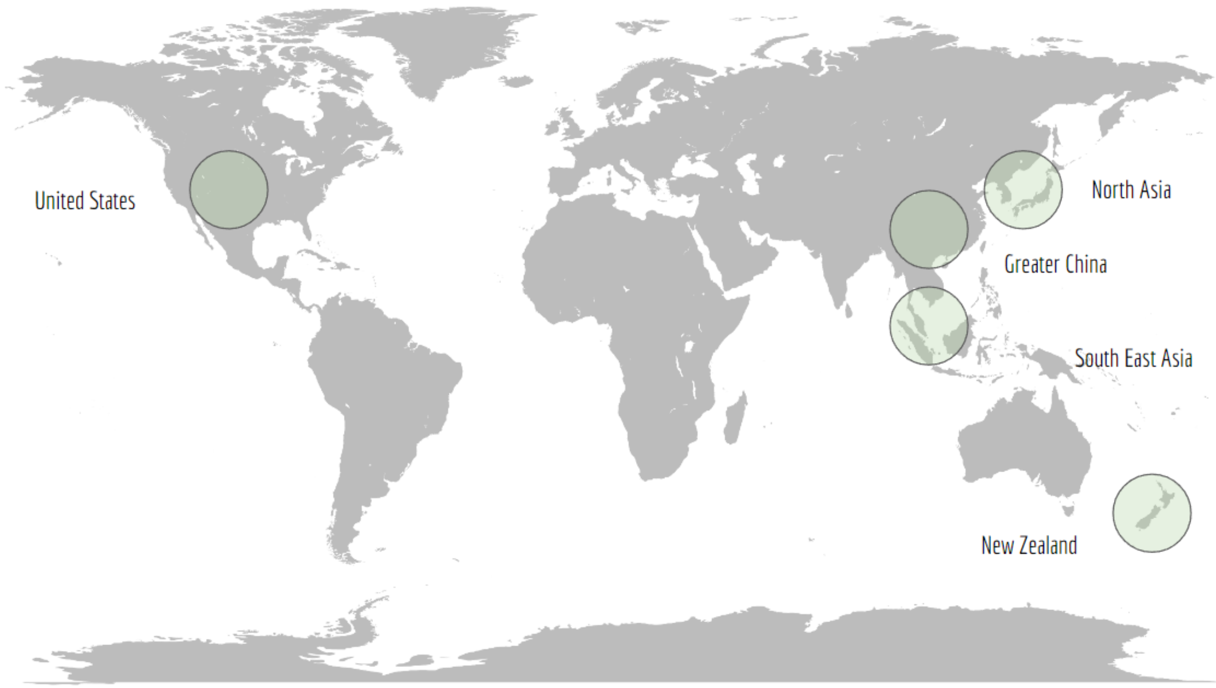
This report firstly seeks to find out what price processed fruit products achieve in key markets, including New Zealand. An assumption is being made that the processed price/kg will be less than that of premium fresh fruits from the region.

Further to this, this research seeks to understand if there is any inherent brand value associated with the provenance of processed fruit in key markets.

The fruits included in the review include:

1. Sweet cherry
2. Apple
3. Apricot
4. Peach
5. Nectarine

The markets considered for investigation are:



REGIONAL CAPABILITY MAPPING

Apple and stone fruit processing is a developed industry in other New Zealand fruit growing regions, and a review of capabilities was undertaken to see if similar operations could be viable in the Central Otago region.

FRUIT GROWING REGIONS

The focus of the project has been on identifying domestic and export opportunities for processed Central Otago apple and stone fruit.

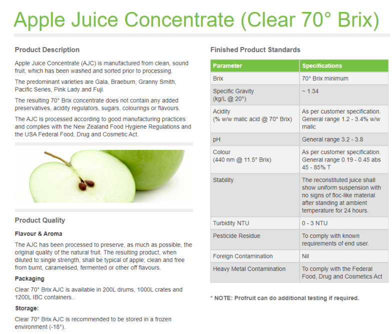
As part of the study, comparable business models from across the country were considered. The Hawke's Bay and Nelson / Marlborough regions were both similar in many respects to Central Otago, with the regions being strong in fruit growing, (plus winemaking and sheep / beef farming.)

HAWKE'S BAY

The Hawke's Bay has a strong history of processing fruit, with James Wattie having set up processing operations in Hastings almost a century ago (1934). Watties, the largest regional processor was acquired by the US based Kraft Heinz Company in 2015, however there are a number of independent fruit processors established in the region.

Below is a range of different products and formats being produced, with offerings largely focused on the foodservice or B2B markets.

The business models vary with ownership structures including local family owned, Japanese corporates and vertically integrated stand alone units.

<table>
<tr>
<td>Profruit</td>
<td>
Profruit produces high quality apple (conventional and organic), pear and kiwifruit juice concentrates.
The business is owned 50:50 between the Scales Corporation and Bostock NZ. Two large scale horticultural growers, enabling value chain optimisation
</td>
<td>


Apple Juice Concentrate (Clear 70° Brix)

Product Description

Apple Juice Concentrate (AJC) is manufactured from clean, sound fruit, which has been washed and sorted prior to processing.

The predominant varieties are Gala, Braeburn, Granny Smith, Pacific Series, Pink Lady and Fuji.

The resulting 70° Brix concentrate does not contain any added preservatives, acidity regulators, sugars, colourings or flavours.

The AJC is processed according to good manufacturing practices and complies with the New Zealand Food Hygiene Regulations and the USA Federal Food, Drug and Cosmetic Act.

Product Quality

Flavour & Aroma

The AJC has been processed to preserve, as much as possible, the original quality of the natural fruit. The resulting product, when diluted to single strength, shall be typical of apple; clean and free from burnt, caramelised, fermented or other off flavours.

Packaging

Clear 70° Brix AJC is available in 200L drums, 1000L crates and 1200L IBC containers..

Storage:

Clear 70° Brix AJC is recommended to be stored in a frozen environment (-18°).

Finished Product Standards

<table>
<tr><th>Parameter</th><th>Specifications</th></tr>
<tr><td>Brix</td><td>70° Brix minimum</td></tr>
<tr><td>Specific Gravity
(kg/L @ 20°)</td><td>~ 1.34</td></tr>
<tr><td>Acidity
(% w/w malic acid @ 70° Brix)</td><td>As per customer specification. General range 1.2 - 3.4% w/w malic</td></tr>
<tr><td>pH</td><td>General range 3.2 - 3.8</td></tr>
<tr><td>Colour
(440 nm @ 11.5° Brix)</td><td>As per customer specification. General range 0.19 - 0.45 abs 45 - 85% T</td></tr>
<tr><td>Stability</td><td>The reconstituted juice shall show uniform suspension with no signs of floc-like material after standing at ambient temperature for 24 hours.</td></tr>
<tr><td>Turbidity NTU</td><td>0 - 3 NTU</td></tr>
<tr><td>Pesticide Residue</td><td>To comply with known requirements of end user.</td></tr>
<tr><td>Foreign Contamination</td><td>Nil</td></tr>
<tr><td>Heavy Metal Contamination</td><td>To comply with the Federal Food, Drug and Cosmetics Act</td></tr>
</table>

* NOTE: Profruit can do additional testing if required.
</td>
</tr>
<tr>
<td>Frupak</td>
<td>
Frupak can offer Apple or Pear Juice NFC (Not from Concentrate) produced on site in its Hawke's Bay juicing facility. Juice is available year round and pasteurised into either:

tankers, pallecons, drums or a 20kg bag in box format
Processing apricot, peach, plum, nectarine, apple, strawberry and pear purees

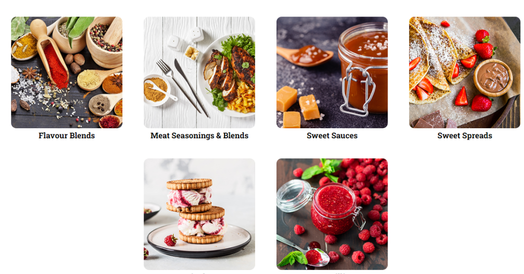
</td>
<td></td>
</tr>
<tr>
<td>Cedenco Foods</td>
<td>
In 2018 Gisborne based Cedenco acquired the fruit processing capability from T&G Global, who had previously acquired the Hastings ENZA site.
The capability is complementary to Cedenco's vegetable processing strengths in products such as pumpkin, squash, sweet corn and tomato focused on the Japanese and domestic markets.
Cedenco is owned by Japanese headquartered Imanaka Group. They have local IQF and drying capabilities. Producing both Apple and Kiwifruit products, the Imanaka Group is based in the Hawke's Bay / Bay of Plenty regions.
Freshfields is one of their Foodservice brands
</td>
<td>


$NZ 21.32 / 3 kg ex-works for diced apple
</td>
</tr>
</table>

fresh slice	Fresh Slice currently operates the Orchards, Cold Storage and Packhouse facilities through to the processing factory which are all based in the Hawke's Bay. Fresh Slice are proud to offer a unique advantage to fully control the supply from Orchard to Customer.	
The Apple Press	Co-Founders of The Apple Press, Ross Beaton and Sally Gallagher, are an orchardist and food technologist. They have established a modern flexible $30M juice facility in Hastings, that processes fruit juice, and both plant and bovine milk products. Using NZ developed Xenos Aseptic Beverage Systems 'Ross was always bothered about the "Ugly Fruit" - the apples that were of 'A Grade' taste and texture but went to waste because they weren't pretty enough for export. He had a burning desire to do something about it'	
Homegrown Juice	Brothers Chris and Stephen Brownlie, former owners of Simply Squeezed, are experienced juice operators in the Hawke's Bay / Gisborne area. First starting in the fruit business in 1969. With their 'Homegrown' venture they use technology enabling raw cold pasteurized juice, getting as close to freshly squeezed juice as possible while still delivering a viable shelf life for retail.	
NZ JUICE	NZ Juice Group Ltd. is a 100% privately owned New Zealand Company, formed in 2012. 'NZ Juice is committed to 100% natural juice from New Zealand fruit with no preservatives or sugars added. Our juice has a long life and is bursting with its own fruit flavours.'	

EXPORT PRODUCTS | Vegeez | Food Processor | NZ	We offer the following processed, frozen fruit products: • Individually Quick Frozen (IQF) • Block Quick Frozen (BQF) • Hot Fill (Shelf Stable) Note Reid Produce manufacture frozen vegetable products, and may be sourcing and trading the fruit products as part of their portfolio offering Exporting to Asia and Australia	
Watties	Producing a range of products in the Hawke's Bay plant including canned fruit and baby food. Long established operator in the region with long standing farmer contracts Fruit is grown to Watties canned fruit specifications and is often different to fresh specifications.	
Taura Natural Ingredients	Taura are a business to business manufacturer of fruit pieces and inclusions for use in cereals, muesli bars and baking type applications. Slightly outside of the HB region (Bay of Plenty) they are worth noting as they are a significant company in NZ fruit processing. Based near Tauranga, with another plant in Belgium and offices around the world, they were New Zealand owned before the recent purchase by IFF, a US flavours and fragrances company following several ownership changes in recent years. IFF is a USA based MNC, turnover in 2021 was approx $US 11.7Bn	

NELSON / MARLBOROUGH

NZ Apple Products	Experienced Orchardists, the Clark family own NZ Apple Products. The company has developed a range of apple products starting with dried apple rings before moving into purees served in single serve pouches. Their website indicates they are exporting products to: • Taiwan • Hong Kong • Singapore • China • Malaysia • USA • Japan	
Juicies – Tasman Bay Food Co.	Tasman Bay Food Co produces a wide range of food products. Including a range of juice products for children and adults, selling domestically and their website indicates to the following countries • Japan • Singapore • South Korea • Taiwan • United Arab Emirates • Malaysia • Pacific Islands Nelson apple juice is listed as an ingredient in some of the products	 
Springbrook Foods	Marlborough based food processing company with offices in Auckland, Napier and Blenheim. Springbrook Foods manufacturing equipment caters to a wide range of cooked fruit products. Producing private label products for grocery channels in NZ and offshore. Processing capability may cater to pip and stone fruits, further investigation would be required.	

[Annies](#)	Annies has been owned by Kono, part of Wakatu Incorporation at the top of the South Island, following their 2014 acquisition from the Founder. Using an apple base, combined with fruits they create leather fruit strips used as on the go snacks. STOP PRESS: Wakatu announced in December 2022, that they would be closing Annies as part of a business consolidation process, resulting in the loss of 30 jobs. The unit is set to finish trading in April 2023. [Marlborough fruit snack brand Annies to close next year | Stuff.co.nz](#)	
[FSL Foods](#)	FSL Foods is a supplier of frozen fruit and vegetable products for retail and foodservice customers. Using locally sourced and imported fruits, including a new product line with imported cherries. They are starting to develop brands that specifically reference New Zealand origin fruit. FSL were spoken with and more information follows within the report	
[Barker's of Geraldine](#)	More information below:	

SOUTHLAND

In the wider South Island ecosystem, there are currently two different groups/projects looking to build oat milk processing plants in Southland. These projects have been running for several years and are still raising capital. Should either of these projects be commissioned there may be interest in sourcing fruit from the region.

Noting Apollo Foods, the producer of The Apple Press juices in the Hawke's Bay also manufactures market leader [Boring® Oat Milk](#), made from South Island oats. The flexibility of the plant enables a wide range of business opportunities in beverages de-risking the large investment.

- [New Zealand Functional Foods]
- [Southland oat milk producer receives $6m loan to build processing plant | RNZ News]

PRODUCTIVITY

A report commissioned by MBIE in 2019 looked into regional strength in food processing, both nationally and internationally. The report suggested that there was potential in the processing of cherries. The report also highlighted the reduction in processing jobs in produce processing in the Otago region over the past 20 years.

14. OTAGO – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: OTAGO
Various units as given; 2000-2018

	Units (2018)	Region has this % of all NZ units in this sector	18y ABS (00-18)	% of new unit growth in sector (00-18)	18y CAGR (00-18)	18y CAGR vs NZ average	Processing jobs (2018)	Region has this % all NZ processing jobs in this sector	18y ABS (00-18)	% of new NZ employment growth in sector (00-18)	18y CAGR (00-18)	18y CAGR vs NZ average
Dairy	9	4.2%	3	3%	2.3%	↓	270	2.1%	0	0%	0.0%	↓
Red Meat & Pork	15	4.6%	-3	-11%	-1.0%	↓	3,062	11.5%	-318	-26%	-0.5%	↓
Poultry Meat	1	2.9%	-2	-	-5.9%	↓	9	0.2%	-31	-2%	-8.0%	↓
Seafood	7	2.1%	-5	-	-3.0%	↓	100	2.0%	-242	-	-6.6%	↓
Produce	24	5.2%	3	5%	0.7%	↓	162	1.8%	-228	-28%	-4.8%	↓
Grain-Based	24	6.5%	3	-	0.7%	↑	280	4.2%	27	-	0.6%	↑
Processed Foods	48	4.8%	22	4%	3.5%	↓	654	5.4%	81	2%	0.7%	↓
Wine	51	11.6%	39	16%	8.4%	↑	260	6.6%	215	13%	10.2%	↑
Other Beverages	34	9.1%	25	11%	7.7%	↑	138	3.8%	86	9%	5.6%	↑
TOTAL	213	6.0%	85	7%	2.9%	↑	4,935	5.9%	-410	-3%	-0.4%	↓

ABS = Absolute change; CAGR = Compound Annual Growth Rate; Source: Statistics NZ; DairyNZ; MAF/MPI; Coriolis analysis and estimates

CORIOLIS 118

Other than peaches and small volumes of plums supplied to Heinz Wattie's Ltd, **very little summer fruit is processed in New Zealand.** Since the closure of the Roxdale cannery line in the early 2000s, processing of other summerfruit for canning has reduced dramatically, while new opportunities are appearing in the market for juicing and other summer fruit by-products.

Economies of scale are critical when competing in commodity products. Watties recently raised concerns with the Government about foreign countries dumping preserved peaches on the local market causing 'material impact' to the local industry . [Application for an investigation into the dumping of preserved peaches from China]

Relative scale for fruit processing globally gives perspective to the competitive forces fruit processors face. In most seasons, more than 90 percent of America's orange juice is made from Florida-grown oranges. **Nearly 87 percent of Florida citrus is processed into canned, chilled or frozen concentrated juices.**

Comparing this to New Zealand, the Frucor owned Simply Squeezed plant, one of the few fresh juicing plants based in the Hawke's Bay has recently announced it is in consultation with factory employees about the uncertain future of the plant, succumbing to economic pressures and the complexity it creates in a larger beverage business.

The key takeaway is that overhead recovery and economies of scale are incredibly important in processed foods and commodity products. In an export context being able to supply 'large' scale quantities is generally a requirement before any food processor or wholesale distributor will consider using.

Typically minimum order quantities (MOQ's) and tight quality specifications will be required by the buyer or product development team before samples will be considered by international food companies, and need to be had at the start of a potential supply discussion.

Whilst the end goal may be export, understanding the potential of the domestic market first, may help de-risk investment if both are considered at the project outset and capital investment is staged over time.

With a business to business play, food manufacturers will often keep standardized (fruit) ingredients interchangeable. For example, beverage companies have recipes designed to swap out juices, allowing for sourcing from different markets and suppliers depending on availability and price movements. Having a range of customers can help diversify risk and reduce dependency on a single source of income.

NEW TECHNOLOGY

The recognition that more can be done with waste has resulted in a global circular economy movement. The Netherlands have made circular policy central to their food ambitions having declared a mission to be completely circular in food by 2050.

The central tenants of circular thinking are to use resources more efficiently and to reuse natural resources.

- Circular Dutch economy by 2050
- The path towards a circular Dutch food system by 2050 - WUR

There has been a focus around the world on technology platforms that can connect farmers to consumers and find ways to get food waste to people who want it. Timeliness has always been a barrier for the reuse of food, especially when there is a race against time before spoilage starts to occur.

One such technology start-up in New Zealand is a company called CiRCLR. This company was formed by one of their Co-Founders from learnings gained in leading H&M (Swedish MNC clothing company) impact driven projects around sustainable clothing. Taking those learnings, the Founders are focused on using platform thinking to support the trade of process grade foods that would otherwise be going to waste. 'Someone's trash is another person's treasure'.

Note this company is early stage, but engaging widely across the New Zealand food industry. There will no doubt be other platforms and providers in the future. Having local tech entrepreneurs focused on industry challenges could provide a unique opportunity to harness the regional opportunity in fruit resources in new ways.

NEW ZEALAND FRUIT INNOVATION TRENDS

There is a wide variety of products and business models being adopted by companies processing fruit across New Zealand.

It is important not to assess the product on its own, and consider the range of products being made by a business or factory that make the business successful as a whole. What things are those companies doing to keep the lights on - where is the real value in the business? Is it that they are vertically integrated? Is it that they outsource all their manufacturing? Is it that they contract manufacture for others to keep their own costs down and diversify risk?

There is often a desire to be 'different' in terms of packaging or offering. This can come at a cost in terms of set ups, packaging design and minimum stock holdings. Really understanding the consumer needs you will be fulfilling in the market is critically important. Maybe product differentiation can be achieved via marketing and social media rather than physical formats.

COOKED FRUIT PRODUCTS

Note the pricing listed next to products as examples through the following sections of this report are typically the 'retail' price through a wholesaler or grocery outlet that the public could buy from. It may be possible that the suppliers have different term sheets directly with large buyers, however this information has not been sourced.

The prices were also a snapshot in time and are used to contextualize product formats only.

APRICOT & PEACH

Below are examples of products being sold in New Zealand to caterers, restaurants and bakeries for commercial use. While some products claim New Zealand fruit, many manufacturers claim it on some fruit products and not on others. Enabling flexibility of supply and overall cost management of material inputs.

The products are all using varying percentages of fruit, with the per kilo prices appearing to be more led by the category than the fruit ingredients themselves.

Brand	Barkers Apricot Patisserie Filling	Barkers Peach & Passionfruit Filling	Apricot puree 32 Brix Frozen	Delmaine Apricot Sauce	Bon Accord Peach Pulp	Craigs Apricot Jam	Anathoth (Barkers) Apricot Jam	Barkers Mango & Peach / Capsicum & Apricot Chutney	Barkers Black Cherry, apple & vanilla compote
Channel	Barkers online	Barkers online	Davis Trading	Bulk Boxed	Bon Accord website	Bulk Boxed online	Anathoth website	Gilmours	Barkers Professional website
price/unit	$13.49	$13.49	$133.39	$11.54	$16.92	$23.06	$13.49	$9.99	$10.99
Pack size	1.25kg	1.25kg	20kg	1.15kg	1kg	2.5kg	1.25kg	1kg	1 kg
price/kg	$10.79/kg	$10.79/kg	$6.67/kg	$10.04/kg	$16.92/kg	$9.24/kg	$10.79/kg	$9.99/kg	$10.99
Country	NZ - no COO	NZ - no COO	NZ - no COO	NZ no COO (paste and dried)	NZ - no COO	NZ - no COO	NZ - NZ apricots	NZ	NZ

BARKER'S OF GERALDINE

Barker's of Geraldine have continued to grow following the majority shareholding taken by French condiment company Andros in 2015. Andros are owners of the world renowned Bonne Maman jams (famous for their red and white checkered lids). The Barker family retains a 5% shareholding in Barker's of Geraldine.

Barkers are well set up to handle incoming fresh fruit, and can de-stone and enzyme treat for juicing.

As a manufacturer, Barkers are servicing both the local market and their growing export business. Barker's extensive retail and foodservice product range is displayed on their website

Barkers of Geraldine had a conversation directly regarding the CODC fruit project.

Barkers expressed interest in sourcing more fruit from the Central Otago region and were open to semi processed fruit.

Barkers suggested setting up a meeting with interested parties in the region to discuss further.

Minimum Order Quantities, volumes or fruit specifications were not discussed in the initial meeting.

Barkers leverage New Zealand fruit provenance on their branding, but is certainly not mandatory, and their ranges also use imported fruit. Barker's Morello cherries offered in their retail range are imported from Europe.

Brand	St Dalfour Black Cherry Jam	Smuckers Cherry Preserves	Bonne Maman Black Cherry Conserve	Rutherford & Meyer Cherry Fruit Paste	Barkers Black Cherry & Pinot Paste	Barkers Black Cherry, apple and vanilla compote	Barker's Morello Cherries	Barkers NZ Apricots
Channel	Health Pharm	Walmart	Waitrose	New World	Countdown	New World	New World	New World
price/unit	GBP £2.99	USD 4.02	GBP £2.50	$6.99	$6.90	$3.99	$4.49	$4.50
Pack size	284gm	510gm	370gm	120gm	210gm	355gm	350gm	350gm
price/kg	GBP £10.53	$USD 7.88	GBP £6.76	$58.30/kg	$28.10/kg	$11.24/kg	$12.80/kg	$12.85/kg
Conversion rate	GBP £1:$2	US$1: NZ$ 1.77	GBP £1:$2	NZD	NZD	NZD	NZD	NZD
NZD	$21.06	$13.95	$13.51/kg	$58.30/kg	$28.10/kg	$11.24/kg	$12.80/kg	$12.85/kg
Country	UK - Made in FR	USA - no COO	UK - Made in France	NZ	NZ - NZ Cherries	NZ - No COO	NZ - EU cherries	NZ - NZ Apricots

Stone fruits, especially apricots are used in coulees, sauces, jams, preserves, and conserves. The above table illustrates the pricing relativity of NZ products compared with offshore products made from similar ingredients. This is a simplistic way of seeing if New Zealand manufactured product pricing is relative to other markets.

Note the pricing was a snapshot in time and with rising inflation and fluctuating exchange rates this will continue to change, but should still offer some market insight.

A former industry person suggested a general figure of approximately $NZ 3/kg was possible for incoming fruit to producers such as Barkers.

A discussion was not had with Barker's on pricing and commercial expectations should form part of a more in depth discussion with the company if there's interest in pursuing a regional meeting.

NEW ZEALAND JUICES:

Below are examples of juice products and pricing in New Zealand. Packaging represents a large cost to a product and with beverages can be around 50% of a retail product. We do not have insight into the actual cost of goods sold (COGS) for the below products to understand the value/cost of the juice itself.

It is interesting to note that the products sold in plastic containers are the 'cheapest' per litre in terms of retail price points, and potentially highest sellers, whilst still being well regarded for their health and flavour properties. (Plastic format does not detract from its premium offering and may be reinforced by sitting in the chilled not ambient section of retail)

Brand	NZ Natural Juice Gold Peach & Apple juice	Homegrown Apple Juice	The Apple Press	The Apple Press	Mela Royal Gala	Mela Apple Juice	Benjer juices Apple, cherry, apricot & nectarine	Phoenix organic apple juice	Almighty Apple Juice	Parkers Apple Juice
Channel	NZ Juice website	Pak n Save	New World	New World					The Market	Countdown
price/unit	$28.00 (down from RRP of $42.00)	$4.59	$6.99	$3.99	$4.20	$7.50	$58.00	$4.99	$39.00	$5.80
Pack size	12 x 250ml	1 litre	1.5 Litre	800ml	330ml	1 Litre	24 x 275ml	250ml	12 x 330ml	1 litre
price/litre	$9.33 / litre	$4.59 / litre	$4.66 / litre	$4.98 / litre	$12.72 / litre	$7.50/litre	$8.79 / litre	$19.96 / litre	$9.85 / litre	$5.80 / litre
process	Hot fill	Cold pasteurized	Cold pressed, Aseptic filling	Cold pressed, Aseptic filling						
Country	Hawke's Bay	Hawke's Bay	Hawke's Bay	Hawke's Bay	NZ Grown apples	NZ Grown apples	Central Otago apples, nectarines & cherries	Made from NZ apples (from concentrate)	Organic Hawke's Bay	New Zealand

There are several South Island Juice producers, with the largest operation being the Japanese owned Juice Products New Zealand JP-NZ.

- Benjer juices - CROMWELL, CENTRAL OTAGO
- Chia Sisters - NELSON, NELSON / MARLBOROUGH
- Pete's Natural - NELSON, NELSON / MARLBOROUGH
- Juice Products New Zealand - WASHDYKE, CANTERBURY

Compared to the North Island fruit juice producers, the production of fruit juice beverages is still quite small, which may indicate an opportunity for more infrastructure in the Otago region if fruit quantities continue to grow and demand is established.

JUICE PRODUCTS NEW ZEALAND

Juice Products New Zealand was originally founded in 1993 by two South Canterbury farmers, and moved to their Washdyke processing site in 2008. JP-NZ was acquired by the Japanese Sumitomo Corporation in 2014.

JP-NZ now exports products to Japan and across South East Asia and into the United States.

Whilst they are the second largest carrot juice processor in the world, they also process blackcurrants, being complimentary seasonally for manufacturing. Sufficient processing volumes and seasonal fit would be required for new fruit/vegetables to utilise any spare capacity at Washdyke as the plant is fairly large scale.

BEVERAGES - CHERRY

Traditionally cherry has not been as popular a flavour in local food and beverages, as it is as a fresh fruit. However there are a number of new beverages using cherry juice or cherry purees coming to market.

Speaking directly with local wholesale fruit suppliers, there are New Zealand grown sweet cherry purees going into craft beers and ice cream type products. These are often for seasonal or limited edition releases. There is also a growing number of artisan alcohol producers around the country, developing beers, ciders, cherry liqueurs and spirits.

While these are considered niche opportunities, it is interesting to reflect on Scotland's success with whisky. Scotland is an example of a country similar in some respects to New Zealand in terms of population and agricultural industries that trades successfully on its heritage and provenance. Whisky sales accounted for 75% of Scotland's food and beverage exports in 2021, exporting 44 bottles of whisky every second.

Brand	Prenzel Kirsch Liqueur	26000	Cardrona Distillery	Zeffer Cider	Zeffer Cherry Cider - Ltd Edn	Kereru CherryBelle Belgian ale	Deep Creek	Morningside Cherry Bomb Cider	Cherry Cello (& Plum Cello)
Retailer	Prenzel	Whisky & Moore	Whisky & Moore	Zeffer Cherry Cider - Ltd Edn	Super Liquor	Regional Wines	Deep Creek	Morningside Cider	Cherry Cello website
price/unit	$54.90	$34.99	$114.99	SOLD OUT	$13.99	$6.99	$95.00	$79.99	$45.00
alc/vol	28% ABV	40% ABV	33% ABV	4.0% ABV	4.0% ABV	8% ABV	6.7% ABV	4.5% ABV	?
Pack size	375ml	750ml	750ml	330ml	1 litre	330ml	12 x 440ml	12 x 440ml	500ml
price/litre	$146.40	$46.65	$153.32	SOLD OUT	$13.99	$21.18	$17.99	$15.15	$90.00
currency	NZD	NZD	NZD	NZD	NZD	NZD	NZD	NZD	NZD
Country	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ

BEVERAGES - PEACH

Peach is a flavour that runs across both alcoholic and non-alcoholic beverages and is popular in beverage syrups and iced tea ranges, an emerging category in New Zealand.

Recent industry newcomer Pals, launched a low sugar 5% ABV range of beverages in 2019 and has been a stand out business success, navigating the Covid pandemic. One of Pal's popular product lines utilizes a Central Otago peach flavour, sourced from a New Zealand supplier.

Regional food claims are rare for mainstream New Zealand food products and often used only for promotional or limited release line extensions. The Pals peach product has since been launched in a non-alcoholic version.

The popularity of alcohol free alternatives is growing as a sector, for consumers seeking a socially acceptable alternative to soft drinks in an adult social setting. With growing popularity the Pal's brand has launched in Australia, China and the USA with more export momentum expected.

To remain fresh to consumers, product lines continue to evolve, so time will tell if the Otago Peach variant retains its position in the core product range. Local provenance was strong in the original line up of flavours appealing to Kiwi consumers, however as the range has extended into more flavours, there has been less emphasis being placed on branding local fruit varieties.

Brand	BON ACCORD Peach Iced Tea Concentrate	FUZE Peach Black Iced Tea	Sipper Sparkling Ice Tea (Organic Tea)	Soochi Collagen + Probiotic + Peach and Passionfruit	Pals Vodka **Otago Peach,** Passionfruit & Soda 5% ABV	Pals Central **Otago Peach**, Passionfruit & soda 0% ABV	Almighty Peach Ginger Sparkling Water - No Sugar	NZ Natural Juice - Gold Peach	Just Juice Pulp'd Peach & Passionfruit	BLUSH Weekender Peach Gin 41% ABV
Channel	Bon Accord website	Countdown	New World	Healthpost	The Market	New World	Almighty	NZ Natural Juice	Countdown	Blush Gin Store
price/unit	$16.92	$2.69	$2.99	$22.40	$29.99	$14.99	$14.00	$28.00 (was $48)	$3.00	$59.99
Pack size	750ml	500ml	330ml	4 x 320ml	10 x 330ml	6 x 330ml	6 x 330ml	12 x 250ml	1 litre	700ml
price/litre	$22.56 /litre	$5.40/litre	$9.06/litre	$17.50 / litre	$9.09/litre	$7.57/litre	$7.07/litre	$9.33 / litre	$3.00 / litre	$85.70 / litre
Country	New Zealand - no COO	New Zealand - no COO	New Zealand - NZ apple juice	New Zealand - no COO	NZ - Otago Peaches	NZ - Otago Peaches	NZ - No COO	NZ - Hawke's Bay peaches	NZ - No COO	NZ - No COO

BEVERAGES - APPLE

Apple juice (typically from concentrate) is often used as a neutral fruit base for juice drinks that are then layered with more expensive tropical, berry or stone fruits. Apple juice is a widely grown fruit globally and is a cost effective base ingredient when designing fruit drinks. The range and quality varies, with some offshore juices being filtered and stripped of fibre and flavours, making them closer to a sugar syrup than fruit juice.

New Zealand food producers have product specifications that suppliers must meet in order to supply to ensure a consistent product quality. A juice is standardized around several measures, but typically the sugars or sweetness is a key one along with acidity, colour, flavour

An example of a mixed fruit drink in the New Zealand market is Just Juice Tropical, which has 15.1% reconstituted apple juice in the formulation before the addition of other tropical juices. This is common across the industry, and Just Juice is only being referred to as it is a well known brand in New Zealand households.

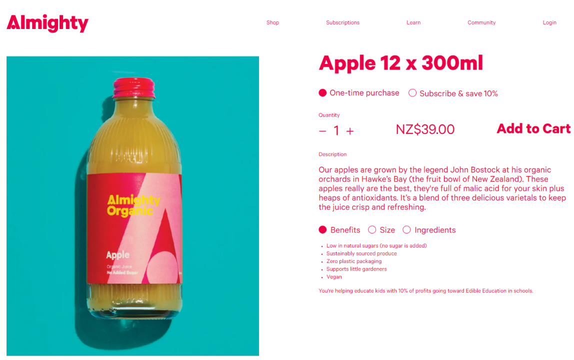
> Made in New Zealand from imported local ingredients.
>
> **Ingredients**
>
> Water, Reconstituted Fruit Juices (Apple (15.1%), Pineapple (12.5%), Orange (11.3%), Vitamin (C)), Mango Puree (4.5%), Passionfruit Juice (0.2%), Acidity Regulators (Citric Acid, Malic Acid), Thickener (Pectin), Natural Flavours , Antioxidant (Ascorbic Acid), Natural Sweetener (Stevia), Natural Colour (Carotene)

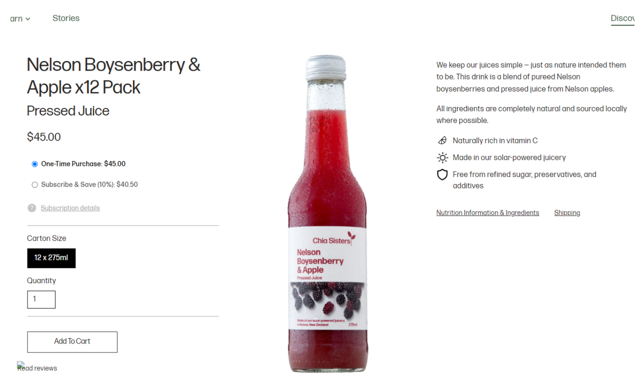
The Just Juice apple juice in the range does not claim New Zealand provenance, stating it is made from a range of local and imported ingredients.

> **Country of origin**
>
> Made in New Zealand from imported and local ingredients.
>
> **Ingredients**
>
> Reconstituted Apple Juice (100%), Natural Flavours , Acidity Regulator (Malic Acid), Vitamin (C)

This compares to the chilled challenger brand in the market, Hawke's Bay based The Apple Press which hero's specific apple varietals, making it unique in New Zealand and giving a point of difference in market. Selling well in countries where the work of the New Zealand pipfruit industry has grown strong awareness of brands such as Pink Lady or Jazz.

Two more New Zealand beverage brands [Almighty Drinks]() and [Chia Sisters]() both highlight the local source of fruit for their customers with apples being sourced from the Hawke's Bay and Nelson regions..





The most iconic of them all is [Benjer juices](), hailing from Ettrick in Central Otago, which are 'mostly made' from Otago fruit.

The challenge is ensuring that the domestic model of locally supplied fruit can compete in offshore markets, and whether potential business models might consider different brands or offerings that can serve both niche and mainstream markets.

From an operations perspective, whatever the processing format, overhead recovery is important. Ensuring the business can cover the costs of running a factory requires a minimum level of sales in whatever configuration.

LONGER TERM CONSIDERATIONS - EXPERIENTIAL BEVERAGES

Globally there are also changes in the way people are engaging with brands and beverages. Mediums such as Tik Tok and Instagram have turned food into a form of self expression and identity, with customisation and discovery driving new trends.

Starbucks in the US is a good example, leaning in to new app based engagement and ordering tools, resulting in a significant shift away from traditional menu items.

With the Starbucks brand once synonymous with their indulgent hot coffees, now 75% of sales in the USA are cold beverages,

This change in product mix is an example of changing consumer preferences and opportunities for ingredient innovation. Cold beverages widen the drinking occasion beyond the morning caffeine 'pick me up' and offer a broad base for innovation

- Starbucks' cold beverages are massively outselling hot coffee in the US
- Starbucks Taps into a Cold Coffee Revolution | QSR magazine

There were no apricot or peach juices visible on the Starbucks website, however there were peach flavoured iced teas available, with iced teas being popular across SouthEast Asian (and US) markets. Markets which have strong tea drinking cultures, with a young demographic who respond to cold drinks in a tropical climate.

In the past iced tea as a category hasn't been popular in New Zealand, possibly related to our colder climate, however this has started to change with an increasingly diverse ethnic population used to different drinks and flavour profiles. Just over half of Auckland's population was born overseas.

Auckland based company Avalanche Coffee has extended into a range of novel drinks, including a peach flavored bubble tea (dry sachets).

4 x 250gm packs retailed on their website for $34.00 (5 sachets/carton) = 20 servings.

Peach Bubble Tea – Avalanche Coffee

SHOTT Beverages is a Petone based fruit syrup company that has been experiencing strong growth offshore. They have a wide range of exotic flavours appealing to different international palates including rose, lychee and hibiscus and manuka honey.

The company has also developed an apple variant, triple peach, black tea & apple and black tea & peach servicing hospitality venues such as cafes and bars, as well as being sold to households through grocery channels

Overall a wide range of innovation, with apple and peach being the strongest flavours amongst the opportunities reviewed.

FERMENTATION

An 'under the radar' export category is the supply of craft brewing equipment and ingredients. There are several companies including Bevie, WilliamsWarn and Black Rock that are successfully exporting to the United States and other global markets. The company Bevie is a largely unknown success story, experiencing strong growth over the years with their Mad Millie Range of DIY home food and beverage kits internationally, including their home brewing products, which extend into quite sophisticated equipment with the Grainfather All Grain Brewing. (In 2018 Bevie was acquired by the US Rahr Group)

Black Rock products (mainly malt concentrates) are manufactured in Dunedin at the Speights Factory, with the brand being owned by Lion Nathan

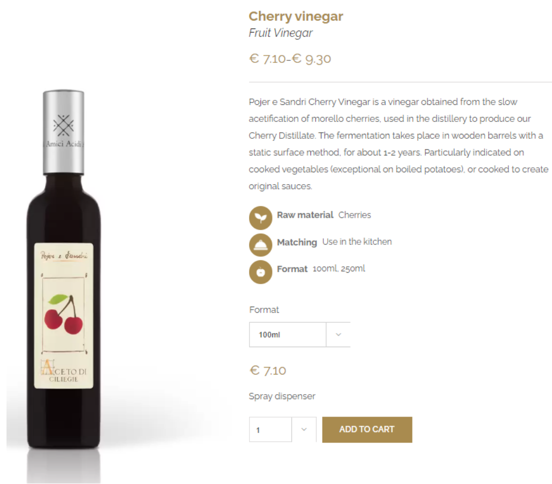
Included in their offerings are cider kits, which use concentrated apple juice. New Zealand fruit provenance is not claimed on the products, although in the case below New Zealand artesian water is claimed.

A brief investigation into some of the traditional products made in global fruit growing regions highlighted the use of fermentation to produce culinary vinegars (not only wines and liqueurs). Apple cider vinegars have become popular again as there are perceived health benefits from consuming as well as using in culinary applications. New Zealand companies are producing for both human and animal wellness.

New Zealand produced Bell Booth Apple Cider Vinegar is sold in pack sizes from 20L - 200L's as a health supplement for ruminants as it 'Contains essential compounds to promote healthy functions of the animal and assists to help keep somatic cell counts low.'

Brand	Chantal Organic ACV	Chantal Organic ACV	Bostock Organic ACV	Ceres Organics ACV	Daily Organics ACV	Goulter Organic ACV	Healtheries ACV	Skybright Organic ACV	Skybright ACV	Coral Tree ACV	Bell-Booth Intense ACV	DYC Apple Cider ACV
Channel	Organic Nation online	Organic Nation online	Vetro Taranaki	Ceres Organics	New World	Healthpost website	New World	Healthpost website	Tonic Health Website	Happy Valley website	Bell Booth Website	DYC website
price/unit	$24.99	$11.99	$15.99	$9.00	$10.69	$9.50	$6.99	$12.95	$13.90	$16.40	$95.99	$24.99
Pack size	2 litre	500ml	750ml	750ml	1 litre	750ml	750ml	750ml	750ml	750ml	20L	5 Litre
price/litre	$12.50 /litre	$23.98 / litre	$21.32 / litre	$12 / litre	$10.69 / litre	$12.67 / litre	$9.32 / litre	$17.27/ litre	$18.50 / litre	$21.87/ litre	$4.80 / litre	$4.99 / litre
Country	New Zealand apples	New Zealand apples	New Zealand apples	New Zealand apples	New Zealand apples	New Zealand apples	Nelson apples	New Zealand apples	New Zealand apples	New Zealand apples	New Zealand apples	New Zealand apples

Artisan fruit vinegars sell for a premium in mediterranean countries. With very premium prices leaving you unsure whether to drink the vinegars or dab behind your ears such is the pricing. ($136 / 200ml)



Aceto di Ciliegie – Pojer e Sandri suggests 'Just the trick on cooked vegetables or boiled potatoes'.

Balsamic vinegar is made from grapes and could be another opportunity to pursue additional value in partnership with the local wine industry, alongside stone fruit vinegars.

At the industrial end of production are companies such as Australia & New Zealand Distillery Limited based near Temuka that produce industrial and private label vinegars.

Tabasco sauce would be another high value international comparison, a simple regionally sourced product hailing from Louisiana, using three ingredients, tabasco peppers, salt and pepper. The resulting red pepper mash is aged in bourbon white oak barrels for three plus years, drawing a cult global following for its unique flavour.

Fermented alcohols were covered in the beverage section

FUNCTIONAL FRUIT EXTRACTS

One of the biggest food trends at present globally is focused on health and wellness and food as a medicine. 'Food as a medicine' may seem a new term, but is not when you consider historic food practices.

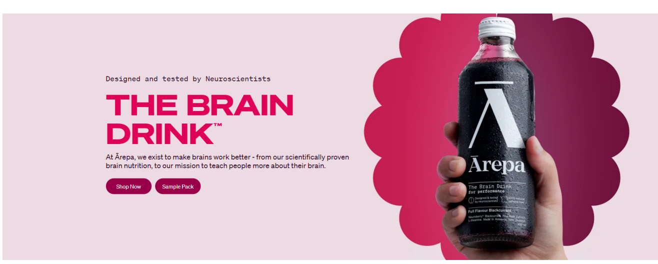
Foods for health underlie many indigenous cultures, with Traditional Chinese Medicine (TCM) typifying the association between foods consumed and their health benefits. As we move beyond the post war industrial farming era, where food security and sustenance was the goal, modern technology enables a much more bespoke, personalized nutrition focus.

The nutraceutical industry has boomed as the 'worried well' have used supplements to correct lifestyle indulgences and deficits.

Leading edge science has now established a link between the gut microbiome and brain performance. Good gut health has a lot of associated benefits and it is interesting that **several new product developments from offshore have cherry as part of their gut health offering, namely Danone yoghurt and Chobani cherry teas.**

Recent research from Royal DSM, a Dutch multinational, revealed that 60% of consumers are now actively seeking added vitamins and nutrients in the products they buy. At times blending tradition and modern health.

- Consumers want to enjoy it all. Why not manufacturers too?
- Flavor, Color, Texture Trends in 2021
- Innovation in good-for-your-gut food unlocks health benefits from stress to sleep



An Auckland based flavour company that shared some insights as part of the preparation of this report noted the recent growth in functional foods and companies such as New Zealand start up Ārepa. A company that is moving beyond the traditional nutritional type claims made around 'Vitamin C' content. **Arepa has invested heavily in clinical trials in multiple markets to validate their nootropic claims.**

Arepa are not the only company capitalizing on the health benefits of blackcurrant extracts with a growing number of New Zealand companies developing products with bioactive fruit compounds including but not limited to ViBERi , Zestt Wellness, NZ Extracts Anagenix and 2 before

Reinforcing the opportunity for more scientific and clinical research into the benefits of Central Otago fruits. Understanding what grants and support is available will be useful if this path is of interest, as the upfront costs can be considerable in proving new scientific claims. In some instances international markets prefer that clinical trials are carried out with people in their own countries, by Universities or groups with a credible local reputation. Which adds another level of cost.

Cherry's globally have a strong association with health and wellness, related to the antioxidants, anthocyanins and the phytochemical content. There was a wide variety of claims being made internationally on food products including supposed relief from gout, arthritis and fibromyalgia.

While there doesn't appear to be a lot of information readily available regarding the health benefits of sweet cherries from New Zealand, an article found from 2014 suggests that significant levels of melatonin were found.

- Could NZ cherries be the secret to a good night's sleep? | Scoop News

While many fruits and vegetables are naturally high in anthocyanins in New Zealand due to the UV light they are grown in, UK scientists have been developing GMO tomatoes high in anthocyanins to better understand their health properties. The growing awareness of the health benefits of anthocyanins may bring new dynamics to the industry and importance consumers place on non-GMO options.

- USDA approves GMO purple tomato with brain-boosting and cancer-fighting properties

New Zealand has been staunchly non-GMO in its stance, but this may change as specific needs are identified that can be addressed through genetic engineering. Methane inhibiting grasses that would reduce New Zealand's dairy emissions is an example of the types of considerations New Zealand will be debating in years to come. A discussion beyond the scope of this document.

In New Zealand there are companies producing a range of products, (including dog food) with a range of health claims. These companies use both sweet and tart cherries, which have different characteristics.

Eden Orchards	HEALTH BENEFITS OF 100% PURE CHERRY JUICE • Eden Orchards Pure Cherry Juice • $29.99 / 750 ml • Sparkling Cherry Drink - $5.19 / 330ml bottle	
Tru2U	Buy Tru2u Sleep Support Sweet Cherry Concentrate 1L • New Zealand Sweet Cherry • Phytomelatonin • $56.90 / litre	
Radical Dog	Radical Dog Premium Biscuits – cherryvite • NZD $22 / 400gm	

FUNCTIONAL EXTRACTS - NZ INNOVATION

Following the observation that functional ingredients were achieving a premium, a discussion was had with an experienced South Island nutraceutical entrepreneur.

There was a discussion around how the grower base for blackcurrants has reduced over recent years. In 2018 Frucor Suntory decided to cut their NZ contracts with growers dramatically impacting the growers causing a reduction in supply volumes to meet reduced demand.

Major blackcurrant buyer Ribena cuts NZ contracts | RNZ News

Prior to the cutting of supply contracts, a nutraceutical market for blackcurrant extracts had developed which involved sourcing the fruit skins from the pressing process, which are rich in anthocyanins and not typically used in juice products. The blackcurrant extract industry has continued to grow as science has identified the health benefits associated with the skins.

The **blackcurrant industry is focussed on juicing and processing extracts, which is different to cherries being grown as table fruit.**

Health benefits spur growth for blackcurrant growers | Horticulture New Zealand

Extraction ratios are important commercially - this is basically the yield you obtain from a unit operation.

As an example (not real, used only as an illustration) 10MT of fruit might result in 1MT of skins, which when further processed might result in 250kg's of extract. **Whilst the finished products have desirable price/kg, the input costs are also high**. It was indicated fruit could cost approx $ 3.50/kg which might turn into $700/kg for a fruit extract.

The reality is that the work in selling extracts is time consuming and 20-30% of the year could be spent offshore, attending conferences and trade shows, and visiting and connecting with customers.

It was possible that more information could be gained regarding the desirability of cherry extracts if specific requests were made from the growers.

The potential cost of an extraction factory based in Central Otago was discussed in general terms. **No definitive numbers were discussed, but it might sit around $5 million.** This sort of facility would require dangerous goods compliances and bunds for the alcohol required for extraction processes.

NZ FROZEN FRUITS

There has been a growth of fruit in the frozen category in recent years, with Covid having been a catalyst for consumers buying frozen fruit for homemade smoothies and baking. Berries and tropical fruits dominate the frozen retail category, with fewer offerings for frozen apples and stone fruit.

Locally grown fruit is supplemented with imported fruits, and while NZ sourced fruit is 'nice to have' for New Zealand consumers there is not a lot of country of origin differentiation, especially with imported fruits such as mangoes, cranberries and pineapple being popular additions to frozen fruit ranges, which are not grown in large quantities in New Zealand.

- Trends Berry, Berry Good for Retailers | Supermarket News
- https://www.freshplaza.com/oceania/article/9432027/frozen-fruit-consumption-has-increased/

OOB organic is a locally recognised and established frozen range in grocery, with both fruit and ice cream offerings. While Omaha, north of Auckland is where the company was founded, the business has an international focus, with none of the frozen retail fruit listed on their website in September 2022 being sourced locally. Noting this may change through the year as the seasons change but was in stark contrast to what started as a farm produce based business.

The large volumes of quality organic fruit required for a growing international market may be greater than what the local producers can provide, or is simply a cost based decision related to our international competitiveness.

In Sept 2022 the below information was listed on their website

- Organic Blueberries - Product of Chile

- Organic Raspberries - Product of Serbia or Chile
- Organic Banana - Product of Peru
- Organic Mango - Product of Peru
- Organic Mixed berries - Product of Chile
- Organic Strawberries - Product of Turkey

It appears there is inherent trust built with consumers and grocers to provide the best quality products from around the world. With bananas being one of the most purchased items in grocery stores in New Zealand, there is public acceptance of the need for international fruit supply to fulfill local market demand, and counter seasonal supplies to deliver oranges and other fruit types year round.

OOB doesn't currently provide stonefruit in their core range offering according to their website.

For **many years organic remained a niche offering in the domestic market**, as Kiwi consumers considered local fruit and vegetables to be of a high and trusted quality. However the organic market is growing internationally, with GMO free also being a strong premium offering in markets such as California.

OOB is selling frozen fruits under their brand into SouthEast Asia, where fruit products are readily sourced from all over the world.

Ffowcs Williams is an established NZ importer and distributor of fruit for industrial and food service applications based in Auckland. They also have a retail brand Orchard Gold which has a strong presence in Woolworths/Countdown and Pak n Save.

Regarding cherries, **Chile is a dominant player in IQF cherries with current FOB price estimates of around $USD 2.00/kg, which worked at about $NZ 5.00/kg into New Zealand**.

Quality is paramount and it was noted broken pip's could be a safety issue and required high levels of processing to reduce causing a choking risk.

While Ffowc Williams do supply some IQF NZ sourced fruit, there didn't appear to be a huge demand in New Zealand for cherry. There is NZ sourced cherry puree from local producers being supplied for craft beers and icecreams

It was noted there was **ongoing demand for diced IQF peaches in New Zealand.** Production requires specialized equipment to ensure the stone and skin is removed and the fruit optimized, and to date diced peaches haven't been sourced from New Zealand. **These were last procured by the NZ trader from offshore for NZ 3.00/kg - a challenging figure to match producing locally.**

Flavour intensity is something that is important in processed fruit, and some fruits like nectarines don't always retain a strong flavour profile once processed and are less desirable.

FSL FOODS - DISCUSSION

FSL Foods is a frozen fruit and vegetable supplier, with the founding family having grown fruit in the Nelson region for many years.

FSL's processing plant is based in Nelson and processes local and imported fruits. In recent years the company has diversified into a wider range of grocery and food service offerings.

FSL Foods have a focus on IQF fruit - individually quick frozen fruit which creates a free flow product that's easy for consumers to use straight from the freezer.

Lower grade fruits that do not meet the aesthetic requirements of IQF could be sold elsewhere for jams or concentrates. (There is also another format which is BQF - block quick frozen - which literally freezes fruit into a block.)

For a successful business case it was assumed that 10-15% of a grower crop might be processed, with the rest sold at a premium as fresh. It was noted that 80% of frozen fruit in supermarkets is imported due to limited domestic supply.

Locally sourced fruit must be competitive with imported options - the market can be extremely price competitive. Countering that, Australia has a big demand for IQF fruit.

Should there be sufficient interest from growers in supplying, FSL Foods might consider supporting the introduction of freezers and processing equipment into the Otago region, assuming enough volume can be produced at the right time to make this a worthwhile exercise.

Growers in the local region might also want to support installation of infrastructure in the region to expand their offering to the wider food industry.

There is interest from FSL Foods in talking with Otago growers in more detail around what would be required regarding building supply from the region.

15MT was considered the minimum order quantity. Before starting, FSL Foods would visit growers to understand the land and quality of the product they were securing.

Co-ops in New Zealand often represent farmers in price and volume negotiations, with the likes of Boysenberries New Zealand and Blackcurrants NZ representing grower interest.

FSL can work directly with growers, so a Co-op model is not needed. The starting point would be 5MT plus to 10MT plus

FSL Foods locks in volumes in July for the coming season - and typically will take as much as they can get. They will draw down on fruit across the year, meeting all of the volume that is committed to. **They may take as much as 200MT** - depending on the fruit variety, and they would draw down on that volume over the year.

Coordinating trucking is key to maintaining cost controls on fruit and discussion was had on the importance and location of 3PL hubs (Third party logistics)

It was noted that **fruit concentrates were easy and cheap to secure offshore and were not of interest**.

'The Goodness Kitchen' brand was an example of a new range shaking up the frozen grocery aisle - leaning into the global health and wellness trend.

The brand currently has a cherry product in their range which is imported from Greece.

- **FSL prefer to have a three year supply contract**
- In conversation the company noted they sometimes **paid around $4-5/kg for local stone fruit** and had an interest in sourcing more local fruit as they expanded and diversified their product ranges.

FLAVOURS & EXTRACTS

NATURAL FRUIT FLAVOURS - Sensient Technologies

Discussion with Sensient, an International Flavour House with offices in Auckland, Sept 2022

The flavours/extracts industry sources flavors and extracts from offshore, and small amounts of fruit from across the country, creating unique varietal flavourings where the quality is determined by the freshness of the flavour.

Rapid freezing or chilled storage at harvest helps retain the important volatiles required to make good quality flavour products. These flavours are typically used by the beverage industry with orchard fruits, including apricots, nectarines, peaches and plums being most desirable. Cherry, it was noted, is a less popular flavour in New Zealand food products than other markets.

The flavours industry is currently sourcing fruit **delivered to them for approximately $NZ $1 - 3/kg,** if it is a specialty flavour they will sometimes pay a little more. Their model relies on a steady waste stream to fulfill demand. They currently source fruit from the Central Otago region and have established relationships with growers, although are always keen to discuss new opportunities.

Warehousing costs are a factor in the economics, and the flavour houses use a just in time delivery, requiring the suppliers to store frozen/chilled fruit. There is a shortage of storage options in Auckland and the cost is at a premium so preference is for the fruit to be stored in the regions and supplied as required.

The **finished products can sell for around $NZ100/kg**, with a top selling flavour in NZ selling around 6MT/pa. This does not imply that New Zealand sourced stone fruit flavours would reach this volume.

Flavour companies offer bespoke product development for customers and have the associated overheads of sales people, development labs and application technologists to create flavour combinations or innovative new foods as part of their service model, so there is substantial cost to be absorbed in a flavour delivery model.

In terms of the flavours industry, there are two other New Zealand owned flavour companies manufacturing locally, Pacific Flavours in Auckland and Formula Foods in Christchurch. With a number of other internationals present in the market with imported flavours, fragrances and colours represented by distributors.

VALUE OF PROVENANCE

Several pieces of funded research have occurred over recent years seeking to understand what consumers in key markets think of New Zealand, including the country's food offerings.

An NZTE study by New Zealand Trade & Enterprise gave a range of insights, unsurprisingly consumers responses were mostly related to traditional associations of dairy and red meat. A comment from the US market 'lack of differentiation from what they have on offer'. There was nothing stated across the markets specific to stone fruit.

A Government funded Our Land & Water National Science Challenge' has been running 'The Value Project', seeking to qualify ways to increase value in our supply chains.

- Introducing The Value Project – exploring how Aotearoa New Zealand can generate greater returns from sustainable production

Professor Caroline Saunders, Director of AERU at Lincoln University says 'New Zealand has traditionally been good at logistics and ensuring product quality, but not that good at market orientation.'

"A value chain looks at the consumer first. The value is created by the consumer, so we find out what they are really willing to pay for, what attributes they are looking for, and we bring that down through the value chain and make sure that fair reward goes to the New Zealand producers."

'The research suggests the fight for global success is not only won by product, price or even brand – **it's by the cooperation and intelligence of the whole value chain**. In our interconnected world, **it's less the battle of the brands than the battle of the supply chains**. The more functional the chain, the more valuable the result.'

The study looked at what consumers want - referred to as Credence Values, qualities that are sought by customers beyond price and quality. Professor Caroline Saunders confirmed that Otago or the fruit grown in Otago had not formed part of their research to date.

Sustainability or being able to tell a clean green story has been integral to brand New Zealand when it comes to food exports. Increased focus on climate change, carbon emissions and increasingly biodiversity has seen supply chains respond.

These self made claims may be more difficult to make in the future, as greater focus is being put towards substantiation and reporting. Certifications and audits are becoming mandatory with customer-led initiatives such as the recently announced Tesco requirement that all fresh produce, meat and dairy be 'sustainable'.

"Around 2025 to 2030 we want to make sure that 100% of what we source in terms of fresh produce, meat and dairy is environmentally accredited. What that means for our New Zealand farmers we are not sure yet." Alice Ritchie, Sustainable Agriculture Manager, Tesco's Tesco's warning to New Zealand farmers | Stuff.co.nz

Pioneering initiatives such as Mike Casey's NZ0 certification, accredited by NZ Government entity AsureQuality could be important models to guide the industry towards more sustainable practices.

- NZ Agricultural Show: Mike Casey to talk about making Forest Lodge Orchard fully electric

COUNTRY OF ORIGIN LABELING

New labeling laws that came into effect in New Zealand this year will enable greater transparency with regard to country of origin. This might drive more awareness of where fruit comes from, but may not drive a premium for locally grown fruit. With high inflation and rising food prices, cost may be the deciding factor in the next few years as consumers feel the spending squeeze.

- Country of Origin labelling requirements start February 2022 | Horticulture New Zealand

The exception may be if there are further food safety incidents linked to particular countries' fruit exports. The recent Pam’s berry recall was linked to a Hepatitis A outbreak in Europe, and thought to have originated from Serbian fruit. Modern traceability enables faster and more precise origin identification.

Food safety, procurement and auditing processes generally inhibit the occurrence of food safety incidents and an isolated incident does suggest widespread industry issues.

SUSTAINABILITY

Sustainability reporting is increasing as the world's markets grapple with the impacts of climate change and finite resources. At present the majority of processed fruit that is traded internationally falls into the commodity category. However we are seeing a change in how sustainability benefits may impact the desirability and value of exported food products.

FMCG food brands are being held to account by investors and boards to meet increasingly high sustainability standards. Fonterra is an example of a commodity exporter of high quality ingredients that released their new Sustainable Finance Framework in October 2022.

Interestingly they note that 'Over the next decade we intend to significantly increase our investment in sustainability-related activities and assets throughout our supply chain to both **mitigate environmental risks and continue to differentiate our New Zealand milk**.'

If sustainable practices are adopted and compliance levels can be adhered to, it might differentiate the regions offering for F&B/grocery companies seeking to fulfill their procurement commitments to carbon and regenerative type offerings.

- Taskforce on Nature-related Financial Disclosures
- Climate-related Disclosures » XRB

Standards and certifying bodies differ widely across international markets so consideration of offshore regulatory, as well as domestic legislation/regulatory will be required when considering potential export destinations. Something to be considered at the start and not end of the innovation journey.

Walmart is an example of a global retailer that is tackling their sustainability commitments head on and actively reducing their emission footprint. They have stated a plan to reduce a gigaton of emissions by 2030.

Examples of growers offshore adopting standards are coming through in fruit growing regions such as Washington State in the USA.

[Cherry growers choosing sustainability | The Packer]

“In August 2021, we became the first tree fruit company to fully certify our orchard and operations with the Equitable Food Initiative,” Shales said. “This means we can assure the entire supply chain that we meet EFI’s rigorous standards, and our products are ‘Responsibly Grown, Farmworker Assured,’” as the EFI label states.’

UPCYCLING FRUIT - EMERGING GLOBAL TREND

‘If food waste were a country it would be the third biggest greenhouse gas emitter behind China and the US’, according to the UN Food and Agriculture Organisation.

There is a growing global trend towards minimising food waste throughout the value chain driven by environment, economic, trade policy and food security reasons.

Upcycled food is a food category referring to products which have added value to material previously seen as waste or by-products (but is safe for human consumption) and transform these into new 'upcycled' food products. Otago University now has an Upcycled Food Lab dedicated to exploring New Zealand Food opportunities.

While most products do not reference the ‘grade’ of fruit they are using, one of the local cider brands specifically mentions the use of ‘fruit loss’ cherries in the making of their cider. This product is a collaboration between New Zealand StartUp Citizen Collective and Auckland based craft cider maker Morningcider

Citizen x Morningcider Cherry Bomb Cider 440ml

Available at Morningcider

A magical colab between Citizen and Morningcider, Cherry Bomb Cider boasts rescued cherry, apple, brown sugar and cinnamon. **Best of all, with every can you sip, you rescue 20 Central Otago cherries!**

Our Cherry Bomb story starts in Central Otago, when we got talking to NZ Cherry Corp about an amazing opportunity to make a change for the better. Every year, tonnes of perfectly good cherries end up going to waste because of tiny flaws. They’re a little wonky, a little split – but still totally delicious. So, we started dreaming up ideas for how we could save these cherries and make something beautiful... and with the help and talent of our awesome mates at Morningcider, Cherry Bomb Cider was born!

Crafted with love by the gang behind NZ’s first neighbourhood apple orchard, Cherry Bomb is stealing hearts and tastebuds all over Morningside. Pop into the Morningcidery soon and say hi!

- 4.5% ABV
- Crafted with our friends at Morningcider
- Each can uses 20 rescued Central Otago cherries
- Special thanks to NZ Cherry Corp for their imperfect cherries
- Special thanks to Morningside artists Margarita & Ross

Shop online now at Morningcider

LILO Desserts, an emerging local dessert brand talks on their website and social media about using 'glitch fruit' declaring 'LILO is on a mission to '**get fruit tasted not wasted**'. Further stating 'We collaborate with orchardists to harness the fruit some say is "ugly" and turn it into delicious, mood-enhancing snacks.' Highlighting the use of Central Otago fruits on their labeling and branding.

In 2021 Lilo was selected for International FoodTech accelerator Big Idea Ventures Lilo Desserts Launched New Zealand's First Dairy-free, Ready-to-eat Cheesecake - bigideaventures

There are also emerging tech companies who have a focus on validating claims. It is one thing for a company to claim the use of fruit loss, but who is the wiser unless independent digital tools are deployed to validate the value chain.

Companies such as Dunedin based Oritain, the tinder for trash startup CiRCLR based in Northland, and two Auckland companies TradeWindow and Trust Codes amongst others, are paving the way for authenticated value chains.

The government has put funding into a science programme the Bioresource Processing Alliance to enable industry driven research into value added by-products.

INTERNATIONAL INTEREST IN CENTRAL OTAGO

A UK company, Sibelius Natural Products expressed interest in receiving samples of Otago cherry extracts for review in June 2022. They also came back with the typical supplier/distributor queries related to food ingredients.

1. Are you a manufacturer/producer?
2. What is the MOQ of this product?
3. What is the price of the product with MOQ?
4. What are the shipping terms? EXW/FOB/CIF or other?

5. Can you please pass :
    - Certificate of analysis (CoA)
    - Composition
    - MSDS (Material Safety Data Sheet)

It's important to note the focus on volumes, as the expectation will be that there is a MOQ - i.e. minimum order quantity. This will be something to address as the export aspirations grow, that there will need to be right sized markets to approach.

A minimum order quantity is the least amount the company will hold in stock or process for the customer, or from the customer perspective the smallest number of products they must get from their supplier to complete the order.

This conversation or agreement needs to be addressed upfront, especially when considering the cost of holding stock and processing. What is the economic unit size that enables a sustainable business model? At the other end of the spectrum what is the maximum amount of fruit able to be supplied.

While this might seem a wonderful issue to have, if not considered at the start of the agreement, could result in litigation, with failure to deliver on commercial expectations. Minimum and maximum order fulfillments should be considered at the start of the season, if not before. This is why multi year agreements from customers are often in place to ensure capacity is accounted for.

INTERNATIONAL MARKET ATTRACTIVENESS

The Infometrics report prepared for the Central Otago District Council provided data on global exports and imports of processed fruits. There was a limit to the usefulness of this information due the nature of the raw data collected for global trade purposes.

DESKTOP RESEARCH

Desktop research across grocery channels in key markets generally did not show country of origin on frozen fruit or processed food packaging. On internet shopping sites it often noted, COO to be printed on-pack, inferring the country where the fruit was sourced from often changed.

There was one exception encountered, where the 'Aussie Grown' brand from a company called My Berries based in Queensland, Australia was present in Carrefour, a French grocery chain in the UAE.

NZTE staff were approached with regard to potential pricing and opportunities for juices, purees or frozen fruit with a Central Otago provenance and whether this would achieve a premium.

The answer in short regarding South East Asian markets was no, there wouldn't be a premium at present, and if a branded proposition was put forward this would require significant marketing spend to educate the consumer on the benefits / differences to other markets.

The success of products such as [The Apple Press] juices into Asia were built off the foundational work done by the New Zealand apple industry in building brands such as 'Pink Lady' in Asian markets. Whilst the Hawke's Bay is clearly on the front labels, the cultivar or fruit variety has been the hero. This may change in time as the brand grows a loyal following and there is an association with the region.

SOUTH EAST ASIA

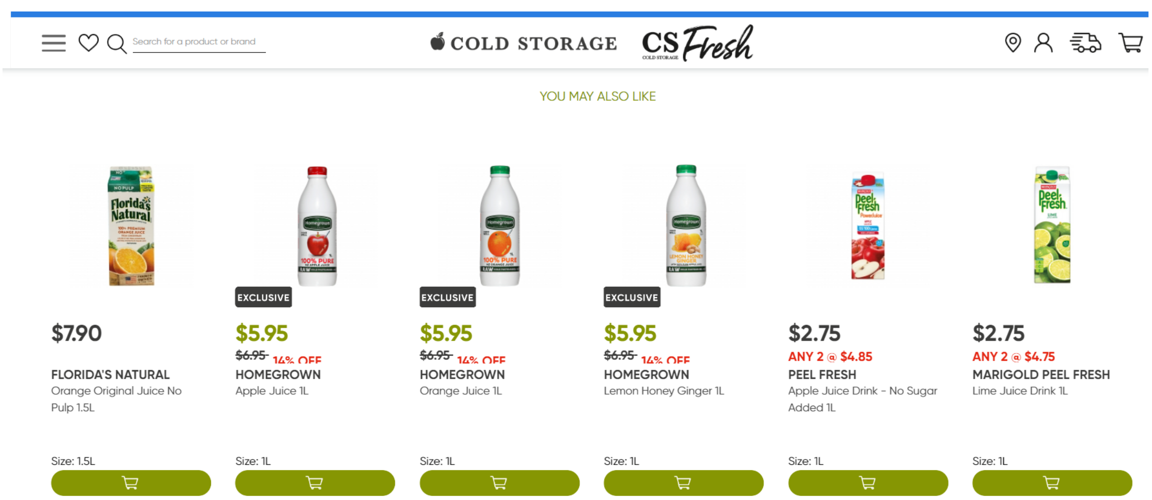
SINGAPORE

A 350ml bottle of The Apple Press juice was selling for $SGD 7.00 = $NZD 8.68 / bottle on an online Singaporean shopping site Shopee.

Hawke's Bay based 'Homegrown cold pasteurized 200ml juice pouch' which is a premium juice in New Zealand, was selling at ColdStorage in Singapore for $SGD 2.00 = $NZD 2.48.

Below is a snapshot of some more of the chilled juices in [Singapore's Cold Storage] - the NZ brand Homegrown are positioned as premium at $6.95 / 1L or the discounted price of $SGD 5.95 = $NZ 7.38 / litre.

This price will be inclusive of grocery margins and logistics costs ex-New Zealand. This example is illustrative only as it demonstrates the types of pricing in the market at the time of writing and not a definitive price comparison.



These brands have been able to grow off a strong New Zealand domestic market presence with established supply chains.

Market dynamics are changing in Singapore with the investment and prioritization of vertical farming systems. Food security is a major driver towards large investment in the cropping of a wide variety of foods including fruit in closed environment growing systems. Singapore has a [30 by 30](#) national goal of producing 30% of food locally by 2030. Strawberries are one of the early fruits being grown, with many more crops on the horizon.

[Oishii](#) is a US / Japanese example of some of the new forms of vertical strawberry farming - with a strong focus on delivering outstanding flavour. Changing the game from being an energy intensive farming system to delivering a superior tasting product. This is serving to illustrate the rules of the game may change with new and emerging technologies.

It was noted **purchase decisions for frozen fruits used in smoothies are not driven by provenance and are being supplied from all around the world including Turkey, Korea, Chile, Ireland and France. The quality and reputation of these countries are all considered good by local consumers.** Foodservice supply is no exception. New Zealand does not have a reputation for specialised technology or unique frozen fruit that would differentiate it in the market.

- Singapore gateway into Asian market | Stuff.co.nz
- 9 Best Grocery Stores, Supermarkets and Markets in Singapore

The fruit juice market is very competitive and it was thought significant investment in-market would be required to develop a retail brand that was distinctly different from other offerings. Arepa, Homegrown and The Apple Press are present in the market.

Fruit pulps, purees and prep's for bakery applications were thought to be very low margin and price sensitive.

It was noted Fresh berries are popular in grocery channels, with USA berries selling for up to $SG 15/pack ($NZ 18.57), with strawberries retailing for around $SG10/pack ($NZ 12.18)

Freeze dried fruits are popular and have become quite common. There are a lot more international suppliers and brands supplying than there were and the category has become quite competitive.

VIETNAM

New Zealand fruit, especially apples and cherries, are well regarded in the local market according to the NZTE Vietnam office.

Cherry would be considered the most premium juice for the market as there are locally grown apricots and nectarines available. The nectarines and apricots are smaller and grown in the highlands in the north. There is also a lot of stone and pip fruit available from China.

As processed fruit products it was discussed that products such as The Apple Press juices and Little Beauties dried fruit snacks would likely sell well to premium consumers in Vietnam. With a population of 97.4m people, there is a solid opportunity in the premium category.

It was suggested collaborations with these New Zealand brands may be a starting point for innovation. These types of products sell for similar prices to the New Zealand Retail Sell Price.

Supplying food processors in the region requires very consistent product specifications, with available volumes, regulatory and import approvals and would be competing with global suppliers.

NORTH ASIA - KOREA & JAPAN

JAPAN

Japan is the largest importer of frozen fruit from New Zealand, with the type of fruit not specified.

Frozen fruit (081190)

The six largest importers of New Zealand frozen fruit exports between 2017 and 2021 are outlined in Table 13.

Table 13

Largest six importers of NZ exports

2017 to 2021

Average per year

Country	**Value of exports (NZ$, 000s)**	**Share of NZ exports (%)**
Japan	2,400	23%
Australia	1,705	17%
Republic of Korea	1,626	16%
Germany	762	7.5%
Denmark	750	7.4%
Thailand	469	4.6%

Source: StatsNZ

Kiwifruitz is a fruit processing company based in the Bay of Plenty that produces a wide range of frozen kiwifruit products for markets in North Asia, and it is possible that a large proportion of the frozen fruit being exported to Japan and South Korea is kiwifruit for use in Japanese manufactured food products.

The below products are featured on the Kiwifruitz website as examples of the types of products using their kiwifruit:

Japan has a well developed health food market and is also a very strong market for Zespri fresh fruit.

With obesity becoming a serious global issue that most developed countries are grappling with, Japan implemented a policy in 2008 to address.

The Metabo Law

'In 2008 the Japanese Ministry of Health, Labour and Welfare introduced the 'Metabo Law' which requires men and women between the ages of 40 and 74 to have their waist circumference measured annually. The waistline circumference limits are 33.5 inches for men and 35.4 inches for women. In addition, companies' health insurers are required to provide weight loss classes to employees that have become overweight or met certain other criteria. The government imposes fines on companies and local governments that do not meet specific targets. Personal computer company NEC noted that these fines could amount to US$19 million for a large business.'

This indicates a strong emphasis on personal health responsibility and potential for innovative new foods that work towards better metabolic health outcomes. Functional foods are a well established category in Japan and a potential opportunity for processed New Zealand fruits.

Cedenco Foods is a NZ based fruit processing company, owned since 2010 by **Japanese Food Ingredients company Imanaka Holdings, that produces both Kiwifruit and Apple IQF, pastes and purees for export in Gisborne and Hawke's Bay**. In 2017 Cedenco bought the former ENZA Hawke's Bay fruit processing equipment

- Fruit and Vegetable Ingredients | Cedenco Foods New Zealand
- Processing | Cedenco Foods New Zealand

SOUTH KOREA

The market for food is sophisticated, and there is strong interest in wellness products from New Zealand. Seriously Healthy, a New Zealand/Australian company has developed a clean modern range of smoothie mixes which stand out in the freezer section of grocery aisles.

[Serious Smoothies launches in South Korea after business success | Stuff.co.nz]?

In October 2022, Serious Smoothies announced they were launching into the South Korean market via a partnership with large South Korean food and beverage company [빙그레 binggrae], who manufacture ice cream, milk products, and snacks. There is a wide range of tropical fruits and berries in their range, the main focus is on mood / health benefits, not provenance.

The company Co-Founder 'Rosser said it would be sending 100,000 sachets to South Korea for the launch. He expected it would fit right in with the **Korean market, where consumers focused on convenience as well as health and functionality.'**

Convenience and health are being spelled out explicitly on their website

South Korea's annual imports of fresh cherries from other countries were valued at over CAD $208 million in 2021, (NZD 269 million) Agriculture and Agri-Food Canada said Aug. 10.

- [B.C. cherries cleared for export to Korea - AGCanada]

GREATER CHINA - CHINA, TAIWAN AND HONG KONG

The market for fresh cherries has developed around market access / FTA's and the timing of the Asian Lunar New Year coinciding with the Southern hemisphere's stone fruit season. New Zealand's counter seasonality enables shipments in January, arriving in time for February celebrations.

While New Zealand cherries are valued as a premium fresh fruit for gifting, this report seeks to understand the opportunities outside of fresh fruit for New Zealand sourced stone and pip fruit products.

CHINA

China is a strong export market for New Zealand fresh fruit, especially Zespri's kiwifruit and an important and growing market for premium cherries with New Zealand's season coinciding with the Lunar New Year.

'Total Chinese cherry imports exceeded 20,000 tons for the first time in 2008. In 2020, they exceeded 210,000 tons. **Chinese imports from Chile were less than 3,000 tons in 2008, while they were almost 195,000 tons in 2020**.'

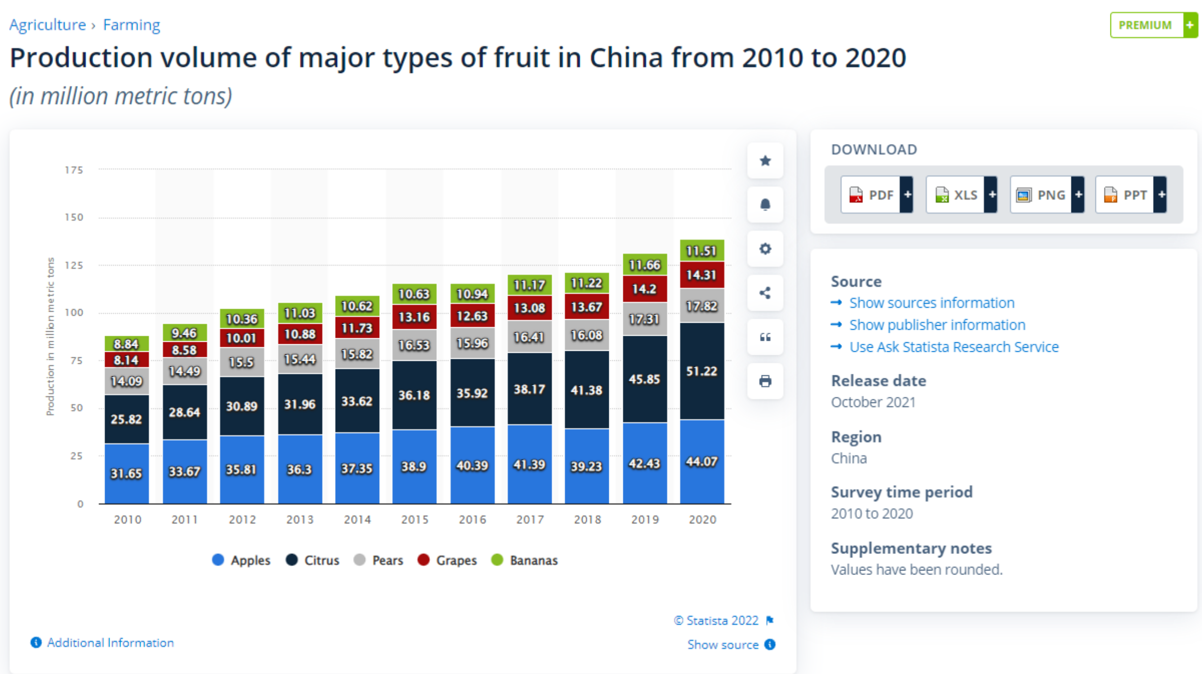
Whilst the fresh sweet cherry market is very significant for New Zealand, 93% of imported fresh cherries into China are supplied by Chile. **With Chile supplying 96.2% of the Southern Hemisphere's fresh sweet cherries.**

In terms of local fruit capacity, **China is one of the largest growers of fruit in the world, dominating in citrus and apples, and appears to supplement this with frozen tropical fruits from the wider Asia Pacific region**.

China is the second largest importer of frozen fruit in the world, with Thailand being by far the largest supplier to China, averaging $171m between 2017-2021, twice that of the next largest supplier, Malaysia.

With both Thailand and Malaysia being close to the equator it is expected that the majority of frozen fruit exported to China and other countries will be tropical. With frozen products extending the short shelf life and usability of some tropical fruits. Noting the susceptibility of fruit to fungal diseases and infection in warm humid environments.

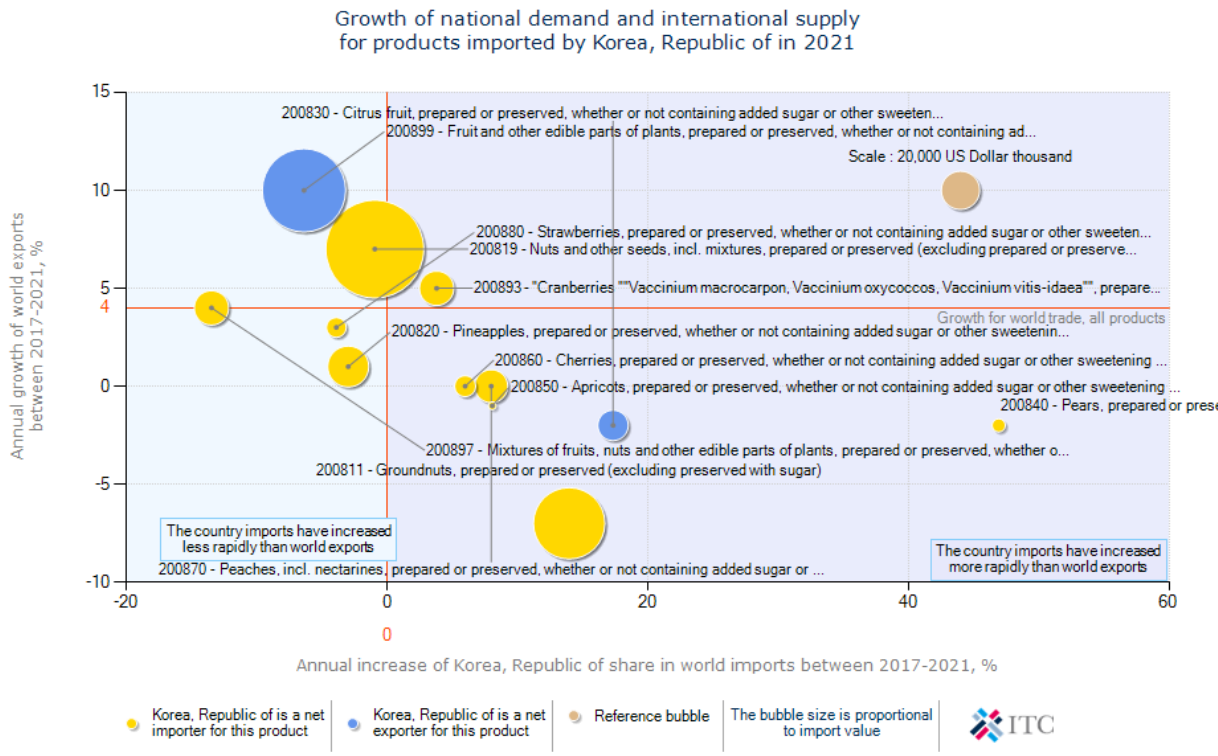
- [Global fruit & vege production]
- [Remarkable growth in exports from Chile - GP]
- https://www.freshplaza.com/oceania/article/9405528/cherry-sector-grows-in-chile-and-china/



TAIWAN

A strong market for New Zealand fruit and one of the largest markets for fresh New Zealand cherries. Taiwan is often presented as a gateway to China for New Zealand exporters. A manageable step before servicing the much larger China marketplace.

- [Online opportunity for cherries in Taiwan | Article | Fruitnet]
- [Producers urged to capitalise on trade deal | Otago Daily Times Online News]



USA / UK / EUROPE

NORTH AMERICA

The largest importer of frozen fruit in the world is the USA, with their six largest suppliers all coming from the American continent. Canada is the biggest, supplying an average of $US 183 MT/pa of frozen fruit between 2017-2021.

The data supplied doesn't break out what fruits make up this figure. Blueberries are native to North America and grow in both countries with trade between both countries causing concern that the rise in imports are impacting American growers. 'B.C. produces an average of about 73,000,000 kilograms of blueberries each year, about 70 per cent of which is exported. U.S. shipments make up about two-thirds of exports'

Canada is the fifth largest importer of frozen fruit, with the USA being the largest supplier averaging $57M/pa (2017-2021), interestingly Canada is the second largest supplier averaging $28M/pa (2017-2021) (reimporting fruit)

[B.C. blueberry growers await looming U.S. trade decision on whether to proceed with tariffs | CBC News]

Canada, USA and Chile grow 97% of the world's cranberries source: [Cranberry - Wikipedia]

EUROPE & USA

In the global market search it became apparent that dairy products are a key market for fruit preps and pastes. Noting that cherry featured several times in products claiming 'gut health' properties, including Activia, Biotiful, Yeo Valley and Chobani probiotics.

The products with stone fruit variants were predominantly in the UK and US, and were also present in European yogurts and other dairy products. Often no reference was made to the type of cherry on the labeling, the selection that was made tried to focus on potentially sweet varieties where possible.

Brand	Waitrose Lavish creamy black cherry yoghurt	The Collective Gourmet Morello Cherry	Rachel's Luscious Cherry	Activia Gut Health Cherry (Danone)	Biotiful Gut health oat Kefir drink Morello Cherry	Yeo Valley Kefir	Chobani Probiotic Cherry Hibiscus plant based	Ben & Jerry's Cherry Garcia ice cream (Unilever)	Haagen Dazs Cherry Vanilla Ice Cream (General Mills)
Channel	Waitrose	Sainsburys	Waitrose	Sainsburys	Ocado	Waitrose	Instacart	Walmart	Safeway
price/unit	95p	GBP £2.65	75p	GBP £2.30	GBP £1.60	GBP £1.66	USD$4.49	USD $4.48	USD $8.09
Pack size	150gm	450gm	150gm	4 x 115gm	250ml	500ml	14 fl.oz 414g	16oz - 450g	14 fl.oz 414g
price/kg	GBP £6.33	GBP £5.89	GBP £5.00	GBP £5.00	GBP £6.40	GBP £1.60	US $10.85	$9.95/kg	$19.54/kg
Conversion rate	GBP £1:$2	GBP £1:$2	GBP £1:$2	GBP £1:$2	GBP £1:$2	GBP £1:$2	US$1: NZ$ 1.77	US$1: NZ$ 1.77	US$1: NZ$ 1.77
NZD	$12.68/kg	$11.78/kg	$10.00/kg	$10.00/kg	$12.80/kg	$6.64/kg	$19.20/kg	$17.62/kg	$34.59/kg
Country	UK - no COO	UK - no COO	UK - no COO	UK - no COO	UK - no COO	UK - no COO	US - no COO	US - no COO	US - no COO

There were similarities between the US and Europe and some comparison was undertaken to understand the market dynamics and pricing with global retailers operating in both markets.

EUROPE / UK

Overview: **Planted areas for stone fruits are declining in Europe due to low profits.** Trade in Europe is typified by large domestic consumption and common market trades between neighbouring countries.

Poland is the largest producer of apples in the EU, and is also a significant processor of fruit, including juices through to fruit fibres. Poland - net importer as well as major fruit and vegetable producer

Both sweet and sour cherries are traditional fruits and popular in bakery and beverages. Belows is a selection of dairy products across the US and Europe that use cherry fruit prep's in the formulations. It is interesting that the sweetness of cherry works well in combination with greek yogurts and ice creams. More interesting is the new categories emerging where it is **present in gut health food products** and in combinations with oat milk or kefir.

None of the products claimed a provenance on where the cherries were sourced from.

Brand	Waitrose Lavish creamy black cherry yoghurt	The Collective Gourmet Morello Cherry	Rachel's Luscious Cherry	Activia Gut Health Cherry (Danone)	Biotiful Gut health oat Kefir drink Morello Cherry	Yeo Valley Kefir	Chobani Probiotic Cherry Hibiscus plant based	Ben & Jerry's Cherry Garcia ice cream (Unilever)	Haagen Dazs Cherry Vanilla Ice Cream (General Mills)
Channel	Waitrose	Sainsburys	Waitrose	Sainsburys	Ocado	Waitrose	Instacart	Walmart	Safeway
price/unit	95p	GBP £2.65	75p	GBP £2.30	GBP £1.60	GBP £1.66	USD$4.49	USD $4.48	USD $8.09
Pack size	150gm	450gm	150gm	4 x 115gm	250ml	500ml	14 fl.oz 414g	16oz - 450g	14 fl.oz 414g
price/kg	GBP £6.33	GBP £5.89	GBP £5.00	GBP £5.00	GBP £6.40	GBP £1.60	US $10.85	$9.95/kg	$19.54/kg
Conversion rate	GBP £1:$2	GBP £1:$2	GBP £1:$2	GBP £1:$2	GBP £1:$2	GBP £1:$2	US$1: NZ$ 1.77	US$1: NZ$ 1.77	US$1: NZ$ 1.77
NZD	$12.68/kg	$11.78/kg	$10.00/kg	$10.00/kg	$12.80/kg	$6.64/kg	$19.20/kg	$17.62/kg	$34.59/kg
Country	UK - no COO	UK - no COO	UK - no COO	UK - no COO	UK - no COO	UK - no COO	US - no COO	US - no COO	US - no COO

Brand	SAINSBURY'S Cherry juice drink (NFC)	Vitacost Black Cherry dietary supplement	Vitacost Black Cherry (Conc)	Dynamic Health Pure Black Cherry (Conc)	Dynamic Health Pure Black Cherry (Conc)	Bickfords 100% cherry Juice	POM Wonderful Pomegranate & Cherry	Tamaya Pure Cherry Juice	Six Barrel Cherry & Pomegranate Syrup	Cherry More
Channel	Sainsbury's	Walmart	Vitacost website USA	Healthy Pharm	Lucky Vitamin website	New World	Walmart	Tradeling	Six Barrel Soda website	Cherry More Website
price/unit	£1.50	USD 30.68	USD 7.23	£10.83	$25.08	$6.59	$3.72	$AED 69.79	$16.50	$90.00
Pack size	1 litre	946ml	473ml	473 ml	473ml	1 litre	473ml	200ml x 12	500ml	6 x 1 litre
Price / litre	£1.50 / litre	$32.43 USD / litre	$15.29 / litre	£22.90 / litre	$52.92 / litre	$6.59 / litre	$7.86 / litre	$29.08 / litre	$33.00 / litre	$15.00 / litre
Conversion rate	GBP £1:$2	US$1: NZ$ 1.77	US$1: NZ$ 1.77	GBP £1:$2	NZD	NZD	US$1: NZ$ 1.77	UAE : 0.47 NZD	NZD	AU 1 : NZD1.11
NZD	$3.00/litre	$57.40 / litre	$27.06 / litre	$45.79 / litre	$52.93 / litre	$6.59 / litre	$13.92 / litre	$13.68 / litre	$33.00 / litre	$16.65 / litre
Country	UK - No COO	US -no COO	US -no COO	UK from US -no COO	US -no COO	AU	US	UAE - from Chile	NZ cherry juice conc	AU

Germany is the third largest importer of frozen fruit drawing from European neighbours, (similar to the USA sourcing the majority of their frozen fruit from the Americas).

The fourth largest importer of frozen fruits in the world is France with neighbouring countries of Belgium, Portugal, Spain, Italy and further out the Netherlands and Poland being large suppliers to the French. It is possible that both the supply from Belgium and the Netherlands could be supplemented with fruit from other nations as they are both significant logistics hubs for fruit trading.

Wider European trade has at times been impacted by 'tit for tat' volatility, with a 2014 Russian embargo on EU stone fruits amongst other foods causing major market challenges. The recent war with Ukraine has again highlighted food security dependencies and supply chain volatility.

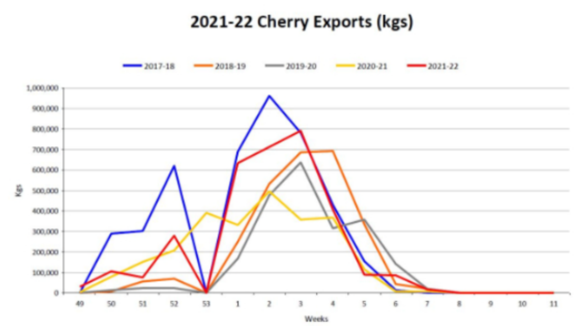
- Russian food embargo leaves Europe with glut of fruit, pork and mackerel | Ukraine | The Guardian
- Europe's peach growers feel pain of Russian sanctions | Financial Times

FRESH NEW ZEALAND STONE FRUIT EXPORTS

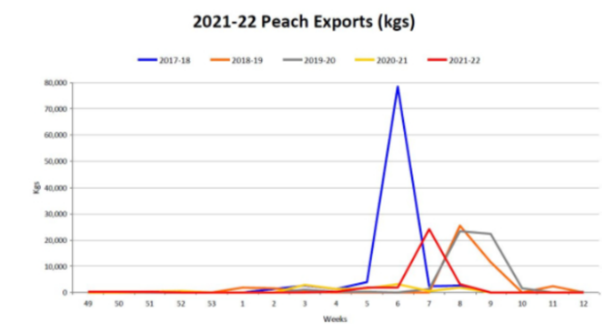
Reviewng NZ stone exports to understand if there are market awareness and opportunities off the back of existing trade relationships.

‘The majority of all nectarines, peaches and plums produced in New Zealand are consumed on the domestic market. Only minor volumes of each are exported, largely to the USA and Pacific.’ This does not present a strong case for leverage for nectarines, peaches and plums.

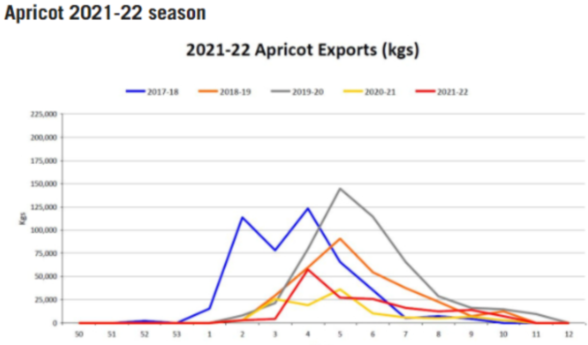
Cherry 2021-22 season



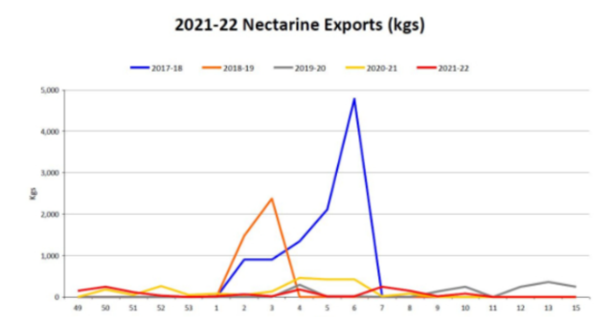
Peach 2021-22 season



Apricot 2021-22 season



Nectarine 2021-22 season



Cherries and apricots produced in Central Otago account for the bulk of all exports.

An overview of the past season's (2021-2022) exports at a country level, show Taiwan, China, Vietnam and the USA being core markets for fresh cherries, with strong sales across Southeast Asia peaking around Chinese New Year.

EXPORT SALES 2021-22 (KGS)

Total data collected – final week ending 13/03/22

	Cherries	Apricots	Nectarines	Peaches	Plums
Australia		149,231			
Canada	7,070				
USA	138,132	16,986		5,385	8,950
Europe					
UK					
China	571,544				
Hong Kong	47,427				
Japan	86,383				
Malaysia	80,302				
South Korea	23,218				
Singapore	79,775			25,000	
Taiwan	1,404,057				
Thailand	221,095				
Vietnam	462,523	1,500			
Pacific	18,277	340	1,364	1,353	1,630
Philippines	59,950				
UAE					
Indonesia	834				
Asia (other)	16,442				
Others	2,200				
Total	**3,219,229**	**168,057**	**1,364**	**31,738**	**10,580**

Countries such as Vietnam have emerged to gain market share from larger markets.

What is important to note is that many food products that typically use cherries source sour or tart varietals (approximately a third of the global market) specifically grown for processing into food products.

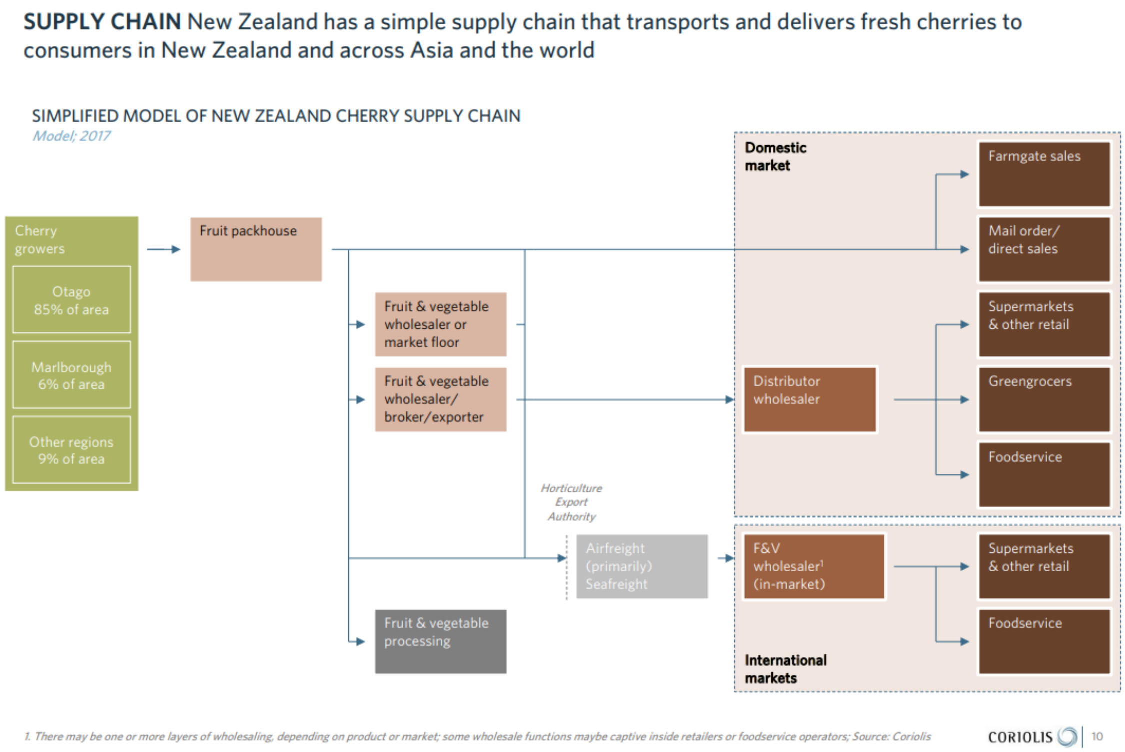
Australia remains the primary export market for New Zealand apricots.

The value of exports and sales on the New Zealand market are evenly balanced, with total export value being only marginally higher than that of fruit sold within New Zealand.'

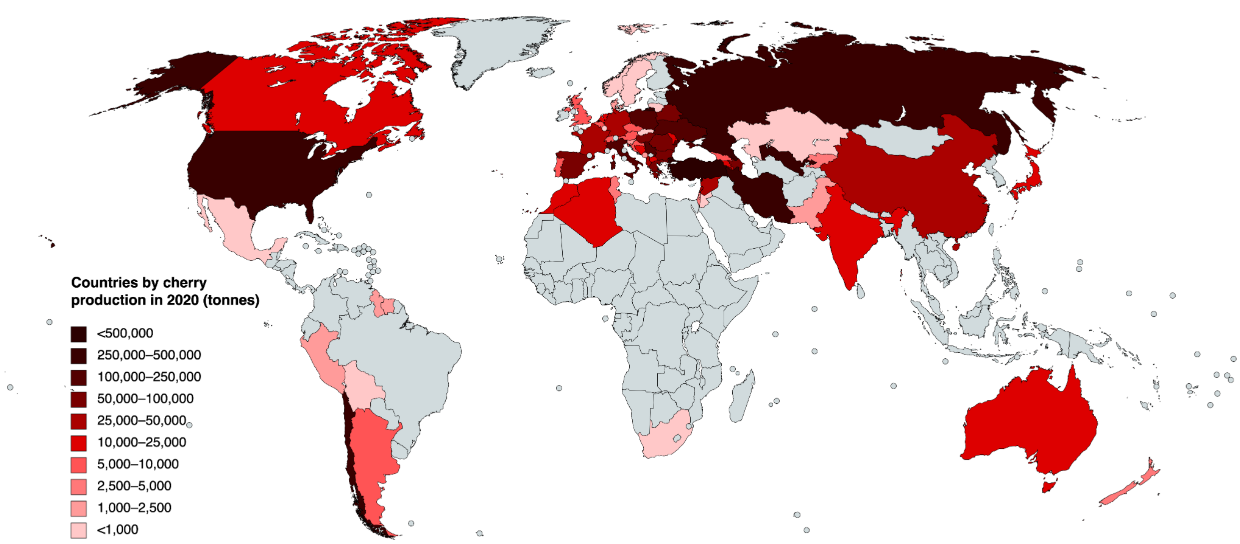
Source: [Industry - Summerfruit NZ]

More up to date data on fresh exports from New Zealand is available from Summerfruit New Zealand. Their [Market data - Summerfruit NZ] shows the 2021/2022 season export sales data across stone fruits into key markets.

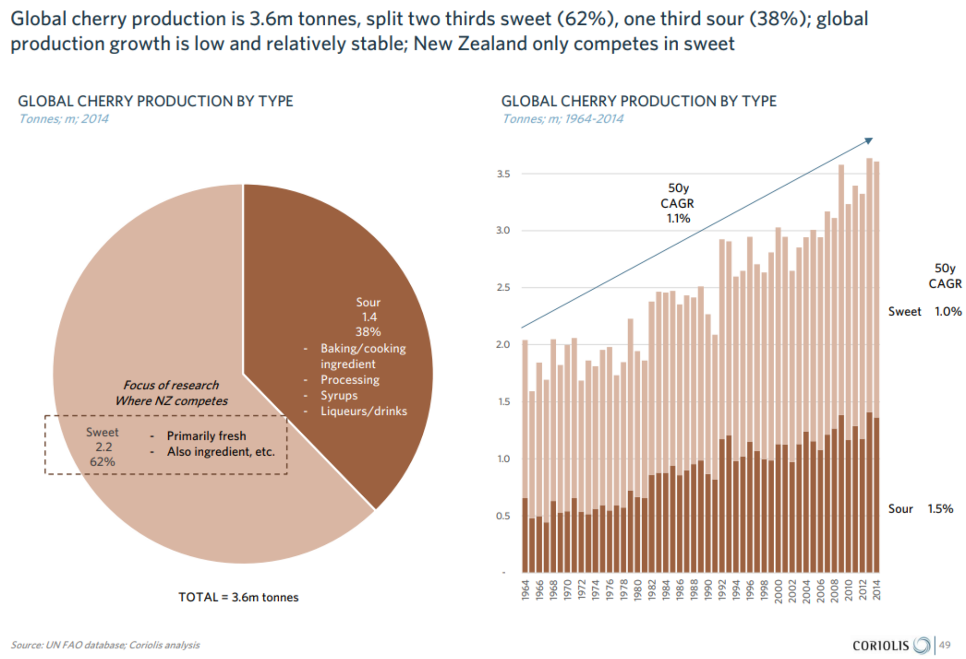
The supply chain for cherries is fairly simple and will be familiar to those in the region.



Flowchart of Sweet Cherry value chain from [Investment Opportunities in the New Zealand Cherry Industry]()



[List of countries by cherry production - Wikipedia]()



Whilst the focus of the report is on cherries, many of the underlying assumptions also support apricots, peaches, apples and nectarines. This slide from an MBIE report highlights the region's natural advantages

- [Regional Growth Opportunities in Food and Beverage Processing Employment in New Zealand]

CONCLUSION

- In summary, this study identified that there are opportunities to add value to process grade fruit from the region.
- There were no quick wins seen in offshore markets based around Otago provenance.
- Understanding the consumer need a product is meeting will be key to delivering a commercial success. This should be considered before any product innovation is undertaken.
- Mapping the regulatory and country requirements for desired markets would be critical before deciding export markets or product formats.
- There was interest expressed from New Zealand fruit processors in accessing more fruit from the Central Otago region. Collective grower participation would enable bolder vision for the region, as a wide range of opportunities came forward that could be de-risked through combined participation.
- A long term vision for the region could start with some simple foundations
- By exploring some basic processing and cool store options, a business model could be established that can then be grown alongside cash flow.

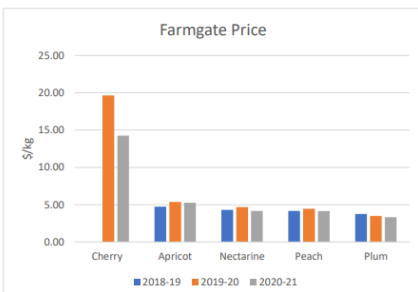
APPENDICES:

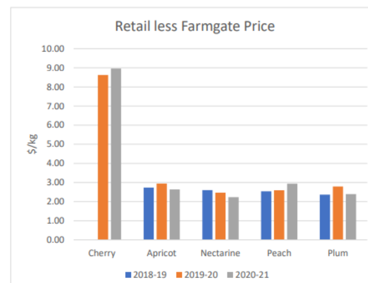
[Barker's Opens First Foodstore and Eatery in Melbourne | Supermarket News]

[Investment Opportunities in the New Zealand Cherry Industry]

Summerfruit NZ prepared data for the past three seasons, highlighting the return to the growers

Summerfruit NEW ZEALAND





https://www.summerfruitnz.co.nz/assets/NZ-market/Three-year-price-comparison-May-2021.pd

CHERRIES [HS080920] QUANTITATIVE

QUANTITATIVE SCORECARD: ACROSS ALL MARKETS	
Import value (US$m; 16)	$2,526
5y CAGR (US$; 11-16)	10%
5y ABS (US$m; 11-16)	+$967
Average $/kg or l (US$; 16)	$4.28
Top 21 highest imp/cap (US$; 16)	$73.32
Top 21 lowest imp/cap (US$; 16)	$0.27
Top 3 importers share	60%
Top 10 importers share	84%
Top 21 w/imports >10% CAGR	8
Top 3 exporters share	76%
Top 10 exporters share	91%
New Zealand share	1.8%
"Strawman" potential exports upside in next decade	+$50-150m

TOTAL GLOBAL IMPORTS

Country	Total import share	Import value; CIF receiver: US$m; 16	Import value; CIF receiver: 5y CAGR	Import value; CIF receiver: 5y ABS	$/kg: US$; 16	$/kg: 5y CAGR	Import per capita US$; 16
China	31.5%	$797	35%	$618	$7.29	-1%	$0.58
Hong Kong SAR	21.2%	$535	24%	$356	$5.38	-1%	$73.32
Germany	7.0%	$176	2%	$14	$2.53	-2%	$2.17
South Korea	5.0%	$125	21%	$77	$9.06	-1%	$2.43
Canada	4.3%	$108	-8%	$(53)	$4.56	-2%	$3.01
Russia	3.6%	$92	-8%	$(45)	$1.36	-4%	$0.63
Taiwan	3.5%	$88	2%	$8	$7.53	8%	$3.76
USA	3.5%	$87	1%	$5	$6.61	10%	$0.27
United Kingdom	2.4%	$62	-5%	$(16)	$3.47	-4%	$0.95
Japan	1.8%	$45	-15%	$(59)	$9.85	0%	$0.36
Kazakhstan	1.7%	$42	28%	$30	$1.76	-6%	$2.39
Italy	1.4%	$35	2%	$4	$2.75	-4%	$0.58
Netherlands	1.2%	$30	-4%	$(7)	$3.10	-5%	$1.79
Austria	1.0%	$26	17%	$15	$2.35	-5%	$3.07
Belarus	1.0%	$26	73%	$24	$1.43	12%	$2.76
France	0.9%	$24	-2%	$(3)	$3.01	4%	$0.35
Belgium	0.7%	$18	-10%	$(13)	$2.81	-5%	$1.64
Singapore	0.7%	$17	3%	$2	$9.16	-1%	$3.18
Switzerland	0.7%	$16	13%	$8	$5.00	11%	$2.00
Sweden	0.6%	$16	28%	$11	$3.73	-6%	$1.62
Norway	0.5%	$13	9%	$4	$6.23	-4%	$2.54
Other	5.7%	$145	-2%	$(14)	$2.51	-4%	
TOTAL	100%	$2,526	10%	$967	$4.28	2%	

TOTAL GLOBAL EXPORTS

Country	Total export share	Export value; CIF receiver: US$m; 16	Export value; CIF receiver: 5y CAGR	Export value; CIF receiver: 5y ABS	$/kg: US$; 16	$/kg: 5y CAGR
Chile	47.9%	$1,210	24%	$802	$6.22	3%
USA	20.3%	$514	0%	$7	$6.51	0%
Turkey	7.8%	$198	11%	$82	$2.97	2%
Spain	4.2%	$106	1%	$6	$3.28	2%
Canada	2.6%	$65	9%	$23	$6.22	4%
Uzbekistan	2.0%	$52	7%	$15	$1.77	-8%
New Zealand	1.8%	$46	26%	$32	$12.19	10%
Australia	1.8%	$45	30%	$33	$11.25	7%
Greece	1.6%	$41	11%	$17	$2.03	-3%
Italy	1.3%	$32	-10%	-$21	$4.88	6%
Argentina	1.0%	$25	12%	$10	$6.98	7%
Germany	1.0%	$24	7%	$7	$2.29	3%
Azerbaijan	0.9%	$23	43%	$19	$1.54	5%
Serbia	0.7%	$19	8%	$6	$1.16	-3%
Netherlands	0.6%	$16	-7%	-$7	$2.81	-9%
Hungary	0.6%	$14	-18%	-$25	$0.73	-13%
Poland	0.6%	$14	0%	$0	$1.13	-5%
Belgium	0.3%	$9	-8%	-$5	$3.88	4%
France	0.3%	$9	-21%	-$19	$2.81	-4%
Syria	0.3%	$8	-11%	-$6	$2.41	10%
Moldova	0.3%	$8	19%	$5	$1.34	3%
Other	1.9%	$47	-5%	-$15	$1.03	-11%
TOTAL	100%	$2,526	10%	$967	$4.28	2%

Note: Totals may not add due to rounding; both exports and imports are as reported by sender and US$ FOB; Source: UN Comtrade; various other published sources; Coriolis analysis

CORIOLIS | 81

HS Code: 080929 - Fruit, edible; cherries, other than sour cherries (Prunus cerasus), fresh|FAO Code: 0531 - Cherries

Unfortunately the international HS codes that give time sequenced information on exports and imports around the world, do not have codes for processed fruit that differentiates between types of fruit and/or processing.

MBIE PRODUCED REPORT - 2017

Another MBIE Coriolis report '[Investment Opportunities in the New Zealand Cherry Industry]' prepared in 2017 suggested an array of value added opportunities for cherries, with two areas of focus including super premium foods and beverages and extracts/health products.

Noting the recommendations do not differentiate between different types or cultivars of cherries. The reference to high levels of melatonin is often linked to Sour/Tart cherries which are small volume plantings in New Zealand and not representative of the local industry. Therefore the findings do require further investigation.

The report highlighted two areas for value added activities in cherries

1. **Select Super Premium Foods and Beverages**
2. **Select extracts, natural health products and nutraceuticals.**

Finally, there are select opportunities to create value-added products from New Zealand cherry waste streams

I. GROWING PRODUCTION	II. SUPPLY CHAIN EFFICIENCIES	III. IMPROVED MARKETING	IV. VALUE-ADDED PRODUCTS

Situation creating opportunity	***Potential investment theme***	***What you would need to believe...***
- There is strong demand across all key Asian markets for New Zealand cherries and premium and super-premium foods and beverages - Premium/super-premium foods and beverages are often given as gifts (e.g. French Cognac) - Gift shops, souvenir shops, and duty-free shops are major outlets for super-premium foods and beverages	Select super-premium foods and beverages	- Select foods and beverages that use cherries as an ingredient (e.g. liqueurs, liqueur-filled chocolates, powdered and freeze dried cherries) can be made from NZ processing grade/export-reject cherries - Products could be differentiated such that they could demand a premium - NZ firms have the marketing skills to deliver on super-premium items
- Often in highly competitive food sectors, successful firms are those that best monetise their waste streams - There is growing demand for natural health products and supplements, both in the Western world and East Asia - Most nutraceuticals are, in practice, value added to existing waste streams (e.g. calcium, green tea) - New Zealand has proven capabilities in nutraceutical science R&D, product development and production (e.g. manuka honey, green lipped mussel extract) - There is a growing body of research linking cherries to various positive health benefits - The NZ cherry industry generates a wide range of waste streams, including skins, pits, bark and leaves)	Select extracts, natural health products & nutraceuticals	- It is possible to extract and market New Zealand cherry extracts as nutraceuticals - Research supports NZ cherries are higher in characteristics that support functional benefits (e.g. antioxidants, melatonin, beta-sitosterol etc.) - New Zealand cherry extracts can compete in a global market - New Zealand cherry extracts can create a point of difference such that they can command higher prices than competitors

In terms of premium beverages being produced in New Zealand, there is a growing range of products using fruits and purees in their products. The phenomenal growth in recent years of artisan gins and whiskeys across New Zealand may also see a corresponding increase in the distillation of fruits.